PROJECT MANUAL AND BID DOCUMENTS
FOR

ROBERT T. WOLFE APARTMENTS
ELEVATOR UPGRADES

49 UNION STREET
NEW HAVEN, CT

AUGUST 30, 2024

CLIENT: GLENDOWER

360 Orange Street, PO Box 1912
New Haven, CT 06511

BY: ***B Squared Engineering, LLC***
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SECTION 00 00 50 - PROJECT DESCRIPTION

PART 1 - GENERAL

This project entails the selective modernization of two 2,000 lb. capacity 8-stop, geared overhead traction passenger elevators serving the Robert T. Wolfe Apartments in the Long Wharf area of New Haven, CT.

The subject elevators were originally installed with the construction of the building in 1970 and subsequently modernized in 1991 by the Schindler Elevator Company. The elevators have front openings only and the motor room is in the mechanical penthouse directly above the elevator hoistways. Limited upgrades have been made to the elevators over the last several years, reportedly necessitated by component failures.

Turnkey project delivery is required, inclusive of all elevator, HVAC, Fire Alarm and Electrical scope items.

The scope of the project will be in general accordance with, but not limited to, the following:

A. Refer to Specification Sections 14 21 20 and 14 40 00.

NOTICE TO BIDDERS:

BIDDERS ARE HEREBY INSTRUCTED TO BID THESE DOCUMENTS EXACTLY AS WRITTEN. NO SUBSTITUTIONS, VALUE ENGINEERING OR ALTERNATES WILL BE ENTERTAINED AT THE TIME OF BIDDING. OWNER MAY ENTERTAIN SUCH VALUE-ADDED ALTERNATES AFTER A LOW BIDDER OR LOW BIDDERS HAVE BEEN IDENTIFIED.

NO OTIS, THYSSENKRUPP, VERTICAL EXPRESS, KONE OR SCHINDLER BRANDED EQUIPMENT SHALL BE ACCEPTED UNLESS SPECIFICALLY OTHERWISE NOTED.

END OF SECTION

SECTION 01 01 00 - SUMMARY OF THE WORK

PART 1 - GENERAL

1.1 Related Documents

The Conditions of the Contract for Construction and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 Description of the Work

A. The Work contemplated by the Contract Documents includes the Work of all trades required and all the labor, equipment, materials, and supervision necessary and incidental to the Elevator Modernization Project at the Robert T. Wolfe Apartments in New Haven, Connecticut.

B. Work will be performed on the elevator in the office are of the building.

C. Main items of the Work required in these areas are described in the Drawings and Specifications.

D. It shall be understood that where additional Work is described, but not specifically located and/or shown on the Drawings, the Contractor shall be responsible for locating and marking areas to be repaired.

E. Refer to Bid Form, for additional work description.

1.3 Work by Others

The Owner may have other Work occurring within or adjacent to the Parking Structure at the same time as this Project. This Contractor shall cooperate at all times with the Owner to ensure that all Work proceeds without delay to scheduled completion.

1.4 Work Sequence

A. Prior to commencement of Work, Contractor shall meet with Owner and Engineer to establish sequence and schedule of Work.

B. Contractor shall notify Owner at least 24 hour prior to beginning any demolition operations.

C. Contractor shall remove all debris from areas exposed to public view and dispose of same.

D. Contractor shall remove dust and air transported abrasive from the remainder of the facility at the conclusion demolition operations.

1.5 Coordination

A. Coordinate, schedule and expedite all phases of the Work and give sufficient notice of Work schedule to the Owner and all trades so that they may have ample time to install their Work.

B. Provide signs and barricades necessary to inform the public of closings and traffic flow modifications both inside and outside of the work site. Sign wording, appearance, and placement shall be approved by the Owner. See Sections 01 53 00, Barriers and Enclosures.

C. Work will not be permitted to proceed until required signage and barricades are in place.

D. Pedestrian barricades shall be of such construction as to prevent pedestrians from entering the work area.

E. Assume full responsibility for protection and safekeeping of products and equipment stored on premises. Only materials and equipment used directly in the construction of this Project shall be stored at the job site. All materials and equipment stored on site shall be kept in a secure and locked location.

F. Move any stored products and equipment which interfere with operations of the Owner or other Contractors, and when no longer required for the Project.

G. Obtain and pay for use of additional storage or work areas needed for operations.

H. Do not unreasonably encumber site with materials or equipment. Do not load structure with weight that will endanger structure.

1.6 Regulatory Requirements

A. All Specifications of national organizations and trade associations related to the building industry such as the American Society for Testing and Materials, American Institute of Steel Construction, American Concrete Institute, Prestressed Concrete Institute, National Board of Fire Underwriters and others as referred to in this Specification, shall mean the latest revision of such specifications except as otherwise noted and adopted.

1.7 Project Meetings

A. Refer to Section 012 0 00 - Project Meetings.

1.8 Contractor Log

A. Contractor shall furnish and maintain one (1) logbook at the Project site. Enter into this log each day:

1. Weather conditions and temperature
2. General progress of the Project

3. Materials received
4. Amount of materials placed
5. Tests made
6. Inspections made by other authorities
7. All visitors to the Project site
8. Unresolved problems

B. Submit for record one copy of the log to the Engineer weekly. Refer to the following page for sample log sheet indicating minimum requirements.

1.9 Examination of Site

A. The contractor shall visit the site of the Work, compare the Drawings and Specifications and other Contact Documents with existing conditions, including other's work, if any, being performed. Failure to visit the site shall in no way relieve the Contractor from the necessity of furnishing of materials or performing any work that may be required to complete the work in accordance with the Contract Documents.

1.10 Verification of Existing Dimensions

A. Where the installation of new construction is dependent on existing dimensions, the Contractor requiring shall be responsible for the verification of existing dimensions prior to the construction or fabrication of materials.

PART 2 - PRODUCTS

2.1 Not used.

END OF SECTION

CONTRACTOR'S LOG

Date:
Job Location:
General Contractor:

Weather Conditions
Time:_____Temp:_____
Wind: 0-5 mph 5-10 mph 10-up
Humidity: Low - Med - High
Sky: Clear - Hazy - Overcast - Rain

No. of Workers on Site:_____

Sub-Contractors on Site:_____

Work Performed

Inspections, Tests Performed

Unresolved Problems

Materials Received

Change Orders Received

Visitors Representing

CC To: Signed:_____

SECTION 01 02 50 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 Related Documents

A. The General Conditions of the Contract for Construction and the General Requirements of Division I of these Specifications apply to the Work in this Section.

1.2 Project Pricing

A. Bidder shall complete Bid Form, including all requested information.

B. Project pricing is a combination of lump sum work items and unit price work items. Refer to below and Bid Form.

1.3 Unit Prices

A. Bidders shall submit unit prices for each unit price item listed in Bid Forms. The amount of each unit price shall be stipulated in the space provided in the Bid Form.

1.4 Lump Sum Prices

A. Bidder shall submit lump sum prices for each lump sum item listed in Bid Form. The amount of each lump sum price shall be stipulated in the space provided in the Bid Form.

1.5 Alternate Work Prices

A. Refer to Section 01 03 00.

1.6 Unit Price Quantity Measurement

A. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

B. Contractor shall maintain plan drawing sepias locating all unit price repairs performed. Location and size of patches, overlays, etc. must be located on clean sepias. Separate sepia shall be maintained for each level and ceiling plan. Contractor shall submit copy of sepia identifying current quantities with each payment request. Work being invoiced must be properly identified. These sepias shall be incorporated into "Record Drawings" set required per Division 1.

C. Quantity measurements shall be performed as described in Specification or shown on Drawings.

1.7 Schedule of Values

A. The Contractor shall prepare a Schedule of Values for his Work as required by the Contract for Construction.

B. Submit the Schedule of Values to the Engineer at the earliest feasible date, but in no case later than seven (7) days before the date scheduled for submittal of the initial Application for Payments.

C. Update and resubmit the Schedule of Values when change orders result in a change in the Contract Sum.

D. Use the project Bid Form as a guide to establish the format for the Schedule of Values.

1.8 Application for Payment

A. The form of Application for Payment shall be notarized and accompanied by all supporting documentation.

B. Complete every entry on the application for payment form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

2. Include amount of change orders issued prior to the last day of construction period covered by the application.

C. Submit three (3) executed copies of each Application for Payment to the Engineer. One copy shall be complete, including waivers of lien and similar attachments, when required.

D. Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:

1. List of subcontractors
2. List of principal suppliers and fabricators
3. Schedule of Values
4. Contractor's Construction Schedule (preliminary, if not final)
5. Schedule of principal products
6. Submittal Schedule (preliminary, if not final)
7. List of Contractor's staff assignments
8. List of Contractor's principal consultants
9. Copies of permits
10. Copies of authorizations and licenses from governing authorities for performance of the Work
11. Initial progress report

12. Certificates of insurance and insurance policies
13. Performance and payment bonds (if required)
14. Data needed to acquire Owner's insurance

E. Administrative actions and submittals which must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Completion of Project closeout requirements
2. Completion of items specified for completion after Substantial Completion
3. Assurance that unsettled claims will be settled
4. Assurance that Work not complete and accepted will be completed without undue delay
5. Transmittal of required Project construction records to Owner
6. Proof that taxes, fees and similar obligations have been paid
7. Removal of temporary facilities and services
8. Removal of surplus materials, rubbish and similar elements
9. Warranties

1.9 Waivers of Mechanics Lien (if applicable)

A. With each Application for Payment submit waivers of mechanics liens from subcontractors or sub-subcontractors and suppliers for the construction period covered by the previous application.

B. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.

C. When an application shows completion of an item, submit final or full waivers.

D. The Owner reserves the right to designate which entities involved in the Work must submit waivers.

E. Submit waivers of lien on forms and executed in a manner acceptable to the Owner.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

SECTION 01 20 00 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 Meetings

A. Pre-construction Meeting: Scheduled within 21 days after contract award or notice to proceed, whichever is earlier.

1. Place and Time: A central site and time, convenient to all parties, as designated by the Engineer.

2. Attendance: Contractor's project manager, Contractor's field superintendent, major subcontractors, Owner's representatives, and Engineer's representatives.

3. Suggested Agenda

a. Project coordination
b. Use of site
c. Submittal and administrative procedures
d. Schedules for construction
e. Application for payment
f. Construction facilities
g. Aids and controls
h. Security
i. Complex structure requirements
j. Insurance certificates
k. Bonds
l. Permits
m. Contractor's log
n. and other job-related subjects.

B. Progress Meetings: Periodic meetings as agreed to by Owner, Engineer, and Contractor and supplementary progress meetings specially called by Owner, Engineer, or Contractor.

1. Place: Project field office of Contractor.

2. Times: Established at pre-construction conference and subsequent meetings as required for progress of the work, generally at least twice per month during construction period.

3. Attendance: Same as for pre-construction conference, as appropriate for the circumstances.

4. Suggested Agenda

   a. Review, approval of minutes of previous meetings
   b. Review of work progress since previous meeting
   c. Field observations, problems, conflicts
   d. Problems that impede Construction Schedule
   e. Review of off-site fabrication, delivery schedules
   f. Corrective measures and procedures to regain projected schedule
   g. Revisions to Construction Schedule
   h. Coordination of schedules
   I. Review of submittal schedules; expedite as required
   j. Review proposed changes for:
      1) Effect on Construction Schedule and on completion date
      2) Effect on other contracts of the Project
   k. And other business.

C. Work phase specific meetings refer to individual sections of the Specifications.

1.3 Procedures

A. The Engineer will act as chairman of the Pre-construction meetings; will prepare the minutes of each meeting, including names of participants, significant proceedings and decisions; and will distribute copies of minutes to the Contractor and the Owner. The Contractor shall be responsible for distributing copies to appropriate subcontractors and suppliers.

B. The Contractor's project manager will act as chairman of the progress meetings; will prepare the minutes of each meeting, including names of participants, significant proceedings and decisions; and will distribute copies of minutes to the Engineer and the Owner. The Contractor shall be responsible for distributing copies to appropriate subcontractors and suppliers.

C. Representatives of the Contractor, subcontractors, and suppliers attending the meeting shall be qualified, familiar with pertinent details of the work, and authorized to act on behalf of the entity each represents.

D. When attendance is required by the Owner or Engineer, attendance shall be mandatory.

END OF SECTION

SECTION 01 30 00 - SUBMITTALS

PART 1 - GENERAL

1.1 Related Documents

A. The General Conditions of the Contract for Construction and the General Requirements of Division 1 of the Specifications apply to the Work of this Section.

1.2 Work Included

A. This Section specifies procedural requirements for submittals for review and approval including schedules, products, materials, samples, shop drawings, and other work-related submittals.

B. Submittals required for informational purposes, record and project closeout (normally two copies) are specified elsewhere and are not a part of this Section.

C. Submittals not requested from the contractor will be returned stamped “Not Required for Review.”

1.3 Engineer Responsibilities

A. The Engineer shall review and approve Contractor submittals such as schedules, products, materials, samples, and shop drawings for the limited purpose of conformance with the design concept and the information expressed in the Contract Documents.

B. The Engineer shall not be responsible for any deviations from the Contract Documents not brought to the attention of the Engineer in writing by the Contractor.

C. The Engineer shall not be required to review partial submittals or those for which submissions or correlated items have not been received. However, review of a specific item shall not indicate that the Engineer has reviewed the entire assembly of which the item is a component.

D. The “actions taken” appearing on the Engineer's Approval Stamp shall be defined as follows:

1. “Approved” - Fabrication and/or installation may be undertaken. Approval does not authorize changes to the Contract Sum or Contract Time unless stated in separate letter or Change Order.

2. “Approved as Noted” - Fabrication and/or installation may be undertaken. Exceptions as noted are to be incorporated. Approval does not authorize changes to the Contract Sum or Contract Time unless stated in separate letter or Change Order.

3. “Revise and Resubmit” - Fabrication and/or installation MAY NOT be undertaken until exceptions as noted are incorporated and resubmitted for approval. Revision does not authorize changes to the Contract Sum or Contract Time.

4. “Rejected” - Fabrication and/or installation MAY NOT be undertaken. Submittal is too incomplete or does not meet Contract Documents. Resubmit for approval. Rejection does not authorize changes to the Contract Sum or Contract Time.

1.4 Contractor Responsibilities

The submittals are not to be considered a part of the Contract Documents.

A. Submittals shall demonstrate that the Contractor understands and has interpreted the intent of the design as detailed and specified in the Contract Documents. The Contractor shall check and approve submittals for accuracy or completeness of details, such as quantities, dimensions, weights or gauges, fabrication processes, construction means or methods, coordination of the work with other trades, construction safety precautions and verification of field dimensions or conditions. The Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.

B. All submittals to the Engineer shall be routed through the Contractor and bear the Contractor's Approval Stamp certifying they have been checked. All submittals to the Engineer without this stamp of approval in the Engineer's opinion, are incomplete, contain obvious errors or have not been checked or have been checked superficially, will be returned unchecked and unstamped by the Engineer for resubmission by the Contractor.

C. The Contractor will begin no work which requires submittals until submittals bear the Contractor's and Engineer's stamp along with an “Issued For Construction For Field Use” notation by the supplier.

1.5 General Submittal Procedures

A. All submittals shall be received in an orderly sequence and sufficiently in advance of construction requirements to allow time for checking, resubmitting and rechecking.

1. The Engineer's review shall be conducted with reasonable promptness while allowing ten (10) working days for processing.

2. The Engineer will advise the Contractor and/or Architect when it is determined that a submittal being processed must be delayed for coordination with other submittals.

3. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Engineer sufficiently in advance of the work.

B. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Engineer's need to review a related submittal. The Engineer reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are received.

C. Submittal Review Label:

1. Mark each submittal with a permanent label for identification. In the case of products, materials and samples, use the enclosed Submittal Review Label. Provide the following information on the Label for proper processing and recording of action taken.

a. Date and revision date
b. Project title and number
c. The names of:
    1.) Engineer
    2.) Contractor
    3.) Sub-Contractor
    4.) Supplier
    5.) Manufacturer
    6.) Separate detailer when pertinent
d. Identification of product or material
e. Relation to adjacent structure or materials
f. Field dimension clearly defined as such
g. Specification Section
h. Applicable standards such as ASTM number or Federal Specification
i. A blank space, 4 x 5" for the Engineer's approval stamp at the lower right-hand corner of Drawings
j. Identification of deviations from the Contract Documents
k. Contractor's approval stamp, dated and initialed or signed
l. Drawing number and Detail References, as appropriate

D. Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Engineer, and to other destinations as indicated, by use of a transmittal form. Submittals received from sources other than the Contractor will be returned to the Sender “without action.”

1.6 Specific Submittal Procedures

A. Schedules

1. Construction Progress Schedule:

a. Within 10 days after execution of the Contract, submit to the Engineer for review five (5) copies of an estimated Construction Progress Schedule in Critical Path Method (CPM) (or bar chart) form.

b. Scheduling shall include provisions for materials cure time, adverse weather, and materials procurement.

c. Schedules for restoration work shall indicate the areas to be closed during each phase of construction and shall indicate the proposed traffic flow for each phase.

2. Shop Drawing Schedule

a. Submit to the Engineer for review and approval five (5) copies of the Shop Drawing Submissions Schedule.

3. After the initial review, submit revised and updated copies of schedules as may be required by current or projected status of the project on a monthly basis.

B. Products and Materials:

1. Submit to the Engineer for review five (5) copies of Manufacturer's Specifications and Product Data Sheets, Health and Safety Data Sheets, and recommended installation procedures.

2. Collect required product data into a single submittal for each unit of work or system.

3. Mark each copy to identify pertinent materials, products or models.

4. Show dimensions and clearances.

5. Modify drawings to delete information which is not applicable to project.

6. Supplement standard information to provide additional information applicable to project.

C. Samples

1. Submit physical samples for the Engineer's visual review of kind, color, pattern and texture of the work. Samples are also to be submitted for quality control comparison between the final sample submittal and the actual work as it is delivered and installed.

2. Provide samples that are physically identical with the proposed material or product to be incorporated in the work. Provide fully fabricated samples cured and finished in the manner specified. Where variations in color, pattern or texture are inherent in the material or product represented by the sample, submit multiple units of the sample (not less than three (3) units) which show the approximate limits of variations. Mount, display or package samples in a manner to facilitate the review of indicated qualities.

D. Shop Drawings

1. Information required on Shop Drawings include dimensions, identification or specific products and materials which are included in the work, compliance with specific standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle or otherwise indicate deviations from the Contract Documents on the Shop Drawings.

    a. Preparation: Submit Shop Drawings on sheets not less than 8-1/2" by 11"; the maximum sheet size shall not exceed 30" by 42".
    b. Reproducing Contract Documents or copying standard printed information as the basis for Shop Drawings is not permitted.
    c. Submit for Engineer's review one (1) reproducible and five (5) prints or copies. One (1) print will be retained by each party involved in the approval process for use in making comments. Each party will transfer comments to the reproducible and forward the reproducible and remaining unmarked prints to the next party involved in the approval process.

E. Test Reports

1. Promptly submit a written report of each test and inspection for record, two (2) copies each to the Contractor, Engineer, and Owner. Each report shall include:

    a. Date issued
    b. Project title and number
    c. Testing laboratory name, address, and telephone number
    d. Name and signature of laboratory inspector
    e. Date and time of sampling or inspection
    f. Record of temperature and weather conditions
    g. Date of test
    h. Identification of product and Specification Section
    i. Location of sample or test in the Project
    j. Type of inspection or test
    k. Results of tests and compliance with Contract Documents
    l. Interpretation of test results, when requested by the Engineer

1.7 General Resubmission Requirements

A. Revise initial submittal as required and resubmit as specified for the initial submittal. Clearly indicate all changes which have been made by clouding and use of revision number in a triangular symbol.

B. Review of resubmittals by the Engineer shall be limited to required corrections only, and the Contractor by resubmitting shall represent that the resubmittals contain no other alterations, additions or deletions. If additional changes have been made, same shall be specifically noted and described on the resubmittal.

1.8 Submittal Distribution

A. Contractor shall be responsible for distribution of □Field Use□ drawings to the following:

1 copy - Owner
1 copy - Engineer

B. Contractor shall provide “Issued for Construction for Field Use” drawings as required for all field construction activities including distribution to subcontractors and material suppliers.

END OF SECTION

B SQUARED ENGINEERING
CONTRACTOR SUBMITTAL REVIEW LABEL

Project: _____ Project No:
Contractor: _____ SubContractor:
Supplier: _____ Manufacturer:
Date: _____ Revision Date:

Submitted Product:
Specification Section:
Specified Material?: Yes / No
Product Use: _____ Ref Dwg # and Detail
Date Submittal Received by B^2 Engineering:

_____

B^2 Engineering Comments: _____
Contractor Comments:

_____

_____

Contractor's Approval Stamp

Engineer's Shop Drawing Review Stamp

The Engineer's review is for the purpose of reviewing general conformance with design concept and information provided within the Contract Documents. B Squared Engineering has not reviewed dimensions, quantities, fabrication processes, construction techniques, Contractor means and methods, or coordination among trades. Based on the above, the review of this submittal is:

- ☐ NO EXCEPTIONS TAKEN
- ☐ EXCEPTIONS NOTED
- ☐ EXCEPTIONS NOTED - RESUBMIT
- ☐ REJECTED
- ☐ REJECTED – NOT REVIEWED
- ☐ NOT REVIEWED
- ☐ INFORMATIONAL ONLY

Review and/or Action items does not alter not extend any contractual obligations of the Engineer or Contractor. No authorization to the Contract Sum, Time or Scope of Work of the Project is authorized by this review.

B SQUARED ENGINEERING
169 MILL BROOK ROAD
STAMFORD, CT 06902

By _____ Date_____

SECTION 01 53 00 - BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division I of these specifications apply to the Work in this Section.

1.2 Barricades

A. Provide and maintain suitable barricades as required to prevent public entry, and to protect the Work, existing facilities, trees and plants from construction operations; remove when no longer needed, or at completion of Work. Barricades shall conform to city and state laws, ordinances, permit requirements.

B. The Contractor shall provide and maintain all necessary barricades for safe conduct of his work, or as required by federal, state or local laws or ordinances and in accordance with OSHA requirements and other requirements of this Specification.

C. Construct and maintain 5-foot-wide covered pedestrian walkways, railings, and fence in strict accordance with all applicable codes for protection of pedestrians and parking structure users. Automobile traffic on adjacent streets shall also be protected at all times.

D. Provide and maintain suitable barricades as required for protection of open excavations and post with warning lights.

1.3 Enclosures

A. Enclosures shall be sufficient to prevent entrance/exit or infiltration of rain, water, wind or other elements, and which will prevent undue heat loss from within an enclosed area.

B. Provide adequate ventilation and protection to provide construction personnel with safe working environment.

C. Prevent hazardous accumulations of dusts, fumes, mists, vapors, or gases in areas occupied during construction. Provide local exhaust ventilation to prevent harmful dispersal of hazardous substances into atmosphere of occupied areas. Dispose in manner that will not result in harmful exposure to person. Ventilate storage spaces containing hazardous or volatile materials.

D. Contractor shall submit to the Owner, for approval, proposed methods used to contain dust and fumes in work area.

E. Contractor shall be responsible for any damage to vehicles due to the construction.

1.4 Construction/Maintenance

A. Contractor shall be responsible for design, construction and maintenance of all barricades and enclosures.

PART 2 - PRODUCTS

2.1 Materials may be new or used, suitable for intended purpose.

PART 3 - EXECUTION

3.1 Installation

A. Install barricades and enclosures of a neat and reasonable uniform appearance, structurally adequate for the required purposes.

B. Maintain barricades and enclosures during entire construction period. Relocate barricades and enclosures as required with progress of construction.

3.2 Removal

A. Completely remove barricades and enclosures when construction has progressed to the point that they are no longer needed.

B. Clean and repair damage caused by installation of barricades and enclosures.

END OF SECTION

SECTION 01 54 00 - PROTECTION OF OCCUPIED SPACE

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 Work Included

A. The Work of this Section shall include protection of occupied space such that Owner activities are not interrupted during normal business hours. Contractor may work within occupied area during hours stated within this Specification. At all other times, Contractor must remove all evidence of construction within occupied area.

1.3 Related Work

A. Refer to Section 01 53 00 – Barriers and Enclosures.

1.4 Design/Maintenance

A. Contractor shall be responsible for design, construction and maintenance of all protection.

PART 2 - PRODUCTS

2.1 Materials may be new or used, suitable for intended purpose.

PART 3 - EXECUTION

3.1 General

A. Provide and maintain suitable protection as required to protect the Work and existing facilities; remove protection materials when no longer needed, or at completion of Work. Protection shall conform to city and state laws, ordinances, permit requirements.

B. Maintain all necessary temporary protection for safe conduct of the Work, or as required by federal, state or local laws or ordinances and in accordance with OSHA requirements and other requirements of this Specification.

C. Provide adequate ventilation and protection to provide construction personnel with safe working environment.

D. Work hours over occupied space shall be coordinated with Owner and respective tenants of the occupied space.

E. Install facilities of a neat and reasonable uniform appearance, structurally adequate for the required purposes.

F. Maintain barriers during entire construction process. Relocate barriers as required by progress of construction.

3.2 Installation

A. Coordinate all activities with Owner.

B. Contractor to systematically remove and reinstall ceiling for inspection prior to beginning repairs.

C. Contractor to report to Engineer inaccessible slab areas requiring repairs.

D. Provide canvas tarps beneath work area and adjacent 10 feet perimeter, minimum. Tarps to cover all floor and counter areas.

E. Provide vertical partitions at work perimeters for containment. As a minimum, containment partitions shall consist of wood frames with sheet plastic. Partitions shall extend from floor to ceiling tiles. All space between top of partitions and ceiling tile shall be sealed.

F. Remove and protect ceiling tiles in area to be repaired. Remove sufficient ceiling area to allow work to proceed in efficient manner.

1. Add additional ceiling frame support as required prior to demolition.

2. Protect ceiling tiles, lights, framework, and other materials/equipment to remain.

3. Coordinate electrical disconnect of lights with Owner.

G. Install temporary shoring and debris platform within 4 feet of ceiling.

H. Provide temporary support of all utilities (sprinkler, HVAC, mechanical, etc.) where existing support may be undermined by Work.

I. Support formwork and shoring off structure slab (Refer to Drawings). Shoring within occupied area will not be allowed when reopened to Owner.

J. Support plastic sheet directly below formwork to collect water that may leak from above. Plastic sheet to be above ceiling grid. Contractor to inspect plastic and supports daily and drain collected water as required.

K. Reinstall ceiling tiles.

L. Complete demolition from above (and below as required).

M. Prepare reinforcement steel after formwork is in place. Close openings in formwork with foam rod.

N. Place concrete (or during next work period).

O. Clean-up debris in work area (broom clean); remove enclosures and projection.

P. Wet cure concrete (wet burlap; no continuous water source).

Q. After 7 days, remove formwork (reinstall ceiling tiles).

R. During overlay concrete curing period, if leak develops in occupied area, Contractor to reinstall plastic sheet.

3.3 Removal

A. Completely remove barricades when construction has progressed to the point that they are no longer needed.

B. Clean and repair damage caused by installation of barricades.

END OF SECTION

SECTION 01 58 00 - PROJECT IDENTIFICATION SIGN

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 Work Included

A. The work of this Section shall include furnishing all labor, material, equipment, and supervision to install project identification sign and information signs.

PART 2 - PRODUCTS

2.1 Project Identification Sign

A. The project identification sign shall include the Owner's name, Project name, Contractor's name, Engineer's title and name, and Architect's title and name. Materials shall be approved by the Engineer and Owner prior to construction.

B. The sign board shall be 3/4" plywood with medium density overlay, standard large sizes to minimize joints, or equal and shall measure 8' x 4'. Provide even, smooth surface without waves or buckles. Posts shall be 4" x 4" wood posts 12' long. The sign shall be fastened to the posts with 6" bolts, washers, and nuts.

C. The sign board shall be painted (color) and the lettering on the sign shall be painted to match Owner's requirements. Graphic design, lettering style and size to be approved by the Owner.

D. Erect on the site at a lighted location of high, public visibility, adjacent to the main entrance to the site, unless otherwise approved by the Architect and Owner.

E. The cost of this item including construction materials, painting, erection, and removal shall be considered incidental to construction and no additional compensation will be allowed.

2.2 Informational Signs

A. Painted signs with painted lettering, or standard products.

1. Size of Signs and Lettering: As required by regulatory agencies, or as appropriate to the usage.

2. Colors: As required by regulatory agencies, otherwise of uniform colors throughout the Project.

B. Erect at appropriate locations to provide the required information.

2.3 Rough Hardware

A. Galvanized

2.4 Paint

A. Colors for structure, framing, sign surfaces, and graphics, as selected by the Owner.

PART 3 - EXECUTION

3.1 General

A. Provide and maintain Project identification sign throughout the duration of the Project.

B. Provide temporary on-site informational signs as required by codes, laws, and regulatory agencies to identify key elements of the construction facility and to assist in traffic direction.

C. Allow no other signs to be displayed.

3.2 Project Identification Sign

A. Paint all exposed surfaces of supports, framing, and surface material; one coat of primer and one coat of exterior paint.

B. Paint graphics in the styles, sizes, and colors as selected.

C. Locate bottom edge of sign not less than 5'-0" from the ground line.

3.3 Informational Signs

A. Paint all exposed surfaces; one coat of primer and one coat of exterior paint.

B. Paint graphics in the styles, sizes, and colors as selected.

C. Install at a height of optimum visibility, on ground-mounted poles or attached to temporary structural surfaces.

3.4 Maintenance

A. Maintain signs and supports in a neat, clean condition; repair damages to structure, framing or sign.

B. Relocate informational signs as required by progress of the work.

3.5 Removal

A. Remove signs, framing, supports, and foundations at completion of Project.

END OF SECTION

SECTION 01 60 00 - MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 Material and Equipment

A. Comply with the applicable specifications and standards.

B. Comply with size, make, type, and quality specified.

C. Manufactured and fabricated products

1. Design, fabricate, and assemble consistent with the current engineering and shop practices.

2. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.

3. Two or more items of the same kind shall be identical, by the same manufacturer.

D. Do not use material or equipment for any purpose other than that for which it is designed or specified.

1.3 Manufacturer's Instructions

A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to the Engineer. Maintain one set of complete instructions at the job site during installation and until completion.

B. Handle, install, connect, clean, condition, and adjust products in strict accord with such instructions and in compliance with specified requirements.

1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with the Engineer for further instructions.

2. Do not proceed with work without clear instructions.

1.4 Transportation and Handling

A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with Work and conditions at the site.

1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.

2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals and that products are properly protected and undamaged.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.5 Storage and Protection

A. Store products in accord with manufacturer's instructions and as required by the technical specification, with seals and labels intact and legible.

1. Store products subject to damage by the elements in weather tight enclosures.

2. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

B. Exterior storage

1. Store fabricated products above the ground on blocking skids, prevent soiling or staining. Cover products which are subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.

2. Store loose granular materials in a well drained area on solid surfaces to prevent mixing with foreign matter.

C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration.

D. Protection after installation

1. Provide substantial coverings as necessary to protect installed products from damage from weather, traffic and subsequent construction operations. Remove when no longer needed.

END OF SECTION

SECTION 01 63 00 - SUBSTITUTIONS

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division 1 of these Specifications apply to the Work in this Section.

1.2 General

A. Whenever the proposal of substitute material, equipment, or process is permitted by the Specifications, the proposed substitute material, equipment, or process shall be submitted in accordance with the General Conditions, and subject to the following.

B. Materials or products specified by name of manufacturer, brand, trade name, or catalog reference shall be the basis of bid and are given only to establish quality, design, color, or workmanship. Where two or more materials are named, choice of these shall be optional with Contractor. Where any of the terms "or equivalent," "or approved," "as approved," etc., appear in the specifications or drawings, alternate materials, products, or procedures may be used provided substitution is accomplished by one of the following:

1. Request for Change Before Bid Submission: Bidder or Supplier may submit a proposed change to Engineer for approval prior to ten (10) days before bid submission. Approval or rejection of each proposed substitution or other change shall be at discretion of Engineer. If proposed change is approved, Engineer will issue written statement certifying same.

2. Request for Change at Time of Bid Submission by Voluntary Alternate: Bidder may submit Voluntary Alternates for materials, products, or procedures for which he also submits bona fide Base Bid proposals. Voluntary Alternates shall be submitted in list form, naming each proposed substitute and difference, if any, which will be made in the Contract price for each alternate, should it be accepted. Owner may accept or reject each individual Voluntary Alternative.

3. As specified under Requirements.

1.3 Requirements

A. After the start of construction, the proposal of substitute material, equipment or process will be considered only for one of the following reasons:

1. The manufacture or production of the specified material, equipment, or process has been discontinued.

2. The specified material, equipment, or process is not available in sufficient quantity or quantities to complete the Work. Failure of the Contractor to award subcontracts in sufficient time, or failure of the Contractor and/or the Sub-contractor involved to place orders for material, equipment, or process so as to insure delivery or execution without delaying the Work shall not establish cause for approval of substitutions.

3. Delays beyond the control of the Contractor such as, but not limited to, strikes, lockouts, storms, fires or earthquakes, which preclude the procurement and delivery of material or equipment for the Project as included in Contractor's proposal.

4. Advancement of the delivery date, provided this advances the overall progress of the Work.

5. Improvement in quality or function of the material, equipment or process.

B. If, after the start of construction, the Contractor proposes a substitute to the project, the Contractor must submit a separate request for each material, equipment or process supported with complete data with drawings and samples as appropriate, including:

1. Comparison of the qualities of the proposed substitution with that specified.

2. Changes required in other elements of the work because of substitution.

3. Effect on the construction schedule.

4. Cost data comparing the proposed substitution with the product specified.

5. Any required license fees or royalties.

6. Availability of maintenance service and source of replacement materials.

C. After the start of the construction, any proposed substitute material, equipment or process shall be subject to the following conditions:

1. Submittal of the proposed substitute per the General Conditions.

2. Submittal of the request for a substitution early enough to allow ample lead time for the Engineer's review, preparation of the submittals, fabrication and delivery, without delaying the Work.

3. Approval of substitutions by the Engineer and the Owner.

D. The Engineer shall be the judge of the acceptability of the proposed substitute.

E. A request for substitution constitutes a representation that Contractor has investigated the proposed substitute and determined that it is equal to or superior in all respects to that specified.

PART 2 - PRODUCTS

2.1 Not used.

PART 3 - EXECUTION

3.1 Not used.

END OF SECTION

SECTION 01 70 00 - PROJECT CLOSEOUT AND WARRANTIES

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division I of these specifications apply to the Work in this Section.

1.2 Cleaning and Closeout

A. Refer to Section 01560 "Construction Cleaning" for final cleaning of jobsite.

B. A punch list consisting of a sepia of the plans showing locations of unacceptable items and an attached explanation of the nature of the unacceptable work shall be delivered to the Contractor after substantial completion of the Project.

C. The Contractor shall submit "Record Drawings" after substantial completion of the project. The "Record Drawings" shall include, but not be limited to, the sepias of the Drawings incorporating all changes and bulletins (enclosed in clouds), all shop drawings incorporating all changes (enclosed in clouds), and all approved submittals. Any dimensions beyond the tolerances of those established by nationally recognized standards for the specific CSI division or section applicable shall be included on the as-builts.

D. "Record Drawings" shall also include location and size of all concrete patches and cracks.

E. Closeout submittals include, but are not limited to, the following:

1. Project record documents
2. Operation and maintenance data
3. Keys and keying schedule
4. Spare parts
5. Maintenance manuals
6. Extra stock
7. Certificate of Inspection
8. Warranties

F. Evidence of payments and release of liens:

1. As required by Contract for Construction.

1.3 Project Record Documents

A. Maintain at Project site, one copy of:

1. Contract Drawings (blueline prints)
2. Project Manual, including agenda
3. Approved Shop Drawings
4. Change Orders and Field Change Authorization
5. Other modifications to Contract
6. Field test records

B. Store documents in temporary field office apart from documents used for construction. Provide files and racks for storage of documents.

C. Maintain documents in clean, dry, legible conditions; do not use record documents for construction purposes.

D. Make documents available at all times for inspection by Engineer and Owner.

E. Contract Drawings: Legibly mark using a red pencil for all graphic work and red ink for all written work to record actual construction:

1. Depths of various elements of foundation in relation to first floor level.
2. Field changes of dimension and detail.
3. Changes not made by change order and field change authorization.
4. Details not on original Contract Drawings.

F. Specifications and Addenda: markup each Section to record:

1. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
2. Change made by change order, field change authorization and notice of clarification.
3. Other matters not originally specified.

G. Shop Drawings: Maintain as record documents; legibly annotate Shop Drawings to record changes made after approval.

H. At completion of Project, deliver Record Documents to Engineer.

1.4 Warranties

A. The act of the Contractor in executing the Agreement for this Work shall be considered as his acceptance of the following guarantee covering the Project:

1. Any materials, workmanship or equipment furnished as a part of this Project which prove defective or fail to operate properly, within one (1) year, or as otherwise specified in the Contract Documents, of the date of acceptance of the Work required under this Project (damage by wear and tear, violence or casualty not the fault of the Contractor excepted), shall be repaired and replaced by the Contractor promptly upon notification from the Owner and without cost to the Owner.

2. This guarantee provision shall apply regardless of whether or not such defective workmanship, materials or equipment are listed in the final punch list. Date of acceptance (or substantial completion) will be established by the Owner and Engineer upon finding all items of this Project substantially complete as to quality of workmanship and materials. Also see Division 7 for additional guarantees.

3. Contractor shall provide warranty commencing on the date of Project acceptance. Completion of various Project phases shall not initiate commencement of warranty in these specific areas. A single Project warranty date, at Project acceptance, will constitute commencement of warranty,

END OF SECTION

SECTION 01 73 00 - OPERATING AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 Related Documents

A. The Conditions of the Contract for Construction and the General Requirements of Division I of these specifications apply to the work in this Section.

1.2 Compile product data and related information appropriate for the Owner's maintenance and operation of products furnished under the Contract. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of the Specifications.

1.3 Instruct the Owner's personnel in the maintenance of products and in the operation of equipment and systems.

1.4 Prepare data in the form of an instructional manual for use by the Owner's personnel.

1.5 Content of the Manual

A. Neatly typewritten table of contents for each volume, arranged in a systematic order.

1. Contractor, name of responsible principal, address and telephone number.

2. A list of each product required to be included, indexed to the content of the volume.

3. List with each product the name, address and telephone number of:

   a. Subcontractor or installer
   b. Maintenance contractor, as appropriate
   c. Identify the area of responsibility of each
   d. Local source of supply for parts and replacement

4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.

B. Product Data

1. Include only those sheets which are pertinent to the specific product.

2. Annotate each sheet to:

   a. Clearly identify the specific product or part installed.
   b. Clearly identify the data applicable to the installation.
   c. Delete references to inapplicable information.

C. Drawings

1. Supplement product data with drawings as necessary.

2. Coordinate drawings with information of Project Record Documents to assure correct illustration of completed installation.

3. Do not use Project Record Documents as maintenance drawings.

D. Written text, as required to supplement product data for the particular installation.

1. Organize in a consistent format under separate headings for different procedures.

2. Provide a logical sequence of instructions for each procedure.

E. Copy of each warranty, bond, and service contract issued.

1. Provide information sheet for the Owner's personnel and give:

a. Proper procedures in the event of failure.
b. Instances which might affect the validity of warranties or bonds.

1.6 Manual for Materials and Finishes

A. Submit three (3) copies of complete manual in final form.

B. Content for architectural products, applied materials and finishes.

1. Manufacturer's data, giving full information on products.

2. Instructions for care and maintenance.

C. Provide complete information for products as specified in each respective Section.

1.7 Manual for Equipment and Systems

A. Submit three (3) copies of complete manual in final form.

B. Content for each unit of equipment and system, as appropriate.

1. Description of unit and component parts
2. Operating procedures
3. Maintenance procedures
4. Servicing and lubrication schedule
5. Original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance
6. As-installed control diagrams by control's manufacturer
7. Other data as required under pertinent Sections of the Specifications

C. Content for each electric and electronic system, as appropriate:

1. Description of system and component parts
2. Circuit directories of panel boards
3. As-installed wiring diagrams
4. Operating procedures
5. Maintenance procedures
6. Other data as required under pertinent Sections of the Specifications

D. Additional requirements for operating and maintenance data under pertinent Sections of the Specifications.

1.8 Instruction of the Owner's Personnel

A. Prior to final inspection or acceptance, fully instruct the Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.

B. Operating and maintenance manual shall constitute the basis of instruction.

1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

END OF SECTION

SECTION 14 21 20 – OVERHEAD TRACTION ELEVATOR UPGRADES

PART 1 - GENERAL

1.1 General

A. These specifications are intended to cover the selective modernization of two (2) overhead traction elevators in the existing hoistways of the subject building in a first-class workmanlike manner, by the Elevator Contractor.

B. The work and/or requirements specified in all sections is described in the singular with the understanding identical work, services, parts and materials shall be provided and/or performed when conditions warrant, and desired finished product required such unless otherwise specified herein.

C. Items specified are new for all elevators unless specifically identified otherwise. Refer to all contract documents for additional details and requirements.

D. The Contractor is responsible for all items required by Code for final acceptance, whether specified or not.

E. Schedule the work such that one elevator remains operational at all times.

ALL EQUIPMENT PROVIDED AS PART OF THIS PROJECT SHALL BE NON-PROPRIETARY AND OPEN SOURCE. NO OTIS, THYSSENKRUPP, KONE, SCHINDLER, FUJITEC OR VERTICAL EXPRESS BRANDED EQUIPMENT SHALL BE ACCEPTED UNLESS SPECIFICALLY OTHERWISE NOTED.

1.2 Related Work

A. Refer to the balance of the Contract Documents for work related to and associated with the elevator scope of work.

1.3 Quality Assurance

A. Approved equipment and component manufacturers:

1. Controller – Alpha Controls or Approved Equal
2. Tracks, hangers, interlocks and door operators – GAL or Approved Equal
3. Fixtures – Innovation, MAD, Monitor or Approved Equal
4. Door Protective Device - Tri-Tronics, Janus or Approved Equal
5. Hoist Motor – Imperial Electric, Reuland Electric, or Approved Equal

1.4 Standards

A. Except as modified by governing Codes and by this Division, the work shall comply with provisions of the latest editions of the following, and in the event of conflict between these standards, the Elevator Consultant's determination shall be final:

1. Local and/or State laws applicable for logistical area of project work including but not limited to:
    - State of Connecticut Safety Code for Elevators and Escalators
    - City of New Haven, CT local requirements and ordinances.
2. Safety Code for Elevators and Escalators, ASME A 17.1 and all supplements.
3. Guide for Inspections of Elevators, Escalators, Moving Walks, ASME A17.2
4. Safety Code for Existing Elevators and Escalators, ASME A17.3
5. Guide for emergency evacuation of passengers from elevators, ASME A17.4
6. NFPA Life Safety Code, Latest Edition
7. National Electrical Code (ANSI/NFPA 70)
8. Title III of the Americans with Disabilities Act (ADAAG)
9. International Building Code.
10. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
11. NEMA: National Electrical Manufacturers Association.
12. NFPA: National Fire Protection Association
13. OSHA: Occupational Safety & Health Administration.
14. UL: Underwriter Laboratories.
15. IEEE: Institute of Electronic & Electrical Engineers.
16. AIA: American Institute of Architects.
17. ADA: Americans with Disabilities Act.

The Contractor shall advise the Consultant and Owner of pending code changes that could be applicable to this project or property.

1.5 Submission, Samples, Cuts and Drawings

A. Within fourteen (14) days of the Letter of Award, the Contractor shall provide three (3) sets of submissions. Partial submissions are not acceptable. All submissions shall be made at one time, complete, in a single package. Transmittal letter shall be marked with Contractor's name, project name and contract number.

B. The Contractor shall survey the shaft, machine room and pit and obtain all measurements and conditions which are related to his work. The Contract Documents are for reference only and shall not be considered sufficiently accurate for the proper engineering of the system(s).

C. The Shop Drawings shall show material type and gauge, general dimensions, methods of attachment, location and size of reinforcements and openings, and a general arrangement of components. Approval thereof shall not relieve the Contractor of compliance with the specification, unless the attention of the Elevator Consultant is called to the non-complying features in writing.

D. The Drawings submitted shall be as follows, as relevant to the scope of work of the project:

1. Elevator section showing overhead, pit and floor to floor dimensions. The drawing shall be scaled and shall show all concrete structure, hoist and divider beam size and locations and all other required details complete. Details shall include the height of the cab, door operator and crosshead, including details of rope shackle.

2. Hoistway plan shall clearly show all typical dimensions to scale. In addition, plan shall identify all structural beams, hoist beam or hook location, divider beam locations and sizes; widths and depth of beams as they relate to the clear hoistway and hoistway walls; column pads in the pit and all column intrusions into the shaft. Provide large scale drawings and details of sill support condition and any column encroachments.

3. Provide machine room plan showing all typical dimensions and equipment layout. Show clearly all electrical disconnects or switchgear in the code compliant location and to scale. Provide location and size of the machine support including the attachment of the machine beams to the building structure.

4. Provide large scale drawings for the car enclosure showing cab plan, reflective ceiling, wall elevations, front returns and car station integration. Detail section through wall panel from canopy to platform. Detail section through suspended ceiling including attachment to canopy. Detail typical joints, reveals and panel edging, panel attachments, handrail fastening and pad button attachment to shell. Include all gauges of steel components. Provide thickness and type of materials used for wall panels and ceiling along with lamination details.

5. Entrance details with the same specifics and quality of information provided for the cab details.

6. Provide fixture drawings job specific in large scale. Identify all engraving including font, depth of engravings and infill color material. (No applied or recessed plates shall be acceptable except for Braille plates.) Provide gauges of all material used for car stations. Provide faceplate fastener and hinging method and type.

7. Provide cut section through emergency light, position indicator, intercom/telephone, buttons, Braille plates and service cabinet, if request.

8. Fixture, cab and entrances shall each be provided from a single source manufacturer/supplier for all elevators. Drawings shall be submitted for all elevators at the same time.

9. Car frame and car platform construction details and layout complete.

10. Machine isolation foundation fastening details and hydraulic oil line isolation fastening details (as applicable). Include manufacturer's data of all isolation equipment used.

11. Provide any and all sketches, clarifications and drawing modifications requested by the Elevator Consultant. All ancillary sketches requested shall be scaled and adequately detailed for review.

E. Sample submissions (as requested by the Elevator Consultant) may include:

1. Cab or fixture material and finishes.

2. Braille plates and jamb designation.

3. Push-buttons and position indicators.

F. Sixty (60) days prior to the completion of the work of the contract, the Contractor shall submit to the Construction Manager six (6) copies of an Operation Maintenance and Parts Manual and six (6) complete sets of as-builts. These shall be reviewed, and if approved, shall become the property of the Owner.

1.6 Terms / Definitions

A. The terms used herein are defined as follows:

1. "Owner" shall mean Elm City Communities and/or The Housing Authority of New Haven and/or affiliated entities.

2. "Architect" shall mean the firm of B Squared Engineering, LLC. or their authorized representative.

3. "Engineer" shall mean the firm of B Squared Engineering, LLC. or their authorized representative.

4. "Elevator Consultant" shall mean the firm of B Squared Engineering, LLC or their authorized representative.

5. "Contractor" shall mean the person, firm or corporation named in the Contract Documents who will execute the Work. It shall include all his employees, subcontractors and suppliers.

1.7 Maintenance and Interim Maintenance

A. Furnish full protective maintenance and service on the equipment as described in Section 14 40 00 of this Project Manual for both elevators for a period of one (1) year from the date of final acceptance of the project.

B. Furnish full protective interim maintenance and service on the equipment as described in Section 14 40 00 of this Project Manual for both cars from when the project is awarded until final acceptance of the entire installation, including for the elevators which shall be used for construction operations in the building.

C. The costs of all such maintenance shall be included in the bid price for both elevators and shall not be separately billable during the one-year maintenance term.

1.8 Guarantee

A. After award, furnish a written guarantee from the equipment manufacturer which states that replacement parts and/or major components for the equipment installed will be available for a period of fifteen (15) years after final acceptance.

B. Guarantee in writing that any defects not due to ordinary wear and tear or improper use which may develop within one (1) year from the date of final acceptance of each elevator installation will be made good at no additional cost. In the event that contractor performing post-modernization full-service maintenance is other than contractor who performed modernization work, contractor performing modernization work shall transfer all equipment warranties for parts to the company performing maintenance.

C. Repairs or replacements made under the guarantee shall bear an additional one (1) year guarantee dated from final acceptance of repair or replacement, or through the end of the original one (1) year guarantee period, whichever is longer.

D. During the guarantee period, replace or repair any piece of equipment that is found to be defective. The replacement or repair shall be done as soon as notified. Repair all damage to surrounding work caused by defective equipment.

1.9 Definitions

A. All terms in the specifications shall be as defined in ASME A17.1.

B. The term "Provide" or “New” shall mean furnish and install.

C. The words "or equal", "or approved equal", "equal to", refer to substitution of a manufacturer not specified; and shall require approval in writing from the Elevator Consultant prior to bid or prior to installation, if substitution is requested after award.

D. The terms "Adequate" or "Sufficient" means adequate or sufficient in the opinion of the Elevator Consultant.

E. “Retain” or “Reuse” refers to salvageable components to be cleaned, refurbished to like new OEM condition, and utilized in the completion of the work specified herein.

1.10 Conditions

A. The Contractor shall examine all drawings relating to this work and become fully informed as to the extent and character of the work required. All measurements, layouts and the exact conditions of the work shall be verified by the bidder. If any of the conditions conflict with or affect the proposed work, the Contractor shall notify the Elevator Consultant, in writing before the bid date. No allowances will be made for failure to avail himself of such information.

B. All equipment and shop work area shall be provided by the Elevator Contractor and shall be in an area approved by the Owner.

C. Any work that is disturbed by this work, shall be restored to a "like New" condition by the Contractor.

D. The Contractor shall take measurements at the project site so that all of his work will properly fit together and conform to and join the work installed under other sections of this Contract. The Contractor, before commencing work, shall make certain that all adjoining work on which this work is in any way dependent for perfect workmanship, shall be properly in place and in proper order to receive all elevator work.

1.11 Detailed Project Engineering and Drawings

A. Elevator contractor shall be responsible for contracting an engineering firm to produce detailed engineering drawings for the alteration. All design drawings provided with bid package are hereby deemed to be conceptual and for general layout purposes only. Drawings produced in-house by the Elevator Contractor shall not be accepted. All design drawings shall be signed a sealed by a licensed professional engineer registered to practice in the State of Connecticut.

B. Name of proposed engineering firm and/or individual performing the work along with a statement of their qualifications and relevant references must be submitted to Consultant for review and approval prior to bid and prior to any such engineering firm or individual being engaged for use on the project.

C. Upon request, a bid allowance can be provided for this item.

1.12 Energy Monitoring, Savings Verification and ESCO Services

A. As part of the base scope of work, and not separately billable by Contractor to Owner, Contractor shall retain the services of a qualified energy metering company, who specializes in elevator type projects, to perform all services required related to measurement and verification of energy savings.

B. Name of metering company along with a statement of their qualifications and relevant references must be submitted to Consultant for review and approval prior to bid and prior to any such metering company being engaged for use on the project.

C. Upon request, a bid allowance can be provided for this item.

1.13 Acceptance and CAT 1 and CAT 5 Testing of Elevators

1. A Category One and Category Five test shall be performed at the time of the final acceptance test. It is the sole responsibility of the contractor to ensure that all necessary paperwork has been submitted, in a timely manner to the State of Connecticut Elevator Bureau and all weights, staffing and any other items needed for the test be available. The contractor is to perform and file such test the same day as the acceptance test providing the inspector has passed the newly modernized elevator. All test witnessing shall be performed by the Elevator Consultant.

2. Should the Elevator Contractor fail to notify the Elevator Consultant of the acceptance test at least five days in advance and the Elevator Consultant is not able to attend the test, it will be the elevator contractor’s responsibility to perform the test again in the presence of the consultant at no additional charge to the client.

1.14 Electrical Filing

A. When filing the proper elevator permits with the City of New Haven Building Department, the contractor shall also file the proper electrical permits. It is the sole responsibility of the elevator contractor to file and have all permits signed off, as well as all and any filing fees.

1.15 Permits and Expediting Services

A. All State and City Building permits are the Contractor's responsibility. The Elevator Contractor shall secure any necessary building permits required for performance of work to be done by other trades. The Elevator Contractor shall obtain and pay for all municipal and state permits necessary for execution of the elevator work, including all fees associated with expediting. The contractor is responsible for signing off all elevators.

1.16 No Manufacturer or Installer Logos

A. There shall be no installer or manufacturer logos permitted on any faceplates, sills, car stations, or elsewhere.

PART 2 – PRODUCTS

2.1 Description of Elevator Units

A. Units:

1.	Quantity:	Two (2) Passenger Elevators *[Deduct Alternate: One (1) Elevator]*
2.	Type:	Overhead Geared Traction
3.	Capacity:	2,000 Pounds
4.	Speed:	150 FPM
5.	Travel:	±71’-4”-ft.
6.	Number of Landings:	8 @ *1, 2 - 8
7.	Number of Openings:	8 (All Front)
8.	Operation:	Duplex
9.	Control:	Microprocessor with VVVF-AC
10.	Number of Push Button Risers:	One *[Deduct Alternate: Two (2) Risers]*
11.	Car Platform:	Retain and Refurbish Existing
12.	Car Sling:	Retain and Refurbish Existing
12.	Guide Rails:	Retain and Refurbish Existing
13.	Cab:	Retain and Refurbish Existing
14.	Door Operation:	2SSO Automatic
15.	Fixture and Signals:	New *[Deduct Alternate: Retain Existing Hall Stations]*
16.	Machine Type:	Existing Geared Traction
17.	Machine Location:	Existing Overhead
18.	Power:	New Mainline Disconnects, per Code
19.	Deflector Sheaves:	Retain and Refurbish Existing
20.	Machine Manufacturer:	Schindler
21.	Motor:	New VVVF-AC
22.	Door Equipment Manufacturer:	GAL Manufacturing
23.	Ropes:	Retain and Refurbish Existing
24.	Buffers:	Retain and Refurbish Existing
25.	Governor:	New Governor and Tension Sheave
26.	Entrances:	Retain and Refurbish Existing
27.	Hoistway Doors:	Retain and Refurbish Existing
28.	Special Features:	Security camera wiring for future use (CAT 6) Emergency Power Operation

2.2 Machine Room (Existing Overhead)

A. The elevator machine shall be placed directly over the hoistway, mounted on existing Concrete slabs in the overhead elevator machine room. Any repairs needed to the concrete slabs shall be performed by Elevator Contractor after the machine beams are in-place.

B. Furnish and install any additional structural members required for the installation of the equipment, such as supports for governors. Provide rope guards for machines as required.

C. All required forms, templates and sleeves shall be furnished and set by the Contractor.

D. Vibration isolating machine foundation shall effectively prevent transmission of machine vibration to the building structure. Location and deflection characteristics of the vibration isolation units used shall be such as to produce an approximately uniform and non-excessive loading on the units under all operating conditions from minimum to maximum rated elevator load lifting capacity. The foundation shall incorporate positive means to prevent lateral displacement of the machine.

E. Deflector sheaves in the machine room shall be of hard alloy cast iron, semi-steel or cast steel of approved composition, with proper grooves for deflection. Surface of sheave shall have hardness between 220 and 240 Brinell and shall be plainly stamped. The diameter of each deflector sheave shall not be less than 40 times the diameter of the hoisting rope. Provide standard ball bearing sheaves on steel shaft. Provide four bolt type support blocks for deflector sheave. Provide guard around deflector sheave.

F. Upon completion of the modernization work, Contractor shall remove all unused and remnant equipment from the elevator machine room, including all transformers and power supplies needed for the DC hoist motors being removed.

2.3 Geared Hoisting Machine and Motor

A. The existing machine shall be refurbished to as new condition and reused. The machine shall be dismantled to the extent necessary in order to properly examine critical wearing surfaces of both the head bearing and the worm shaft. Head bearings which display any evidence of wear shall be re-babbitted. Bearing surfaces on the worm shaft which have become scored and/or undersized shall be built-up and machined to within O.E.M. tolerance. Thrust bearings shall be renewed along with sheave support bearings.

B. The worm and ring gear set shall be re-aligned to O.E.M. specification for thrust, backlash, wipe, and vertical clearance. In the event any of these standards should prove unobtainable due to the cumulative effects of wear, both the worm shaft and ring gear shall be renewed. The gear case shall be drained of existing lubricants and flushed so as to remove all sediment. All seals, gaskets and packing shall be renewed in conjunction with reassembly of the machine. The proper amount of fresh lubricant as specified by the O.E.M. shall be added to the gear case.

C. Hoist machine brake mechanisms shall be dismantled, cleaned and examined. Worn brake linings shall be replaced with an asbestos-free material bonded and riveted to the existing brake shoes. Brass or composite brake plunger sleeves displaying any sing of wear shall be replaced. Metal castings which contain oversize or eccentric holes for brake pivot pins shall be reamed and fitted with Oilite bronze bushings. Brake pivot pins shall fit their respective holes with a maximum clearance of .003". Pivot pins which are undersized or scored shall be replaced with new pins machined from cold-rolled steel. Electrical insulation on the brake coil shall be renewed. Upon reassembly, brake lift shall be set to O.E.M. specification with spring tension adjusted to comply with Rule 1002.3d of ASME A17.1 code.

D. The existing drive sheave shall undergo Brinnell testing to determine its prospects for re-grooving. In the event a Brinnell hardness reading of at least 215 is obtained, the sheave may be re-grooved. Otherwise the sheave shall be replaced or fitted with a new demountable rim.

E. The existing secondary/deflector sheave assembly shall be refurbished to as new condition and reused. The entire sheave assembly shall be washed clean of accumulated oil and grease, and then examined for any indication of bearing or bearing seal failure. Bearings which are found to emit unusual noises, appreciable vibration, excessive heat or other unfavorable characteristics during operation shall be renewed. Defective grease retention seals shall be replaced as well.

F. Overhead fastenings between the secondary/deflector sheave assembly and machine beams shall be inspected to verify the structural integrity of this attachment. In case this inspection reveals the existence of problems in this area, the Contractor shall undertake whatever corrective action may be required to remedy the situation.

G. Secondary/deflector sheave alignment with the hoist machine and the counterweight guide rails shall be checked and reset as necessary.

H. The hoist machine shall be equipped with a protective guard designed to prevent accidental contact with hoist cables and a 3" high guard around each opening in the machine room floor which hoist cables pass through.

I. Provide new alternating current induction motors and new flexible coupling for the existing geared machines, of proper voltage for the drive specified herein. They shall be reversible, have high starting torque with low starting current, and shall be designed to stand the severe loads encountered in elevator service. They shall be rated in accordance with the Standards of the NEMA, NFPA and AIEEE, 30 minute duty motors, in accordance with class of insulation of motors (minimum Class B), and have sufficient capacity to operate with contract load and speed without overheating.

2.4 Solid State Controller

A. Provide the elevator installation with controllers to fit within the space conditions. The elevator controllers shall be located in the existing machine space in the basement elevator machine room. All electrical conduit and wiring for a code compliant installation of the controllers and machines shall be provided. The placement of any new equipment shall meet all current and applicable codes including, but not limited to, ASME A17.1 and all local codes and ordinances.

B. The Controller shall be non-proprietary and equipped with solid state components and printed circuit boards to control the hoisting machine and signal functions in accordance with this specification.

1. Approved manufacturers: Subject to compliance with the requirements of this Section, provide Alpha Controls, or Approved Equal.

2. The controller shall include, but not be limited to the following features.
   1) Password accessible.
   2) Inspection control.
   3) Fireman's service.
   4) Independent service.
   5) Diagnostics.
   6) Built-in remote monitoring, control and programming via on-board TCP/IP interface.

C. The controller assembly shall provide efficient, smooth, step-less acceleration and deceleration of the elevator hoisting machine, automatically and irrespective of the load in the car. All control equipment shall be enclosed in a metal cabinet with lockable, hinged door(s), and shall be provided with a means of forced ventilation. All non-conducting metal parts in the machine room shall be grounded in accordance with controller manufacturers' specifications and the latest International Electrical Code. Cabinet shall be securely attached to the building structure. All Controllers shall be identified with 4-inch letters.

D. Modules or solid-State boards for the control of the elevator system, including dispatching, signals, door operation, etc. shall be installed in a NEMA Type I, General Purpose Enclosure. All similar modules or solid-state boards shall be interchangeable between controllers of a particular development and interchangeable with other controllers built to the same specifications.

E. Modules or solid-state boards shall be fuse protected. Each module or solid-state board and fuse (with ampere rating) shall be identified by name, letter or standard symbol in an approved, indelible and legible manner on the device or panel. Coordinate identification markings with identical markings on wiring diagrams.

F. The electrical connections between the printed circuit boards (modules) and the circuit connectors incorporated in the mounting racks shall be made through individual tabs which shall be an integral part of each module. The tabs shall be nickel-gold plated (or of other approved metal of equal electrical characteristics). Modules shall be keyed or notched so as to prevent insertion of the modules in the inverted position.

G. Light emitting diodes (LEDS) shall be used for visual monitoring of individual modules and marked with familiar terminology.

H. Components shall have interlocking circuits to assure fail-safe operation, and to prevent unwarranted elevator movement, should any component fail to function properly.

I. Wiring shall be arranged so that similar voltages are grouped together.

J. If modules are used, they shall be of the type that plug into pre-wired mounting racks. Field wiring or alteration shall not be necessary in order to replace defective modules.

K. Field wiring changes shall be made only to the mounting rack connection points and not to the individual module circuitry or components. Individual modules, requiring design changes shall be returned to the factory where changes shall be made and module design records updated so that correct replacement units shall be available.

1. All shaft and traveling cable wires shall be able to withstand accidental connection to any other shaft or traveling cable connection without causing permanent damage to the equipment. Replacement of fuses or other “low cost” protection devices is acceptable. All outputs shall withstand the application of a short circuit across the output terminals without causing permanent damage to the equipment.

L. Module boards shall be moisture resistant, fabricated from non-conductive, non-corrosive material, and shall be of sufficient strength so as to support all components mounted thereon without warping. Mounting racks shall be spaced sufficiently apart to prevent accidental contact between individual modules.

1. All logic symbols and circuitry designations shall be in accordance with ASME Standards.

M. Solid state components shall be designed to operate normally within a temperature range of 20° F, and 120° F.

N. Wiring connections for operating circuits and for external control circuits shall be brought to terminal blocks mounted in an accessible location within the controller cabinet. Terminal blocks using pierce-through serrated washers are not permitted. Clearly mark & color code the voltages on the terminal strips.

O. A diagnostic testing device shall be permanently installed on each controller, for all trouble-shooting procedures related to the specific type controls installed on this Contract.

1. Diagnostics shall include but not be limited to the following control circuits:

a) Interlocks.
b) Car door gate switch.
c) Up and down slowdown limits.
d) Up and down normal limits.
e) Up and down final limits.
f) Emergency stop switch in car.
g) Emergency stop switch on top of car.
h) Safety plank switch.
i) Governor overspeed switch(es).
j) Top and or side emergency exit switch.
k) Comp sheave switch.
l) Hoist motor overloads.

m) Pit stop switch.
n) Tape switch.
o) Oil Buffer switch.
p) Door Operator overload switch.
q) Generator overload switch.

2. The Fault Monitoring System shall record and report faults in a sequential fashion. When more than one (1) contact is open, the contact with the highest priority will be displayed first. After this one is satisfied any additional open contacts will be displayed in the same sequential fashion.

3. Error messages are to be stored in a non-volatile memory for future recall.

4. If repairs or replacement of the testing device's become necessary prior to the end of the one (1) year Warranty period, the repairs or replacement shall be provided at no additional cost to the Owner.

P. Controller shall be provided with the capability of having qualified elevator personnel move elevator at inspection speed with safety circuit open. This operation is to be available by operating selective relays on the controller.

Q. In addition to printed hard copies, all documentation for wiring diagrams shall be provided on CD ROM disk, in an Acrobat™ Portable Document Format (PDF).

1. All documentation for wiring diagrams shall be provided on CD ROM disk, in an Acrobat™ Portable Document Format (PDF).

2. All job parameters, both for the controller and motion control equipment, shall be provided.

R. The use of standard issue communication devices, such as walkie-talkies, from in front of the controllers, with the doors open, should not cause intermittent or permanent problems with the proper operation of the controller equipment.

S. The Contractor shall provide electrical (over-current) protection for each elevator hoist motor. When activated, it shall disconnect power from the elevator hoist motor and hoist machine brake. Activation of the motor protection device shall require a "Manual Reset". The motor protection device shall be clearly labeled and identified at the terminals and a cover plate shall be provided with a light illumination indicating that this device has been tripped with a reset button provided to restore normal operation. The motor protection equipment and its method of connection to the elevator system must be shown on the wiring diagram.

T. In the event of a power outage, the equipment shall be arranged, so that once the normal power supply has been re-established, each elevator will automatically return to service.

U. The Safety circuits shall be designed to individually fuse the following:

1. Gate switch & secondary gate switch.
2. Interlocks
3. Normal limits (up & down)
4 Final limits (up & down)
5. Slowdown limits (up & down)
6. Pit switch, governor switch, buffer switch, comp switch & pit door switch.
7. Top emergency exit switch, Car safety switch, top of car inspection stop switch, side exit switch, stop switch in car, safety edge & electric eyes.

V. The control system for the elevators shall be arranged to maintain consistent acceleration and deceleration rate changes and floor leveling accuracy regardless of load.

W. Controller shall incorporate direction switches, reverse phase protection, over current protection, single-phase protection in each phase, and switching to provide smooth acceleration and deceleration.

X. Controller shall be provisioned with all required hardware and software to accommodate all required functionality, including sequential lowering operations and selective car operation, should emergency power generator be added to the building in the future.

Y. Controller shall be provisioned with door lock monitoring, per Code.

Z. Provide a three-phase voltage monitor (RPR), model PLR240A, as manufactured by SSAC inc., or approved equal.

AA. Provide rubber mats in front of all controllers and group supervisory panels.

2.5 Variable Voltage Variable Frequency - AC Control System

A. The elevator hoist machine shall be gearless traction having an AC motor. The control of the hoisting motor shall be by means of a solid-state drive system. The speed, acceleration and deceleration shall be automatically and continuously controlled by varying the frequency and voltage of the motor. A closed loop system shall be provided.

B. The drive shall utilize a 3 phase, full wave rectifier and capacitor bank to provide direct current for the solid-state inverter. The control principle shall be based on constant flux control utilizing pulse width modulation. The drive shall be capable of providing not less than 200% of the motor name plate rated current for not less than 60 seconds.

C. A means shall be provided for removing regenerated power and return it to the 3-phase AC power line.

D. The final stopping shall be performed independent of the machine brake which shall be applied to hold the car at a floor only after the car has stopped.

E. The drive shall not create excessive audible noise in the elevator motor and control system.

F. The drive system shall include but not necessarily be limited to the following features:

1. Maintain a car speed within +/- 5% of the rated speed.
2. Protection against excessive motor current in addition to normal overload relays.
3. Maintain operation within 90 to 110% of nominal line voltage.
4. Line fault protection to prevent operation under:
    1) Loss of phase.
    2) Low line voltage.
    3) High line voltage.
5. The transistor protection shall ensure 100% protection of the transistors and prevent fuse blowout.
6. Continuous supervision of the braking resistors shall be provided.
7. Motor contacts shall disconnect the motor stator winding during each stop. In normal operation, the contactors shall operate only under zero current conditions, but must be capable of interrupting the line current should an emergency stop be required.
8. The drive system shall continuously monitor the hoisting motor operation and motor torque in order to ensure 100% safe elevator operation at all times.
9. The AC variable frequency drive system shall be Magnetek Quatro AC Regenerative Dive. No substitutions.

2.6 Selectors

A. Provide an absolute position selector electronically and optically operated and located on Car Top with tape in the hoistway. The operation of the selector shall be to govern functions such as direction of travel, automatic stopping and leveling at landings.

2.7 Speed Regulation

A. Speed regulation shall be such that the maximum velocity attained with any load up to full load in the car on either "Up or "Down" motion shall not vary more than 5% plus or minus from normal operation velocity.

B. The acceleration and deceleration of the cars under any condition of load shall be as nearly constant as is possible with the method of control specified and employed and shall be independent of the operating devices in the car.

C. Entire elevator equipment including hoisting machines and controllers shall operate without noticeable irregularities and as quietly as can be obtained by use of high-grade materials, first class workmanship, and adjustment.

2.8 Speed Governor and Tension Sheave

A. Provide new centrifugal type speed governor with an overspeed switch for the car and counterweight for each direction of travel. Safety rope grip shall lock in position when governor trips and shall be held in contact with the rope both by springs, and by sliding action and pull of the rope in the grip. The rope grip jaws shall be of the parallel jaw or equivalent type, of such shape and length that the pull-through action of the governor rope as required by the ASME Code will result in a minimum amount of abrasion. Governor jaws shall be machined and so arranged that if worn, they can be replaced. Speed governors shall be located in the overhead.

B. Provide new tension frame and sheave for the car and counterweight. Proper tension in governor rope shall be maintained by a weighted tension sheave located in the pit. This sheave shall be protected with a 16 USSG sheet metal guard to prevent foreign objects from being caught between the governor rope and sheave. Tension sheave shall be provided with a grease gun fitting to receive grease lubrication.

2.9 Ascending Car Overspeed Protection Device

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

1. The device shall detect an ascending car overspeed condition of not greater than 10% higher than the speed that the car governor is set to trip.
2. The device, when activated, shall prevent operation of the car until the device is manually set.
3. The device shall meet the requirements of Section 2.19 of the ASME A17.1-2013 Safety Code.
4. A dual brake integral to the machine shall not be acceptable.

2.10 Unintended Car Movement Protection Device

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

1. The device shall prevent such movement in the event of failure of the electric driving machine motor, brake, coupling, shaft or gearing, control system, and any other component upon which the speed of the car depends, except the suspension ropes and the drive sheave of the traction machine.
2. The device, when activated, shall prevent operation of the car until the device is manually reset.
3. The device shall meet the requirements of Section 2.19 of the ASME A17.1-2013 Safety Code.
4. A dual brake integral to the machine shall not be acceptable.

2.11 Automatic Operation

A. General operation of individual elevators:

1. Provide a non-proprietary diagnostic microprocessor-controlled dispatching and car control system, based on real time calculations, designed to monitor all types of traffic and sufficiently flexible so that it can be modified to accommodate changes in traffic patterns.

2. Serial link communications: Provide a distributed processing network consisting of localized processors located in machine rooms, car stations, hall stations and top of car to allow system to make fast decisions based on data shared by the processor involved in the different operations of the elevators. For group dispatch operations, all elevators in the group shall be capable of acting as a group common dispatcher as the need arises.

3. Fault diagnostic system: Provide Owner's Representative with all hardware such as on-board LED diagnostics, handheld device or laptop computer, as standard with manufacturer, and supporting software documentation. Diagnostic system shall be capable of determining faults most difficult to find, as well as be capable of performing all code required testing.

4. The system shall be flexible, irrespective of the number of elevators in normal service.

B. Group Operation:

1. A microprocessor-based group system shall be provided which will evaluate real time data and selects the best car to serve any given hall call demand. The group system assignment of cars shall provide efficient handling of varying traffic demands in terms of passenger waiting time and passenger transit time.

2. The group system shall analyze building traffic conditions including, but not limited to the following: hall call demand, number of assigned hall calls, number of cars in operation, number of car calls, number of car stops, car position, car direction, car's anticipated direction of travel, car loading, car status, car motion status, car door status, call waiting time, door opening time, door closing time, coincidence calls, and estimated time of car arrival.

3. The dispatching algorithm shall use mathematical modeling and queuing theory to optimize elevator service to the building. The dispatching algorithm shall minimize the mean waiting time, the maximum waiting time and the number of late calls.

4. This algorithm shall cover all two-way traffic demands such as light, medium, and heavy traffic situations. The algorithm shall compile the required physical and statistical data and parameters that are necessary to perform the above minimization tasks.

C. Fireman Service Phase I and II:

1. Provide Fireman Service Phase I (Emergency Recall Operation) and Phase II (Emergency In-Car Operation) for the elevator as required by the latest adopted edition of ASME A17.1.

D. Inspection operation:

1. Provide key-operated hoistway access device and car top operating device. Key switches shall be mounted in existing locations at terminal landings.

E. Independent service:

1. Independent service operation shall be provided so that, by means of a switch located in the car service cabinet, the car can be removed from automatic operation and be operated by an attendant. The attendant shall have full control of the starting, stopping and direction of car travel.

2. The car shall respond to car buttons only. The hall signals for the car on independent service shall not operate.

F. Anti-nuisance:

1. Provide "anti-nuisance service" whereby all car calls will be cancelled if the load-weighing device detects that an abnormal number of calls are registered given the number of passengers in the car.

2. System using false call answering to accomplish this is not acceptable.

G. Operation under fire or other emergency conditions:

1. Provide special emergency service to comply with ASME A17.1, CCR Title 8, IBC and local codes having jurisdiction.

2. Provide Phase 1 recall switch at main floor elevator lobby.

3. Key switches at main floor shall be integrated in hall button station with engraved instructions.

2.12 Hoistway Equipment

A. Doors: Retain, refurbish and reuse existing.

B. Frames: Retain, refurbish and reuse existing

C. All existing hoistway sills shall be refurbished to like-new condition within original OEM tolerances or replaced with new to match existing.

D. The Contractor shall provide all labor, material, equipment and service necessary to complete all metal work required by the drawings, and/or herein specified. Provide shop coat of metal protective paint on all steel components.

E. Provide floor number designations, at least 4" high, on each hoistway entrance door on the hoistway side.

F. Provide new braille floor markings at each elevator entrance, per Code. Braille plate shall be of same color as entrance wrapping.

G. Car door hangers and tracks: All doors shall be hung on new heavy-duty ball bearing, sheave type hangers, sheaves not less than 3-1/8" riding surface diameter with adjustable upthrust rollers of metal design, running on a polished steel track. Sheave rollers shall be of nylon or equal, with no flat spots. Hangers that are not mounted flush with the top of the door shall be provided with new metal stiffeners and shall be installed to eliminate excessive movement. An upthrust safety retainer shall be installed on the door hanger to prevent the door from coming off the track due to vandalism.

H. Removable Guides: Each door panel shall be guided at the bottom by two (2) removable guides, of solid nylon or solid Teflon, mounted in galvanized steel brackets, and fastened with stainless steel machine screws, sliding in the hoistway slide door sill groove.

I. Rubber Bumpers: Provide rubber bumpers on the hoistway slide door hanger tracks, (both front and rear) instead of the hoistway door frame. After their final adjustment, permanently pin so that they cannot be removed.

J. Install any missing fascias: Fascia shall be #14 USSG galvanized steel reinforced to insure a flat even surface. Securely fasten to the header and sill above.

K. Install any missing toe guards at the lowest landing. The toe guards shall be No. 14 USSG galvanized sheet steel, secured to the lowest sill and gradually beveled to the wall.

L. Fascias, cover plates, enclosures, dust covers, and toe guards shall be of galvanized steel.

M. Provide missing sight guards in a material and finish to match door

N. Hoistway Door Interlock:

1. Provide each hoistway entrance with electro-mechanical interlocks as manufactured by G.A.L. Manufacturing Corporation. Interlock shall prevent the operation of elevator unless all doors are closed and positively locked. Interlock shall be of a type that shall satisfy the requirements of the ASME Code.

2. Provide all wiring from shaft riser to the new interlock. The wiring shall be type SF-2 Silicon insulated fixture wire with Silicon rubber insulation. Conductors shall have insulation with an operating temperature of 392ºF (200º centigrade). Flexible steel conduit running to shaft conduit boxes shall be properly supported with approved straps.

3. Car and Hoistway Door Clutch Device: Provide each car with a car and hoistway door clutch device. The clutch shall be of a type and design that shall function with the hoistway slide door interlocks to be installed as hereinbefore specified above. The car doors shall be reinforced for mounting of the car door clutches. All hoistway door interlock release rollers shall be properly adjusted so that at no time will the car door clutch device strike the release roller and thus cause the elevator to stop between floors. Provide equipment manufactured by GAL.

O. Car Door Operator Accessories:

1. The Elevator Contractor shall install new car door hanger track assemblies and header which shall be of the heavy-duty type. All door accessories shall be approved. Two, two-point suspension sheave hanger roller assemblies, with related operating linkages, gate switch, clutch, zone lock and accessories shall conform to the ANSI/ASME A17.1 code requirements. An upthrust safety retainer shall be installed on the door hanger to prevent the door from coming off the track due to vandalism.

P. Terminal Stopping Devices:

1. Provide upper and lower normal terminal stopping devices arranged to automatically stop the car from any speed attained in normal operation within the top and bottom over-travel, independent of the operating devices, final terminal stopping device and buffer devices.

2. Final terminal stopping devices shall be arranged to automatically stop the car and counterweight from speed specified within the top clearance and bottom over travel independent of the operation of the normal terminal stopping device with the buffers operative.

3. Provide top and bottom slowdown devices as required to accommodate the available top and bottom runbys.

4. Final terminal stopping devices shall be through bolted to the rails.

5. Opening on limit switches shall face down.

Q. Counterweights:

1. The existing counterweight sling, frame and weights shall be retained and reused. The elevator shall be completely balanced, as per elevator machine manufacturer’s requirements, upon the completion of all work. Counterweight guards shall be furnished. Any changes in the elevator cab weight, as a result of the cab modifications will be included. A counterweight Runby data plate shall

permanently and securely provided in the pit, in the vicinity of the counterweight buffer, indicating the maximum designed counterweight runby. The data plate shall conform to A17.1 rule 2.16.3.3, except that the letters shall be not less than 25 mm (1 in.) in height.

R. Spring Buffers:

1. Retain and reuse existing spring buffers for the car and counterweight.

2. Clean and coat buffers and all pit steel with rust-inhibiting epoxy paint.

3. Provide #12 gauge stainless steel elevator identification plates. Identify each elevator with 1-inch-high black paint-filled numbers. Permanently secure to all spring buffers.

4. Load test and properly tag the equipment after testing.

5. Properly align all buffers.

S. Alarm Bells:

1. An electric signal bell shall be provided in or adjacent to the elevator hoistway and on the car top, as directed. This bell shall be connected to the alarm button in the car operating panel.

   a. Provide 110-volt alarm bells. One weatherproof bell located in hoistway on the back wall and 8' - 0" from the pit floor; and one bell located underneath the platform. Hoistway bells shall be located so that they are accessible and not obscured by the counterweight frame.

   b. Bells shall have a minimum of 90 db at 10 feet.

   c. Bells shall be operated from buttons inside the car marked "ALARM".

   d. Bells shall be operated by the opening of the car emergency switch.

   e. All required bells shall ring whenever either the alarm button inside the car is operated or when the car emergency stop switch is opened.

T. Pit Stop Switch, Pit Lighting Fixture & Switch:

1. Elevator contractor shall provide a watertight emergency stop switch for each elevator at the point of access to the pit. The switch shall have a metal guard to prevent accidental operation. Plastic or fiberglass material of box and faceplate shall not be permitted. When opened, the switch shall cause the electric power to be removed from the driving machine and brake. Final location shall be coordinated in the field.

2. Elevator contractor shall provide new linear LED style fixtures designed for exterior use with weather tight gaskets between the lenses and the back box, and shall provide a minimum of 10 foot-candles everywhere in the pit.

U. Hoisting Wire Ropes:

1. Retain and reuse existing hoist ropes.

V. Governor Wire Ropes:

1. During normal operation of each elevator, the governor rope shall run free and clear of the governor gripping jaws, rope guards and all other stationary parts.

W. Traveling Cables:

1. Traveling cables shall conform to the following:

a. All traveling cables shall be hung in self-locking loops (in an approved manner) on porcelain hanger and bracket or Kellems cable grips. The hanger and bracket shall be provided under the car platform and hoistway junction box, and shall be so located as to make traveling cables inaccessible from any door opening. The hanger and bracket shall be through-bolted to the cab floor.

b. Provide a junction box with terminal blocks at each end of the cable; properly terminate all conductor wires, including spare wires to provide complete circuit continuity. Provide all traveling cables to junction boxes with proper size connectors and properly secure to junction boxes.

c. Locate car junction box on the underside of each platform as close to the safety plank as possible. Locate hoistway junction boxes at mid-shaft in "High Rise" buildings and at top of shaft in buildings 8 stories or less. All terminal blocks shall have indelible identification numbers for each terminal connection and shall match the car junction box, hoistway junction box and controllers. Provide junction box covers with a watertight neoprene gasket. Cover plate screws shall be of the "captive type", stainless steel spanner head.

d. Separate alternating current and direct current conductors into individual travelers.

e. The cable shall be flexible, Type "ETT", with a steel hanger wire or type “ETP” flat elevator traveling cable. The minimum size of the D.C. copper conductors shall be No. 18 AWG. The minimum size of the AC copper conductors shall be No. 14 AWG. Each cable shall have 20 percent spare conductor wires (minimum of six (6) wires) and shall be UL listed. Provide metal eyelet’s, or other approved fasteners for each end of conductor wires.

f. Provide beam padding that is waterproof, oil proof, fireproof, and similar to the material insulating the traveling cable. Beam pads shall be properly secured.

g. Provide a traveling cable with integrated shielded and insulated wiring capable of providing signal to and from a camera device mounted in the elevator cab. Such cable shall be capable of operating with either a digital or analog camera system. Minimum required cabling standard for camera shall be two (2) CAT 6. If integrated CAT 6 type data cables cannot be provided inside of travelling cable, separate traveling cables may be provided by affixing the cables to the main elevator traveling cable. Elevator Contractor is responsible for terminating the CAT 6 cables in the elevator machine room. Coordinate with Owner on specific location(s).

X. Landing Control System Device:

1. The landing control system for each elevator shall be as previously specified. The system shall also include the following:

   a. A separately fused A.C. Electric Feed & Circuitry for Deactivating the System and shall be independent of the A.C. feed to cab enclosure (i.e. Blower, lights, alarm, etc.).
   b. The fuse and fuse clip shall be mounted at the front of the controller in convenient location. The fuse shall be properly identified in a permanent legible manner and labeled, "Landing Control System Fuse".
   c. All terminal blocks on controller, hoistway junction box and car junction box shall be labeled in a permanent manner to match.
   d. Wiring from landing control system device to car junction box shall have a minimum of four (4) spare conductor wires and connected with liquid-tight connectors having nylon insulated throat.
   e. Two additional tape guides (one for the top and one for the bottom).
   f. Stainless Steel Tape / Steel Tape Coated with Polyester.
   g. Provide new absolute position optical readers with QR style tape in the hoistway.

Y. Electric Wiring

1. It shall be the responsibility of the Elevator Contractor to furnish and install complete, necessary, insulated wiring to connect all parts of the equipment. Wiring, conduit, fittings and installation shall be in accordance with Division 16, and comply with the requirements of the National Electric Code.

2. Insulated wiring shall have a flame retarding and moisture resisting outer cover and shall run in concealed galvanized metal conduit, metallic tubing or wire ducts.

   a. Flexible metal conduit shall be permitted for short runs only (less than 36”).

3. Traveling cables between car and hoistway shall have a flame retarding and moisture resisting outer cover. They shall be flexible and suitably suspended to relieve strains in the individual conductors. The traveling cable shall also include:

    a. A minimum of 10% spare conductors (ends to be left accessible to facilitate connections at a later date).
    b. Wiring as required for the intercom/telephone and firemen's communication (as required per local code).
    c. Six (6) pairs of 18 gauge shielded cables, (terminating on terminal strips in the controller and in the car operating station).

Z. Pit Ladders:

1. The elevator contractor shall furnish and install new pit ladders, if needed. The ladder is to be located in such a way to not obstruct elevator operation. It shall allow convenient access from the lowest floor landings. The pit ladder shall extend 48 inches above the lowest landing and the nearest point of the ladder must be within 39 inches (measured horizontally) from the means to unlock the egress door of the pit. The pit ladder shall be secured so work persons can ascend and descend safely.

2. If necessary due to hoistway dimensional constraints, a retractable ladder shall be installed. The safety switch on the retractable ladder shall be wired in series with the pit stop switch circuit to prevent elevator operation when the ladder is in the extended position. All wiring and conduit shall be provided for a complete installation.

AB. Car-Top Railing:

1. Provide a standard railing conforming to ASME A17.1 (2.10.2) on the outside perimeter of the car top on all sides where the distance from the edge of the car top to the hoistway wall exceeds 12 inches. The standard railing shall consist of a 42-inch high top rail, intermediate rail, 4-inch toe board and posts.

AC. Guide Rails and Brackets:

1. Car and counterweight rails must be thoroughly cleaned and smoothed before car is put into operation.

2. All existing guide rails may be reused but shall be realigned to a ±⅛" plumb for the full travel distance.

3. All fishplates and bracket fastenings shall be solidly tightened.

4. Sand all three (3) running surfaces to remove roughened areas that may cause damage to the roller guides.

2.13 Car Equipment

A. Car Sling:

1. Retain, refurbish and reuse.

B. Platform:

1. Retain, refurbish and reuse.

C Car and Counterweight Safeties:

1. Retain, refurbish and reuse existing safety mounted on bottom members of car frame and operated by a speed governor located over the hoistway. The safety shall be arranged to stop the car whenever excessive descending speed is attained and means shall be provided to cut off power from the motor and apply the brake within Code requirements after the governor jaws grip the governor rope.

2. The car and counterweight safety mechanism shall gradually and smoothly bring the car to a stop from governor tripping speed.

3. The operation of the governor on overspeed shall open a switch disconnecting the power from the elevator and shall trip the safety mechanism. The safety mechanism when tripped shall engage the rails with sufficient force to stop the car from governor tripping speed with full load in the car. Equalize the pressure of the two pairs of jaws on the rails.

D. Inspector’s Operating Station:

1. An inspector's operating station shall be provided on top of the elevator car consisting of "Up" and “Down” constant pressure buttons, incandescent light with guard, 110 Volt G.F.I. work outlet and an emergency stop switch.

2. Provide an additional light with guard and G.F.I. work outlet mounted to the bottom of the car and located towards the front for easy access.

3. Provide audible and visual indicators to identify activation of Phase 1 Firemen’s Service.

E. Car Door Operator:

1. Provide a new D.C. motor driven door operator, install and connect in place, all complete as hereinafter specified. Provide MOVFE-2500-HL linear door operators with 1/2 HP motors as manufactured by GAL.

   a. Each door operator control circuit must be complete with accelerating circuits and door motor overload protection (circuit breaker type) in the event of a stall condition. Control circuits shall be protected with properly sized fuses.

b. Provide fuse clips, fuses, and overload protection for door operator units and all necessary additional terminals on control panel.

c. Provide a steel support for the door operator. The support shall be designed so that no part of door operator rests directly on the cab or is supported by car door header.

d. Provide one gate switch of the shielded type, connected in series to a gate contact to prevent operation of the elevator, unless the car door is in the closed position and both devices are activated. The gate contact shall be located in the door operator limit switch mechanism and be an integral part of this mechanism. Cover plate shall have "CAPTIVE" type tamperproof stainless steel machine screws.

e. Provide door operator motors, which shall be D.C., 1140 rpm developing 1/2 HP, and shall be rated for not more than 50˚C. temperature rise when operating for a minimum of five minutes.

f. Provide a recycling device for each car door which will cause car door to open and reclose at approximately 10 second intervals whenever car door is prevented from closing fully by any obstruction. A second timer shall reopen cab door, if for any reason car does not operate after cab door has fully closed.

g. Car door operator shall be mechanically connected to car door. Friction drives will not be permitted.

h. All control relays furnished under this Contract shall be designed to operate quietly and conform to NEMA Standards with respect to size, spacing, voltage, carrying capacity for the contact leads and coils. Control relays shall have fine silver overlay contacts.

i. All gate switches shall be shielded type manufactured by G.A.L. Manufacturing Corp.

j. Door operator shall be wired in such a manner that when the stop switch is applied and elevator is out of the landing zone, car doors shall not open and door operator shall remain energized. When the stop switch is activated in the landing zone, the cab door shall open and power will be removed by door open limit; and if the door is closed by hand, it shall reopen.

k. The car entrance door shall be arranged so that it can be opened manually in case of emergency only when the car is within the landing zone.

l. Provide wiring and conduit complete.

m. Mount car door header angle in such a way so that if a car door of a down traveling elevator engages a fixed obstruction in the hoistway, the car canopy will not be damaged.

n. Provide car door clutches and all related equipment.

F. Door Edge Protective Device:

1. Provide with a reopening device that will stop and reopen the car door and hoistway door automatically if the door becomes obstructed by an object or person. The device shall be capable of completing these operations without required contact for an obstruction passing through the opening. The device shall be a non-reflective through beam system with a minimum of forty sensors per edge. It shall have a maximum sensor spacing of 1.8" or less. It shall incorporate a microprocessor-controlled fail-safe system.

2. It shall be capable of self-adjustment to compensate for varying environmental conditions.

3. It shall incorporate 3D sensing technology to reopen when a passenger is approaching the elevator, such as the Janus Pana40 3D, or equal.

G. LED Light Fixture with Convenience Outlet (Top and Bottom of Car):

1. Provide LED light fixtures with convenience outlet. Fixture to be mounted above each car roof and under each car platform and shall be wired to the lighting circuit. The light fixtures shall be designed for exterior use with weather tight gaskets between the lenses and the backboxes.

H. Car and Counterweight Guide Shoes:

1. Retain and reuse existing slide guide shoes. Replace plastic inserts with new.

I. Emergency Exit Contacts:

1. All top emergency exits shall be provided with electric contacts to prevent the operation of the car and sound an alarm when the exit door is opened.

J. Emergency Lighting System:

1. Provide an emergency car lighting system as manufactured by EPCO, Flexi-lite or approved equal which shall provide LED emergency lighting using the normal elevator cab lighting and emergency power to the two (2) alarm bells as specified hereinafter.

2. The battery pack shall consist of a minimum of two (2) rechargeable batteries which shall be housed in an 18 USSG galvanized steel box with removable cover. The charger unit shall consist of a charger and inverter, which shall be housed in a separate 18 USSG galvanized steel box with removable cover. Provide a testing circuit and pilot light on the exterior of the charger unit box for testing the batteries, alarm bells and cab lights.

3. Upon interruption of normal power, the LED lights located in the cab lighting fixture shall automatically illuminate within one (1) second and permit operation of the alarm bells, subject to the activation of the emergency alarm button. The battery pack shall be capable of providing a minimum of one-hour alarm operation (for three alarm bells working simultaneously) and four hours of continuous illumination. Charger shall be capable of restoring the batteries to full charge automatically within 16 hours after resumption of normal power.

4. The power pack and charger unit shall be located in the elevator machine room. Provide steel shelf/shelves of proper adequacy to support the power pack and charger unit and properly secure shelf/shelves to the machine room wall. Properly secure boxes to the steel shelve/shelves.

5. Number and size of wires and method of connections to be in accordance with manufacturer's instructions.

2.14 Fixtures

A. Car Operating Panel:

1. Provide applied panel type front type main car operating panel in compliance with applicable Code.

a) Car Operating Panel: Provide new illuminating pushbuttons. Faceplate shall have Satin stainless-steel finish. Faceplate shall have continuous hinge with three-point latching.

b) Provide a keyed stop switch and alarm bell button, door open and door close buttons. All floor pushbuttons shall be located no higher than 48-inches above the car floor, the keyed in car stop switch and alarm button shall be located no lower than 35-inches above finished floor height. Provide fire service cabinet, phase 2 switch, fire jewel, call cancel button, emergency light fixture, and voice annunciation grill and flush mounted speaker grill for the Hands-Free telephone.

c) Braille/Arabic designations shall be identified by a minimum of 5/8-inch Arabic numeral, standard alphabet character, or standard symbol immediately to the left of the control button. Braille shall be located immediately below the numeral, character or symbol. Controls and emergency equipment shall be identified by raised symbols, including but not limited to, door open, door close, alarm bell, emergency stop and telephone. The call button for the main entry floor shall be designated by a raised star at the left of the floor designation. Braille and Arabic designations shall be flush with inconspicuous mechanical mounting. The plaques shall have raised white characters on a black background. Provide cast Oval Surround style Braille plates as provided by Entrada, Vison Mark, SCS, or Equal.

d) There shall be no manufacturer or installer logos or names on the COP.

e) Provide a lockable service cabinet with concealed hinges. Cabinet door shall be flush with the faceplate with hairline joints.

1. Cabinet shall contain the following toggle type controls:

(i) Light toggle switch
(ii) Three speed fan switch
(iii) Inspection keyed switch
(iv) Independent service toggle switch
(v) Emergency Light test button
(vi) Duplex 120 volt, A.C. GFCI convenience outlet.
(vii) Light switch for under car platform light.

f) Engrave the following; the font shall be as directed by elevator consultant and Code:

1. Elevator Number. Minimum ½-inch high lettering.
2. Elevator Capacity below Elevator Number.
3. Building Name and Address.
4. Fire Instruction signage.
5. All Code Required Signage/Verbiage Shall be engraved on the new car operating panel.

g) Floor Annunciator: Provide new digitized voice annunciator providing both male and female voices in a system capable of up to 5-minutes of speech. Provide concealed speaker. Messages shall include the following announcements:

1. Floor number and direction of travel.
2. Notice of doors closing prior to nudging operation.
3. Notice of car on independent service.
4. Emergency operation announcements:
5. Firefighter's Service, "Elevator returning to lobby."

B. Car Position Indicator: Provide new segmented digital readout type with 2-inch high (minimum) indications at upper section of car operating panel. Indicator shall provide car position and direction of travel.

C. Fixture Requirements: Provide new faceplates constructed of satin finish stainless steel, minimum thickness 1/8-inch. All edges shall be relieved. All hall fixtures to have concealed fasteners.

D. Car Lanterns:

1. Provide car traveling lantern with one stroke up, two strokes down gongs shall be provided for the Elevators. Lantern shall be a digital arrow style.

2. As soon as the car door has fully opened, the lantern shall be illuminated and the gong shall sound whether the hall button has been pressed or not and the lantern shall remain illuminated until the car has left that lending. All visual and audible signal timing shall be in accordance with A.D.A. requirements.

3. Provide faceplates with beveled edges and tamperproof fasteners in a material and finish as selected by the Elevator Consultant. Submit samples and/or brochures from the pre-approved fixture supplier for review and selection by the Elevator Consultant. Lenses shall be sandblasted Plexiglas.

E. Hall Call Stations:

1. Provide surface mount type hall stations with tamper proof fasteners in a material and finish as selected by the Elevator Consultant.

2. Include F.E.R. Phase I keyswitch with engraved instructions at the main egress level or as directed by the local authorities.

3. Provide 1" LED position and directional indicators in each hall station showing location and direction of travel for each car in the group.

4. Provide each hall station with an engraved "Appendix H" diagram or other diagram approved by local codes.

5. All hall call stations shall be mounted at the Code required location.

6. A single pushbutton riser per group of two of elevators is required.

[Deduct Alternate Scope: Retain existing fixtures for elevator not being modernized, and provide new riser and fixtures for elevator being modernized only].

F. Hoistway Access Switches:

1. Provide a jamb mounted hoistway access keyswitch at the top and bottom terminal floors for each elevator.

2. Provide Stainless Steel No. 4 finish faceplate.

2.15 Car Enclosure

A. Retain existing shell and cab and modify as needed to accept new car operating panel.

2.17 Intercom

A. A new multi-path two-way communications system shall be provided. This system shall be comprised of a microprocessor based central control unit, a self-contained standby power supply, master communication station at each elevator machine room, the building's management office and a hands-free communication station inside each elevator car.

B. The central control unit shall be fully enclosed by a metal cabinet and wall mounted inside a centrally located machine room so as to be easily accessible for maintenance.

C. Accompanying the central control unit shall be a self-contained emergency standby power supply consisting of a nickel-cadmium or gel-cell battery pack with self-regulating battery charger. Whenever a disruption in normal power supply occurs, the standby power supply shall be automatically activated and shall be capable of sustaining communications for a continuous period of time not less than four (4) hours.

D. Each master communications station shall be equipped with a loudspeaker, microphone, volume control, annunciator, function/car/master station selector buttons and indicator lights. Those master stations which are located inside the elevator machine rooms shall be surface-mounted and may use handsets in lieu of hands-free operation, otherwise, the remaining master stations provided shall be flush mounted with hands free operation only. In addition to being arranged so that by pressing the appropriate selector button, communications can be initiated with other master stations, individual elevator cars, or entire elevator groups, each master station shall be configured so that responding to a registered call for assistance from any given elevator shall cause an indicator light designated “EMERGENCY CALL ACKNOWLEDGED” in the affected car operating station to become illuminated and to remain so until canceled.

E. Each elevator car shall be provided with a 4" loudspeaker and a microphone with pre-amplifier mounted behind perforations in the car operating station faceplate. Microphone sensitivity and loudspeaker volume shall be individually adjustable. Activation of the communications system shall be accomplished from inside the elevator by pressing a button in the car operating station designated “EMERGENCY CALL”. This action shall cause a corresponding indicator light on each master station to become illuminated and for an annunciator therein to sound. A master station may respond to any such call for assistance by pressing the illuminated button.

F. ADA Autodial Telephone Features:

1. The system shall provide the facilities to connect elevator car stations to the telephone network should the car alarm fail to be answered by a master after a preset time clock (after hours). Owner may prefer the use of a fully wireless system running off the cellular telephone network. Contractor shall provide and install such as system for no additional cost, if desired by Owner.

2. The car alarm button, when pressed, shall automatically initiate a voice announcement in the car, “emergency call has been activated” and the car station LED shall flash every 3 seconds. If a master station fails to answer a call after a preset time, the system shall automatically dial out. The car passenger shall hear a voice announcement “your call will be redirected”. When activated, the system shall automatically dial the first programmed telephone number. If that number is busy, the system shall continue to call each programmed number until answered. The system shall allow for up to five (5) outgoing numbers.

3. When the remote telephone is answered, the operator shall hear a voice message, “press the “star” (*) button to answer the call”. When answered, a voice message will be heard indicating building name, location and car number, plus instructions.

4. When the “star” (*) button is pressed, the car station (LED) shall turn on steady and the passenger shall communicate hands free.

5. If additional car alarms occur while a call is in progress, a voice announcement indicating another car alarm shall be heard at the remote telephone.

6. Calls from a remote telephone to any elevator car station shall be completed by dialing the system telephone number, entering a pre-programmed PIN number followed by a station number.

2.18 Power Isolation Transformers

The elevator contractor is responsible for providing and installing power isolation transformers dedicated to the elevator equipment as detailed herein if required by the elevator controller manufacturer.

A. The power conditioner/regulator shall be designed in accordance with applicable portions of the following standards:

   a) American National Standards Institute (ANSI)
   b) Institute of Electrical and Electronic Engineers (IEEE)
   c) National Electric Code (NEC)
   d) National Fire Protection Association (NFPA Article 70)
   e) FCC Article 15, Section J, Class
   f) ANSI C62.41 Category B-3
   g) UL Listed to Standard 1012
   h) C-UL listed to CSA Standard C22.2, No. 107.1-01

B. Manufacturer Requirements: The manufacturer shall be ISO 9001:2008 “Quality Assurance Certified” and shall upon request furnish certification documents. The manufacturer shall be a United States based manufacturer with 10 years experience or greater in design and fabrication of three phase power conditioning and line voltage regulation equipment. The equipment shall be the Power Processor, Series 700F Front Access Power Conditioning Voltage Regulator, manufactured by Controlled Power Company, or approved equal.

C. Product Data: The manufacturer shall supply documentation for the installation of the system, including wiring diagrams and cabinet outlines showing dimensions, weights, BTUs, input/output connection locations and required clearances. Factory test results shall be provided to show compliance with the requirements. The manufacturer shall include test documentation which demonstrates compliance with the specified requirements at the continuous rated kVA load. The supplier shall furnish equipment submittal copies. Submittals shall be specific for the equipment furnished and shall include as-built information.

D. Performance and Construction Requirements:

1. The nominal AC input voltage rating of the power conditioner/regulator shall be 208VAC 3 Phase. The nominal AC output voltage shall be (480/277VAC) wye derived.
2. The nominal operating frequency shall be 60 hertz, +/- 3 hertz.
3. The output impedance shall be 3-4% typical.
4. The power conditioning transformer shall include seven (7) full capacity taps per phase, allowing for the tight output voltage regulation specified.
5. The power conditioning transformer shall provide a continuous duty, full load output power of 75 kVA.
6. Input voltage range shall be +10 / -20% with the output voltage regulated to +/- 3% typical.
7. Response time shall be less than ½ cycle. Correction time shall be within 1 cycle.
8. The output voltage of the power conditioning transformer shall drop no more than 2.5%, when stepping from no load to full load.
9. Less than 1% THD shall be added to the output waveform under any dynamic linear loading conditions presented to the system.
10. Input power factor shall be greater than .99 with a resistive load and not reflect any triplen harmonics to the utility under non-linear loads.
11. The overload rating for the power conditioner/regulator shall be 200% continuous load rating for 30 seconds, 1,000% for 1 cycle.
12. Common mode noise attenuation shall be 146 dB minimum. Transverse mode noise attenuation shall be 3 dB down at 1,000 hertz, 40 dB down per decade below 50 dB with a resistive load.
13. Efficiency shall be 96-97% typical, excitation losses shall be less than 1.5% of the kVA.
14. The power conditioner/regulator system shall exhibit a MTBF greater than 100,000 hours.
15. A main input molded case, thermal magnetic circuit breaker, rated at 125% of the full continuous load input current at the nominal input voltage, shall be furnished as an integral part of the unit.
16. Output ON indicating lamps shall be provided for each phase. An indicator light shall show if the output has been disabled by one of the following conditions:
    a. Transformer over-temperature
    b. SCR thermal over-temperature

17. The transformer windings shall be of all copper conductor construction with separate primary and secondary isolated windings. Fully processed, low carbon, silicon-iron transformer steel shall be utilized to minimize losses and provide maximum efficiency. Flux density shall not exceed 14k gauss. Class N (200° C) insulation shall be utilized throughout with 115° C temperature rise. The transformer shall have multiple (three) copper shields to minimize inner winding capacitance, transient and noise coupling between primary and secondary windings. Inner winding capacitance shall be limited to .001 pF or less.
18. Design shall allow for front access to the status lights, input circuit breaker, serviceable parts. No side or rear access required for system installation, operation or service. Input and output terminations shall be front access. Input terminations shall be made directly to the main input circuit breaker and the input ground terminal provided. Output terminations shall be made to the (copper bus connections provided, 3-phase, neutral and ground). Conduit landing plates shall be provided to permit top and/or bottom entry for input and output power connections.
19. Ventilation shall originate from the front of the cabinet and exhaust through the top of the cabinet. Electronic control section shall be isolated from transformer section and power terminations. Transformer section shall be designed for natural convection cooling. Cabinet shall be NEMA 1 rated and constructed using a 12-gauge steel frame with 10-gauge steel floor mounting channels. Exterior panels shall be pre-treated, and powder-coat painted with manufacturer's standard color.
20. The power conditioner/regulator system shall be required to operate without overheating in an ambient temperature range of -20°C to +50°C. The power conditioner/regulator system shall operate in a relative humidity of 0-95% non-condensing. The power conditioner/regulator system shall operate up to 5,000 feet above sea level without de-rating.
21. Maximum allowable noise shall not exceed 50 dba at 1-meter distance.
22. Contractor shall submit to the Consultant the power requirements of actual equipment being installed during submittal and drawing phase of project. Power conditioning requirements may be modified to suit actual equipment being installed; however Contractor's base bid shall include the necessary allowance for providing power isolation transformers as specified by this Section.

2.19 Elevator Machine Room

A. Machine Room Lighting

1. As directed by the elevator consultant, the elevator contractor shall provide and install new 4-ft. LED fixtures with two (2) bulbs each in the machine space and control room. The new light fixtures should be wired to an illuminated light switch at the machine space and control room entrances. Fixtures shall be placed above each machine and above each controller to achieve equal illumination for all equipment. A Minimum of 19 foot-candles measured at the floor is required by Code.

B. Mainline Switches

1. As directed by the elevator consultant, the elevator contractor shall furnish and install new main line disconnect switches, including any shunt trips, and wiring in the machine space and control room, per Code. The main line disconnect switch in the control room shall be visible from the elevator controller and mainline disconnect switch in the overhead machine space must be visible from the elevator hoist machines. The mainline disconnect switch shall conform to all authorities having jurisdiction. Contractor is to verify all power characteristics for proper sizing of the equipment.
2. Contractor to verify that adequate power supply is available for the new system.

C. Cab Lighting Disconnect Switch

1. As directed by the elevator consultant, the elevator contractor shall provide a fused and lockable disconnect switch for the cab lighting circuit, approved by the applicable Electrical Code, for each elevator. The contractor shall provide fuses, wiring, and conduit for a complete installation. All work shall comply with the Electrical Code. The disconnect switch shall be properly labeled with the elevator designation.

2.21 In-Car Cameras

A. Provisions shall be made for an HD CCTV camera to be mounted in the ceiling of the cab at a future date. Contractor shall include any cutouts, brackets, 14-gauge tamperproof housing and GFI outlet dedicated for the CCTV camera installation and hook-up. Traveling cable for each elevator shall be provisioned with a dedicated, properly shielded, CAT6, data cable for use by the cameras and shall provide the required wiring to feed to security hardware in elevator machine room.

2.22 Hoistway Ventilation

A. Elevator contractor shall cover and seal any existing hoistway ventilation with non-combustible materials, per Code.

2.23 Elevator Machine Room HVAC

A. Elevator contractor shall include an allowance of $2,500 in their bid for the repair of the current non-functioning mini-split air conditioning system in the elevator machine room.
B. As a bid alternate, Elevator contractor shall provide pricing to remove and dispose of existing mini-split HVAC unit in the elevator machine room and replace with new in the event the existing unit cannot be repaired. The new unit shall be sized to meet cooling requirements for all new equipment being provided and shall take into account other ambient heat and cooling loads, as needed, to ensure that the elevator machine room remains within the operating temperature and humidity parameters as specified by the elevator controller manufacturer.
C. All repair work shall comply with all State and Local Code requirements, and performed by a suitably licensed and qualified vendor and personnel, holding the appropriate State mechanical contractor registration.

2.24 Stand-Alone Elevator Fire Alarm System

A. Elevator contractor shall provide and install a new fire alarm system dedicated to elevator fire recall. All features and interfaces shall be per Code and provide all required signals to the elevator system for correct fire service operation. Any and all required status and monitoring panels must be provided in any required locations in the building.

B. The new stand-alone system shall interface with the existing building zoned fire alarm system such that an alarm in the elevator recall system will trigger the appropriate building alarm sequence.

C. All installation work shall comply with all State and Local Code requirements and performed by a suitably licensed and qualified vendor and personnel, holding the appropriate State electrical or fire protection contractor registration.

2.25 Building Electrical Work

A. As needed, the Elevator contractor shall retain the services of an electrical contractor to provide the building electrical items required by this specification and all other items as required for a fully code compliant elevator installation at the completion of the modernization. New GFCI outlets in the pits and elevator machine room, pit lighting, machine room lighting, mainline and cab light disconnects, power to the mini-split HVAC unit and power to the new stand-alone fire alarm system must be considered and provided.

B. The Elevator Contractor and/or their selected electrical contractor shall work with the building's generator service provider to ensure that all required power and control wiring between the elevators and the generator ATS is provided.

C. All installation work shall comply with all State and Local Code requirements and performed by a suitably licensed and qualified vendor and personnel, holding the appropriate State electrical contractor registration.

PART 3 - EXECUTION

3.1 Design Requirements

A. Electrical Design and Wiring:

1. All wiring shall be Underwriters approved stranded type in accordance with the latest International Electrical Code. Minimum size permitted shall be No. 18 AWG. These wires shall be installed in conduit with steel outlet boxes. All electrical boxes (Hall pushbutton boxes, Car Stations, Terminal boxes, pull boxes, etc.) and other similar items shall be of approved construction, hot-dip galvanized or electroplated with Zinc Dichromate. All electrical boxes exceeding 150 cubic inches shall be supported independently of the conduits.

2. All raceway shall be galvanized EMT and/or trough.

3. Furnish all materials and completely wire all parts of the electrical equipment of the elevator, including electrical devices on hatch doors.

4. Switches, relays, etc. on controller, starter, and signal panels and similar items on other parts of the equipment, shall be the latest model. Any parts showing wear or damage during the guarantee period to the extent that abnormal maintenance is required or indicated shall be replaced by the Contractor as part of his Contract obligations.

5. Contacts in elevator motor circuits, which are intended to be opened by the governors or other safety devices, shall be copper to carbon, or other approved non-fusing type. Relays shall be designed for visual inspection and easy replacement of contacts with minimal disassembly, and keyed parts for ease in reassembly. They shall be equipped with suitable blowout coils, vanes, barriers, etc., to prevent undue arcing and heating. Current ratings for silver-to-silver contacts on relays used in motor circuit applications shall be at least three times the current draw of the running ratings of the motor. Contacts on control and signal relays and switches shall generally be of silver alloy.

6. Conduits shall be run and connected to suitable approved connection boxes at all outlets, apparatus and panels.

7. The conduits shall be of such size that the wires or cables can be readily installed and replaced, if necessary. No conduit or raceway shall be less than 3/4 inch trade size, except that for small devices such as door switches, interlocks, etc. for which, 1/2 inch conduit may be used. The total overall cross-sectional area of the wires contained in any conduit shall not exceed 40 percent of the internal area of the conduit. Approved strain boxes shall be installed for all vertical runs in accordance with Code.

8. Conduits shall be neatly and systematically run. All exposed conduit and boxes shall be supported by straps (wire or plastic ties are not acceptable), hangers, or clamps to the structural steel, reinforced concrete, or other approved supports. Riser conduits and/or trough in hoistway shall be supported at each floor level.

9. Connections of all wires larger than No. 8 AWG shall be made with copper connectors except for Mainline Disconnect switches where UL approved aluminum lugs/connectors may be used. Metal eyelets pressed around the strands shall be used for all connections of smaller stranded conductors.

10. All terminals shall be tagged or identified in a permanent legible manner to match car and hoistway junction boxes and controllers.

11. In all machine rooms, hoistways, etc., install the equipment to allow easy access for maintenance.

12. All screws used for terminal connections of all wiring (machine room, hoistway and pit) shall be of proper size and type as approved.

13. All connections of wires to controller and motor lead terminals from external circuits shall be made with "copper" soldered lugs or "copper" eyelet compression type lugs.

14. All elevator lights (top and bottom of car and pit) and A.C. alarm bells shall be fused and located in the elevator machine room in a separate approved box, or on the controller. The fuses shall be identified (permanent label) “lights and alarm bells”.

15. All receptacles in elevator machine room, pits, and car shall be Ground-Fault Circuit-Interrupter type (GFCI).

16. All grounding shall be done in accordance with the latest International Electrical Code as adopted by local jurisdiction. Grounding of machine to bedplate is not permitted.

B. Mechanical Design Requirements:

1. All bearings, pivots, guides, guide shoes, gearing, door hanger sheaves, door hanger tracks, and elements subject to friction or rolling wear shall be accurately finished and arranged for convenient lubrication. Provide means for flushing and draining the larger bearings and gear cases. All oiling holes shall have dustproof, self-closing caps.

2. All bearings shall be sized for heavy-duty commercial elevator usage.

3. Ball and roller bearings shall be fully enclosed. Loading, lubrication, support and all other conditions of use shall be in accordance with the recommendations of the bearing manufacturer. Bearings for motors shall be of the open (non-sealed) type with approved fittings for grease lubrication or approved sealed bearings. The bearings shall not be part of the end bell housing, but shall be separate for easy removal and replacement.

4. All bolts used to connect moving parts, bolts carrying hoisting stresses, and all other bolts except guide rail bolts, subject to vibration or shock, shall be designed to prevent loosening of the nuts and bolts. Bolts transmitting shearing stresses between machine parts shall have tight body fit in drilled and reamed holes. All bolts subject to vibration shall be provided with split ring lock washers. All guide rail vane brackets shall be through bolted and provided with proper bolts, nuts and lock washers.

5. All parts shall be manufactured to high precision standards so that wearing parts will be readily interchangeable with stock repair parts with a minimum of field fittings.

6. All bearing and sliding surfaces of shafts, pins, bearings, bushings, guides, etc., shall be smoothly and accurately finished. During the maintenance period, all bearings shall be regularly checked for any tendency to run hot and any defects corrected.

7. Protection for moving parts: Belts, pulleys, chains, gears, couplings, projecting set screws, keys, and other rotating parts located so that any person can come in close proximity thereto, shall be fully enclosed or properly guarded.

8. All exposed hardware on public hall side shall be of tamperproof design constructed of stainless steel with No. 4 satin finish.

9. Tamperproof stainless steel spanner head screws shall be used for all exposed locations, for all landing button panels, certificate frames, interlocks and car lighting fixtures. Supply one Spanner head wrench for each size screw. Tamperproof screws shall be of the "captive type". Self-tapping screws or self-tapping machine screws shall not be permitted.

10. All locks and key operated switches shall be five (5) pin tumbler type. All keys where permitted shall be of the captive type. Furnish two (2) keys for each lock and/or switch for each elevator. All locks shall be mastered to one master key. Furnish four (4) master keys. Firemen's Service keys shall meet Local Code requirements.

3.2 Workmanship and Installation

A. Inspection and Tests:

1. Failure to keep the shutdown time within the specified limit may result in cancellation of the contract by the Owner. Any delays in the approved schedule shall be brought immediately to the attention of the Owner, in writing, along with the proposed revised schedule.

2. Arrange and schedule final inspection of all work and notify the Elevator Consultant in writing that the work has been thoroughly checked and is ready for final inspection. Testing shall be performed under the direction of authorized Inspectors.

3. When the elevator work is completed, conduct operating tests to the satisfaction of the Owner and the appropriate City Agencies having jurisdiction. The inspection procedure outlined in the ASME A17.2 for the Inspection of Elevators, Escalators and Moving Walks, Inspector's Manual will form a part of the final inspection.

4. Furnish all test instruments, labor and materials, required at the time of final inspection. They shall include, but not necessarily be limited to, standard 500 pound test weights.

5. Certificates: Before final acceptance, furnish all certificates required by all Public Agencies having jurisdiction. All certificates shall be turned over to the Owner with copies to the Elevator Consultant.

6. If requested by the Elevator Consultant, the following tests shall be made by the Field Engineer or Adjuster of the Elevator Company in the company of the Elevator Consultant or the Elevator Consultant’s Representative, at the time of final inspection:

   a. FULL LOAD-RUN TEST: Shall be for one-hour continuous run, with full specified rated load in the car. During the test run, the car shall be stopped at all floors in both directions of travel for a standing period of ten (10) seconds per floor.

   b. SPEED TEST: The actual speed of the elevator car shall be determined in both directions of travel and with full contract load and no load in the elevator car. Speed tests shall be made before and also after the full load run test. Speed shall be determined by applying a tachometer to the car hoisting cables. The actual measured speed of elevator car with full load in "UP" direction shall be within 5 percent of specified rated speed.

   c. TEMPERATURE RISE TEST: The temperature rise of the hoisting motor shall be determined during the full load test run. Temperatures shall be measured by the use of thermometer on top of windings and shielded by cotton waste or putty. Temperature rise of the equipment shall not exceed the temperature rise for the class of insulation used in the motor tests, shall be started only when all parts of the equipment are within 5˚ centigrade of the ambient temperature at time of starting test.

d. CAR STOPPING ACCURACY: Elevator stopping shall be tested for accuracy of landing within 1/2 inch plus or minus (from finished floor) at all floors with no load in car, balanced load in car and full load, in both directions of travel. Accuracy of floor landing shall be determined both before and after the full load run test.

e. INSULATION RESISTANCE TEST: The complete wiring systems of elevator shall be free from short circuits and grounds, and the insulation resistance of systems determined by use of a "Megger", shall be not less than one megohm. (Solid State Controllers are excluded from this test).

f. CAR SAFETY AND GOVERNOR TESTS: The car safety and governor shall be tested as outlined in Section 1003 ASME A17.1 Code.

g. STATIC CAR BALANCING: The car shall be statically balanced in its sling so that the total lateral force on top car guide assemblies shall be a maximum of forty pounds (40 lbs.) for all positions of the car in the shaftway.

h. DYNAMIC SYSTEM BALANCING: Car and counterweight suspension system shall be dynamically balanced so that total weight of counterweight and its frame shall be equal to total weight of unloaded car and its sling, plus forty percent (40%) of contract load with an accuracy of plus or minus fifty pounds (50 lbs).

i. ELECTRICAL PROTECTIVE DEVICES: All electrical protective devices in the wiring system (Fuses, Overloads, etc.) shall be tested for proper operation.

j. The FIREMAN'S SERVICE SYSTEM shall be tested for proper operation.

k. PASSENGER OVERLOAD TEST: The car shall be tested with 125% of rated load and shall conform to all passenger overload regulations in ASME A17.1. In addition, the car shall be subjected to the Acceptance and 5 Year Tests for Drive Machine Brakes in ASME A17.2.1, Inspectors' Manual for Electric Elevators.

l. BUFFER TEST: Car and Counterweight Oil Buffers shall be tested in accordance with the requirements for Acceptance and 5 Year Tests for Oil Buffers, as described in ASME A17.2.1, Inspectors' Manual for Electric Elevators.

B. Cleaning, Adjustment, and Final Acceptance:

1. At the end of each day, remove and legally dispose of all refuse and dirt resulting from work of this contract. All work areas shall be left "broom clean". After completion of work, thoroughly clean and adjust elevators so that they are in proper operating condition. Remove from site, all materials which are not required as part of finished work.

C. Safety of Persons and Property:

1. Plan the work and execute in an organized and orderly manner. Danger and warning signs shall be prominently displayed and exercise every precaution to protect pedestrians.

2. Erect construction barriers around the work area. Keep dust and noise at a minimum. Barricades shall not have protruding nails or sharp jagged edges.

3. If there are two (2) or more cars in a common shaft, furnish and install temporary wire screening between elevator hoistways. The screening shall be full depth and height of the elevator hoistways and shall be fastened to wood blocking which, in turn, is securely fastened to the Building structure. Wire screening shall be ½ ” x ½ ” #19 (.041 dia) galvanized wire mesh. All wire screening, wood blocking, protruding nails, etc. shall be removed after completion of work. Damaged concrete shall be repaired.

D. Protection:

1. Protect all items against dirt and damage. The Contractor shall be held fully responsible for all damage until final acceptance. Any equipment or property of the Owner damaged by this Contractor or his employees shall be restored to its original condition or replaced without cost to the Owner.

E. Contractor's Shop:

1. The successful bidder, shall, before being awarded this Contract, prove to the Consultant to his satisfaction that he maintains or has access to an adequate shop within a reasonable distance of the project, carry in stock, all spare parts furnished under this Contract which are subject to periodic failure.

F. Storage:

1. The Owner will designate a suitable area where the Contractor may store equipment until the work is completed. All equipment shall be stored at the sole risk of the Contractor.

2. The Contractor shall provide his own lock and key. The assigned storage area shall be left clear and unencumbered of material or debris and shall be left in a broom-clean condition at the completion of the work. An approved Type "C” fire extinguisher shall be provided and installed on a wall, for each storage area assigned to the Contractor.

G. Access to Elevator Equipment:

1. The Contractor shall provide keys for access to all the elevator equipment.

H. Punch List Items:

1. All punch list items shall be completed within thirty (30) consecutive calendar days of receipt of Punch List items.

3.3 Shaft Cleaning

A. The entire shaft, from the pit floor to the underside of the machine room slab, shall be thoroughly cleaned and vacuumed of all debris, lint, grease, dust, etc.

3.4 Hoistway Projections

A. Provide seventy-five degree (75˚) metal cant strips on all ledge projections in excess of two inches of all elevator hoistways on all floors.

3.5 Painting

A. Summary of Work Included:

1. Clean all ironwork and paint with one shop coat of primer coating. Do not paint galvanized steel with enamel coating. After erection, touch up bare spots on iron work. Apply final field coat of paint similar to shop coat.

2. Touch up any wall and ceiling surfaces damaged by work of this project with at least two coats of paint to match finish.

3. Paint metal with one coat of an oil-based rust inhibitive primer and one coat of an enamel alkyd paint.

B. Samples:

1. Before placing orders for materials, submit the name or names of manufacturers for approval.

2. Upon approval of the manufacturer, submit samples of all materials. Approval of the samples will be based upon manufacturers certifying that the products proposed are the standard best or top brands produced by them and are readily obtainable as such in "over the counter" sales. Do not proceed until all samples are approved.

3. All materials shall be further subject to field tests from time to time as the work progresses.

C. General Painting Requirements

1. Delivery: Deliver all material in their original containers with seals unbroken. Order in advance, in large enough quantities and in ample time to facilitate the work.

2. Storage of Materials: Store materials where directed. Keep storage space clean and accessible at all times. Remove paint or oil-soaked rags, waste, etc. from the premises at the close of each day's work. Absolutely no flammable or combustible materials are to be stored on the Owner’s property.

3. Protection: Provide suitable coverings to protect all work and all adjacent surfaces and objects.

4. Cleaning Up: Upon completion of the work, remove all surplus materials, empty containers, rags, and other debris from the premises. Touch up finished work where directed. Remove daubs or spatters of paint from all surfaces.

D. Workmanship:

1. Carefully prepare all surfaces to be painted. Do not apply paint until the surfaces are absolutely dry and clean.

2. Shop or priming coats shall be put in good condition; touch up any bare or abraded spots.

3. Wire brush all metal surfaces. Remove all abrasions in the prime coat, rust, scale, etc. Clean and touch up damaged areas to match prime coat. Clean metal work with solvent to remove all dirt and grease.

4. Clean concrete and masonry surfaces to be painted of all grit, dirt and loose material. Patch scratches, cracks, holes and similar defects in wall and ceiling surfaces to provide a smooth flush surface. Patched portions shall be given a coat of primer sealer in addition to all other specified coats.

5. Allow each coat of paint to dry before subsequent coat is applied. The finished work shall be free from runs or sags, defective brushing or brush marks, and clogging of lines and angles. Exposed surfaces shall be left clean.

END OF SECTION

SECTION 14 40 00 – ELEVATOR MAINTENANCE AND REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Except as modified by governing Codes and by this Division, the work shall comply with provisions of the latest editions of the following, and in the event of conflict between these standards, the Elevator Consultant's determination shall be final:

1. Local and/or State laws applicable for logistical area of project work including but not limited to:
    - State of Connecticut Safety Code for Elevators and Escalators
    - City of New Haven, CT local requirements and ordinances.
2. Safety Code for Elevators and Escalators, ASME A 17.1 and all supplements.
3. Guide for Inspections of Elevators, Escalators, Moving Walks, ASME A17.2
4. Safety Code for Existing Elevators and Escalators, ASME A17.3
5. Guide for emergency evacuation of passengers from elevators, ASME A17.4
6. NFPA Life Safety Code, Latest Edition
7. National Electrical Code (ANSI/NFPA 70)
8. Title III of the Americans with Disabilities Act (ADAAG)
9. International Building Code.
10. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
11. NEMA: National Electrical Manufacturers Association.
12. NFPA: National Fire Protection Association
13. OSHA: Occupational Safety & Health Administration.
14. UL: Underwriter Laboratories.
15. IEEE: Institute of Electronic & Electrical Engineers.
16. AIA: American Institute of Architects.
17. ADA: Americans with Disabilities Act.

The Contractor shall advise the Owner and Elevator Consultant of pending Code changes that could be applicable to this project or properties and shall provide written notice to same if there are any Code changes during the term of the maintenance contract.

1.2 SUMMARY

A. This Section details the requirements of the full comprehensive maintenance and repair contract to service, repair, and maintain all elevator equipment identified in this specification and other elevator related equipment if not listed, accompanying accessories, and related equipment, and thereof, in a manner that ensures all requirements, procedures, tests, inspections, filing procedures and recording documentation as referenced, mandated or implied herein are all inclusive.

B. Maintenance coverage shall include, but is not limited to, preventive services, emergency callback services, inspection and testing services and/or direct replacement component renewal procedures.

C. Contractor shall service and maintain, in full accordance with the terms of these specifications, the building elevators at the locations specified herein. The scope of work shall include, but not be limited to:

1. Keeping the elevators in safe operating condition 24 hours per day, 7 days per week, including Holidays (callback times as shown in §1.15)

2. Providing maintenance and replacement of parts and equipment as hereinafter specified.

3. Maintaining and submitting to the Owner a monthly elevator service report. This report shall be included with monthly invoices.

   Note: Invoice will not be processed for payment without monthly service report.

4. Providing inspection and testing service for any insurance company, city, state, or government agencies, which have jurisdiction over the elevators.

D. The following elevators are covered in this specification:

   Robert T. Wolfe Apartments, 49 Union Avenue, New Haven, CT
   Devices PE-1 and PE-2

   All noted devices shall be maintained as described in this Specification. Trained employees of the Contractor shall use all reasonable care to keep the systems in proper adjustment and in safe operating condition, in accordance with the applicable codes, ordinances, and regulations. The requirements are specified in their singular with the understanding that all provisions shall be provide for all vertical transportation systems indicated unless otherwise specified.

E. Equipment:

   The Contractor shall provide full comprehensive elevator maintenance as described herein on the specific equipment identified on the bid forms.

F. Exceptions:

1. The work to be performed by the said Contractor under these specifications shall be done to and for each elevator and everything which was furnished with each of them.

2. The Contractor shall not be required to restore to satisfactory operating condition any item of the elevator or parts thereof damaged by negligence, abuse, or misuse thereby caused by persons other than the Contractor, his agents, or employees as further defined herein.

1.3 DEFINITIONS

A. Words in the singular shall mean the plural whenever applicable or as to the context so indicates.

B. The specifications are written in the singular with the understanding identical work, materials and equipment shall be provided for all elevators identified unless otherwise specified.

C. All terms in these specifications have the definition given in the latest edition of the American Society of Mechanical Engineers, ASME A. 17.1, Safety Code for Elevators and Escalators.

D. Abbreviations for associations, institutions, societies, reference documents and/or governing agencies, which may appear in the Contract Document, shall mean the following:

AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
BOCA	Building Officials & Code Administrators International Inc.
A.H.J.	Authority Having Jurisdiction
G.A.	Governing Agency
NEC	National Electrical Code
OSHA	Occupational Safety and Health Administration

E. Owner and Managing Agent shall be as defined in the underlying Contract.

F. Contractor shall mean the Service Provide, as defined in the underlying Contract.

1.4 FIRM AND PERSONNEL QUALIFICATIONS

A. If required by law, Contractor certifies that it is licensed in the state, municipality and/or local jurisdiction where the property is located to perform the elevator services pursuant to this specification, and that license will be maintained current and valid for the term of the Contract.

B. Work shall be performed only by Licensed Qualified Technicians and Mechanics directly employed and supervised by the Contractor, who are experienced and skilled in maintaining vertical transportation units similar to be maintained under this Work and shall not be assigned or transferred to any agent or subcontractor without the express written consent of the Owner or Managing Agent.

1.5 NOTICE BY OWNER TO REPAIR OR REPLACE

A. The Contractor shall comply with all written recommendations of the governing authority or independent inspectors, consultants and insurance carriers employed by the Owner. However, Contractor is not required under this Contract to install new attachments different from those now constituting the equipment, as recommended or directed by insurance companies, Government Authorities, or otherwise.

1.6 SUBSEQUENT EQUIPMENT MODERNIZATION, ALERATIONS, AND UPGRADES

A. Full comprehensive service and repair coverage shall be included under the terms of this agreement when equipment and/or component systems represented herein are modified or upgraded.

B. Such changes in equipment necessitating continuing full maintenance coverage may be initiated by the Owner under a separate voluntary extra cost upgrading agreement with or without this Contractor's permission or direct authorization and involvement before the work is performed.

C. Modernized or otherwise upgraded systems and parts thereof shall automatically be included under the terms of this full comprehensive agreement whether such components are specifically identified or not without extra cost to the Owner.

D. Owner shall have the option of severing the elevator comprehensive maintenance and repair service contract with no penalty at any time if any of the units covered under the agreement undergo modernization, whether with the service provider or a different company.

1.7 PAYMENT FOR MAINTENANCE SERVICE

A. This Section supplements the requirements of the General Conditions and is specific to this the Maintenance and Service Repair of the Work.

B. The cost for all interim maintenance and 12-months of post-completion service and maintenance, as specified herein, shall be included in the bid price for the modernization for both cars, irrespective if one or both elevators are modernized. Monthly invoices and reports shall still be provided.

   a. The invoice charges shall be presented in a spreadsheet format following the format below:

      - Monthly Contract Costs: $0 base fee, extraordinary work and other work charges, if any, broken down on a car-by-car basis.

      - Full work report, as detailed in Item 1.10D.

   b. Monthly invoices shall indicate the base monthly portion fee of the amount due under the agreement for maintenance services. Titled: Base Quarterly Maintenance Fee presented at follows:

      1. Monthly Fee: $0 (included in modernization cost)

2. Extraordinary Work and/or Other Work: Work not covered under the full maintenance contract as approved by Owner, such as elective upgrading of components and accessories, modernization of equipment and invoiced separately upon completion and acceptance of the work or other service performed. Such invoicing shall include mechanic's time ticket with description of work, hours spent, materials, date, and other pertinent information.

C. The owner, in no instance, will process and/or pay an invoice unless it includes a clear, typed comprehensive monthly report of all activities at each site and car. It is incumbent on the service contractor to clearly itemize all charges by building name and address, and specific elevator. Elevators be identified by numbers defined above; PE-1 or PE-2, etc., numbering from left to right.

D. Elevator contractor shall submit with invoices all AHJ and/or licensed third-party inspectors non-compliance reports and subsequent work slips for corrective actions to comply with AHJ elevator inspections.

1.8 RECORDING KEEPING AND REPORTS

A. Record Drawings: The contractor shall provide and maintain two (2) complete sets of updated electrical wiring Diagrams and control schematic drawing on file within the building and they are to become the Property of the Owner for each group and/or individual system.

B. Permanent Records: A complete permanent record of inspections, maintenance, lubrication and call-back service shall be kept in the machine room or other designated location at the site of work. These records are to available to Owner and Owner designees at all times. The records shall indicate the reason the mechanic was in the building, arrival and departure time, the work performed, etc., and these records will be the property of the Owner. Record keeping requirements shall include Contractor assigned maintenance personnel and scheduled preventive maintenance procedures, inspections, tests and third party assisted examinations. The Contractor shall be required to maintain and submit to the Owner: elevator service records, permits, certificates, inspection reports, etc. It shall be the Contractor's responsibility to provide sufficient documentation to allow the Owner to adequately monitor the performance of this contract.

C. Annually the records specified in paragraph B. above shall be submitted to the Owner and become the property of the Owner. If electronic tracking is utilized to comply with paragraph B of this section, a complete printout will be submitted to the Owner for their records.

D. Reports: The Contractor shall, at any time during the term of this Contract, upon written request of the Owner, render a report of inspections, repairs or replacements made by the Contractor at the premises herein, itemized as to parts installed or services performed, and supply samples of lubricants, compounds, or other materials employed.

1. Contractor shall prepare and issue all required forms and/or reports relative to examinations, tests and inspections as specified herein.

2. Contractor shall provide a typed monthly report of all activities at each site, as part of the invoice process.

1.9 PERFORMANCE

A. The Owner may have the Contractor's work and systems' performance operations checked monthly to ensure the Contractor is performing in accordance with this Contract. If the work requirements are not maintained, the Owner will retain the monthly payment to the Contractor until the Consultant verifies that the work and/or operating performance is back to standard. If three (3) consecutive months of substandard maintenance is noted, the Owner has the right to immediately cancel the Contract without notice to the Contractor.

B. The Consultant and/or Owner's Designee may withhold approval for payment on any request to such extent as may be necessary to protect the Owner from loss on account of:

1. Negligence on the part of the Contractor to execute the work properly or failure to perform any provisions of the contract. The Owner, after three (3) days written notice to the Contractor, may, without prejudice to any other remedy, make good such deficiencies and may deduct the cost of the contract.

2. Claims filed or reasonable evidence indicating probable filing of claims due to the Contractor's failure to perform.

3. Failure of Contractor to make payments properly to subcontractors for material and labor used to fulfill contractual requirements.

4. Damage to the building as a result of work performed or another subcontractor's failure to perform.

C. If the Contractor fails to respond within the performance times specified in Paragraph 2.6 of this specification for Emergency Call-Back Service, the Owner reserves the right to utilize another Service Provider to respond to emergency and shall deduct the cost of this other Service Provider from the Contractor's next monthly payment.

D. Contractor’s failure to execute statutory tests mandated by either national codes or local jurisdictions or regulations within 30 calendar days of required time constraint shall subject Contractor to a $100.00 per calendar day penalty on each unit for each infraction beginning on the 30th day subsequent to the required date and continuing until Owner receives written notification from Contractor of completion of required test. Statutory tests include, but are not limited tests specified herein. Contractor shall attempt to schedule said tests in the presence of local enforcing authority and/or persons designated by Owner. Scheduling difficulties shall not exempt Contractor from performing tests in compliance with applicable code or regulatory requirements.

1.10 OWNERSHP OF EQUIPMENT

The Contractor does not assume possession or control of any part of the equipment but such remains the property of the building exclusively as the owner thereof.

1.11 NOTICES

All notices to be given under the contract from the Contractor to the Owner shall be in writing and addressed to the party to be notified, postage prepaid, by registered or certified mail, return receipt requested, or by delivering the same in-person to such party. All notices shall be deemed to have been given as of the date of delivery indicated on the return receipt or date of failure to deliver by reason of changed address of which no notice was given or refusal to accept delivery, or when personally delivered. Any party or person to whom notices are to be sent or given pursuant to the Contract may, by notice to all such other parties or persons mentioned herein, change its address for the giving of notices, provided, however, that a notice addressee. Notices from the Owner to the Contractor may be in the form of e-mail or other electronic communication.

1.12 AGREEMENT INTENT

A. Provide proactive preventive maintenance for the equipment covered by this Agreement to facilitate the following:

   i. Consistent safe operation of equipment
   ii. Maximum operational performance of equipment
   iii. Maximum beneficial usage of equipment
   iv. Maximum life cycle of equipment

B. Contractor expressly acknowledges that Owner is relying on Contractor's professional expertise in performance of Services to achieve and maintain Agreement intent.

C. For clarification elevators, escalators, moving walks, etc. may be referred to as "units", "cars" or "equipment" in this Agreement.

1.13 CONTRACTOR SERVICES

A. Services shall include all labor, transportation, supplies, materials, parts, tools, scaffolding, machinery, hoists, employee safety equipment, equipment, lubricants, supervision, applicable taxes, and all other work and materials expressly required under this Agreement or reasonably inferred whether or not expressly stated herein.

B. Contractor shall submit a written Maintenance Control Program (MCP) specifically designed for the properties included in this agreement defining the planned preventive maintenance procedures to facilitate Agreement intent and "Services" for all equipment included under this Agreement. Routine maintenance procedures shall include any unique or product specific procedures or methods required for inspecting or testing the equipment. MCP shall identify weekly, bi-weekly, monthly, quarterly, and annual maintenance procedures, including statutory and other required equipment tests.

C. Coordinate and follow the directives of Owner with respect to scheduling Services and any deliveries hereunder or at time or times further specified in other provisions of this Agreement.

D. Services shall be performed as follows:

a. In conformance with all provisions of this Agreement.

b. In conformance with all applicable original equipment manufacturer's specifications.

c. In conformance with the written Maintenance Control Program (MCP).

d. In conformance with Owner's requirements for cleanup using containers supplied by Contractor.

e. To Owner's satisfaction.

f. By qualified, careful, and efficient employees in conformity with best industry practices.

g. Diligently and in a first class, complete, and workmanlike manner, free of defect or deficiency.

h. In such manner as to minimize any annoyance, interference, or disruption to occupants of Property and their invitees.

E. Materials: The term "materials" shall include all tangible property, whether designated as materials, goods, parts, or otherwise. All such materials shall be:

a. New.

b. Best quality and suitable for their intended uses.

c. Obtained from or recommended by original manufacturer(s) of equipment for replacement or repair, including parts redesigned by and recommended as replacement parts by the original equipment manufacturer(s). Equivalent parts may be used if approved by Owner in writing.

d. Parts requiring repair shall be rebuilt to "like new" condition.

e. All lubricants shall be suitable for purpose intended and shall meet or exceed minimum requirements specified by original manufacturer of equipment to which the lubricant is applied.

f. All materials delivered and stored at the Property which are intended to become part of the completed Services shall pass to Owner upon installation.

g. Lubricants, cleaning fluids, and all combustible liquids shall be stored in a metal cabinet in machine room and shall be disposed of in accordance with Federal or local jurisdiction guidelines. A metal can with lid shall be provided in each machine room for temporary storage of oily rags.

h. Proration of equipment or materials shall not be allowed.
Consideration shall be given in regard to obsolescence of systems, materials, or parts only when both the original equipment manufacturer(s) and after-market elevator industry suppliers no longer manufacture or rebuild required parts or assemblies. Rebuilt parts and/or assemblies are acceptable when documentation is provided indicating parts and/or assembly meets all design requirements of the original part and/or assembly.

F. No parts or equipment required by Services may be removed from the Property without written approval of Owner. This does not include renewal parts stocked on site by Contractor, which shall remain Contractor's sole property until installed on the equipment. Expeditiously replenish parts/materials as utilized.

G. Initiate, maintain, and supervise all safety precautions and programs in connection with Services and comply with all applicable safety laws. Take all reasonable precautions for safety of building occupants and visitors, Contractor's employees, and other persons on or about Property.

H. Repair, to satisfaction of Owner, any damage to the Property and adjacent areas caused by performance of Services.

1.14 CONTRACTOR'S EMPLOYEES

A. Contractor shall be responsible for the supervision and execution of Services by its employees. An onsite condition review shall be conducted by a designated Supervisor of Contractor on an annual basis to ensure all Services hereunder are properly performed. Contractor shall inform Owner of the name of its Supervisor responsible for execution of Services and Supervisor shall have the authority to act as Contractor's agent. Supervisor shall notify Owner of site inspection and provide Owner's Real Estate Manager, Engineer and Elevator Consultant with written summary of findings within ten (10) working days after completion of site review.

1.15 CONTRACTOR'S HOURS AND MANNER OF WORK

A. Services, except as otherwise noted under this Agreement, including unlimited emergency callback service, shall be performed during regular hours of regular working days of the Elevator Trade Monday through Friday 8:00am to 4:30pm. For all properties with a single elevator, or a single elevator that serves a specific area of the building for which there is no alternate elevator, emergency callback service shall be 24-hours per day, including weekends and holidays, as part of the base scope of services for that unit.

B. Response time for callback service:

   a. During the hours identified above, Contractor shall arrive at Property within sixty (60) minutes from time of notification of equipment problem or failure by Owner.

   b. During the hours identified above, Contractor shall arrive at Property in response to passenger entrapment calls within thirty (30) minutes from time of notification by Owner.

   c. After hours, Contractor shall respond to callback service within ninety (90) minutes from the time of notification by Owner.

C. Callback is defined as any request for service or assistance by Owner, Owner or Owner's representative when any unit is not available for beneficial usage due to equipment shutdown or malfunction.

D. Removal of units from beneficial usage to facilitate Services shall be coordinated with and approved by Owner and identified in the MCP unless removal is necessitated for emergency repair or adjustment. Owner agrees to permit Contractor to remove units from service for a reasonable time during hours identified above, to perform Services.

1.16 SPECIAL CONDITIONS

A. Contractor will update its online system within twenty-four (24) hours of servicing or repairing an elevator. Detail shall include a description of the work performed and the name of Contractor's employees who performed such work.

B. 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 controller(s). 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 Owner via manual log or 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. Owner shall be allowed to inspect and copy log or electronic printout and maintenance history and schedule at any time.

C. Maintain property's complete set of straight-line wiring diagrams in good condition. Drawings shall be consistently updated and properly noted with "as built" conditions with any changes or modifications to circuits resulting from control modifications, parts replacement, or equipment upgrades made by Contractor during Agreement term. Owner shall be allowed to reproduce these "as built" drawings and retain sole possession of these drawings in event Agreement is cancelled. If Agreement is cancelled, Owner will withhold final payment due Contractor until all as built/as modified set(s) of wiring diagrams are delivered to Owner.

D. Equipment manufacturer's electronic diagnostic devices required to facilitate services, including fixed and hand-held devices, shall be maintained and upgraded by Contractor during the term of this Agreement. If requested by Owner or Owner's Elevator Consultant, any such handheld or other electronic devices shall be left on-site at all times.

E. Local inspection fees in regard to operation of equipment covered by this Agreement shall be paid by Owner. Fees for re-inspection, including any fees payable to Owner's third-party witness, due to Contractor's failure to expeditiously eliminate deficiencies covered by Services prior to Category 1 or Category 5 inspections shall be paid by Contractor.

1.17 CONTRACTOR'S REPORTING REQUIREMENTS

A. The Contractor shall provide a monthly report showing all elevators maintained by them no later than the fifth day of each month. The report shall be in excel format and include a column for the number of callbacks that occurred in that quarter, a cumulative total of callbacks since contract inception, the length of the callback (time for response, correcting problem and returning unit to service), time for all monthly maintenance performed, time for all monthly repairs performed, time for testing and all other occurrences where unit was out of service.

1.18 OWNER'S RIGHT TO AUDIT SERVICES

A. Owner reserves the right to make, or cause to be made, such audits and tests whenever necessary to ascertain that Services are being fulfilled. Deficiencies noted shall be submitted, in writing, to the Contractor. Contractor shall expeditiously correct deficiencies within thirty (30) working days at its expense.

B. A qualified vertical transportation Consultant selected by Owner will be retained by Owner to perform audit of Services and mediate disputes. Reinspection deficiencies and associated fees will be at Contractor's expense.

1.19 NOTICES

A. Each party will notify the other when they become aware of the death or injury to any person or damage to property arising from the use of the Equipment

1.20 OWNER'S RESPONSIBILITIES

A. Provide clear and safe access to Property and equipment rooms.

B. Maintain car lighting, telephone lines to controller terminal(s), equipment room electrical switch gear, and electrical feeders to unit controllers.

C. Maintain equipment room heating and air conditioning systems.

D. Maintain fire alarm initiating devices in elevator lobbies, machine rooms, hoistways, etc.

E. Prevent storage of Property or other Contractors' equipment or supplies in unit equipment rooms and obstruction of equipment room access corridors and doors.

F. Maintain standby power generator systems and related switchgear and feeders.

G. Maintain equipment rooms, hoistways, wellways, and pits in code compliant dry condition.

H. Coordinate with Contractor in regard to equipment retrofits such as security systems, new car interior finishes, car interior TV systems, etc.

I. During Property construction and/or modernization, make provisions to limit infiltration of dust and debris into equipment and equipment spaces.

1.21 CONTRACT TERM

A. Initial contract term shall be one (1) year from the date of commencement.

B. Owner may optionally extend contract for up to four (4) additional years from the date of expiration of initial term, providing notice is provided by Owner to Contractor prior to expiration of initial contract term. Contractor shall be notified of additional contract term with each renewal. Contractor shall provide pricing for any such extensions when requested by Owner.

C. In the absence of formal notice from Owner, contract shall automatically renew each month for a period of thirty (30) days, until Owner or Contractor gives notice of cancellation as per Termination of Contract provisions of this contract.

PART 2 - PRODUCTS AND SERVICES

2.1 MATERIALS AND WORKMANSHIP

All materials are to be new and of the best quality of the kind specified. Installation of such materials shall be accomplished in a neat and workmanlike manner. In case the Contractor should receive written notification from the Owner stating the presence of inferior, improper, or unsound materials or workmanship, the Contractor shall, within twenty-four (24) hours proceed to remove such work or materials and make good all other work or materials damaged thereby. If the Owner permits said work or materials to remain, the Owner shall be allowed the difference in value or shall, at its election, have the right to have said work or materials repaired or replaced as well as the damage caused thereby, at the expense of the Contractor, at any time within one (1) year after completion of the work; and neither payments made to the Contractor, nor any other acts of the Owner shall be construed as evidence of acceptance and waiver.

2.2 SCHEDULED PREVENTIVE MAINTENANCE LABOR

A. Contractor shall provide scheduled monthly examinations, adjustments, cleaning and lubrication of all machinery, machinery spaces, hoistways and pits. The Contractor shall include a minimum of **one hour per month per traction unit**, that is to be dedicated to routine preventive maintenance.

B. Where there is no specific requirement for a preventive maintenance procedure, the original equipment manufacturer (O.E.M) standard shall be employed unless there is no relative documentation available. The absence of both contract requirement herein and the O.E.M. design standard shall cause the contractor to engage the services of a qualified engineer to formulate the relative standards and incorporate same as an addendum to this agreement with the Professional's Seal and Stamp.

2.3 FULL PROTECTIVE MAINTENANCE REQUIREMENTS

A. Regularly and systematically examine, adjust, lubricate, clean and when conditions warrant repair or replace the following items and all other mechanical or electrical equipment.

1) Machine, drive and deflector sheave, sheave shaft bearings, worm gear, drive gear, thrust bearings, brake pulley, brake coil, brake contact, shoes and linings, and component parts.

2) Hydraulic operating valves, valve motors, leveling valves, mufflers, exposed piping, hydraulic fluid tanks, pumps, pump motors, scavenger pumps, hydraulic packing.

3) Motor, SCR motor drives, VVVF/AC motor drives, regenerative power drives, motor generators, motor windings, rotating element, commutator, field coil, brushes, brush holders and bearings, rotors, stators, slip rings.

4) Governor, governors sheave and shaft assembly, bearings, contacts and governor jaws.

5) Deflector or secondary sheave, bearings, car and counterweight buffers, car and counterweight guide rails, top and bottom limit switches, governor tension sheave assembly, compensating assembly, counterweight and counterweight guide shoes, including rollers or gibs.

6) Controller, Selector and Dispatching Equipment: all components including all relays, solid state components, resistors, condensers, transformers, contacts, leads, dashpots, computer devices, selector switches, mechanical or electrical driving equipment, coils, magnet frames, contact switch assemblies, springs, solenoids, resistance grids, hoistway vanes, magnets and inductors,

7) Hoistway door interlocks or locks and contacts, hoistway door hangers and tracks, bottom door gibs, cams, rollers, and auxiliary door closing devices for power operated doors. Chains, tracks, cams, interlocks, sheaves for vertical bi-folding doors.

8) Hoistway limit switches, slowdown switches, leveling switches and associated cams, vanes, and electronic components.

9) Guide shoes including rollers or replaceable gibs.

10) Automatic power operated door operators, door protective devices, car door hangers, tracks and car door contacts for both side slide and vertical bi-folding doors.

11) Traveling cables.

12) Elevator control wiring in hoistway and machine room.

13) Car safety mechanism and load weighing equipment.

14) Hoist ropes and compensating chains, compensating ropes. Hoist ropes displaying rouge with or without cross section loss shall be replaced.

15) All batteries for: emergency car lighting, controller backup power, emergency lowering, controller backup power.

16) All car and hoistway operating fixtures including hall lanterns, main Lobby fixtures, car operating panels, position indicators, car fans, electric door operators, proximity devices, safety edge, photo eyes, door reflectors and starters' panels.

17) The guide rails shall be kept free of rust. Where roller guides are used, rails shall be kept dry and properly lubricated when sliding guides are used. Renew guide shoe rollers and gibs as required to insure smooth and satisfactory operation.

18) Furnish lubricants compounded specifically for elevator usage.

B. The Contractor shall check the group dispatching systems (if applicable) and make necessary tests to ensure that all circuits and time settings are properly adjusted, and that the system performs as designed and installed.

C. The Contractor shall keep each elevator maintained to operate at the original contract speed, keeping the original performance time, including acceleration and retardation as designed and installed by the manufacturer. The door operation shall be adjusted as required to maintain the original door opening and door closing times, within legal limits.

D. The Owner reserves the right to make inspections and tests as and when deemed advisable. If it is found that the elevators and associated equipment are deficient either electrically or mechanically, the Contractor shall be notified of these deficiencies in writing, and it shall be his responsibility to make the necessary corrections within 30 days after his receipt of such notice. In the event that the deficiencies have not been corrected within 30 days, the Owner may terminate the Contract and employ a Contractor to make the corrections at the original bidder's expense.

E. Approximately six months prior to the end of the contract term, the Owner may make a thorough maintenance inspection of all elevators covered under the contract. At the conclusion of this inspection, the Owner may give the Contractor written notice of any deficiencies found. The Contractor shall be responsible for correction of these deficiencies within 30 days after receipt of such notice.

F. Spare Parts

1. Provide a list of minor spare parts for the Elevator Consultant's review and approval.

2. In addition to the minor spare parts, the Contractor shall have available at all times, for immediate delivery and installation, sufficient supply of emergency spare parts for the repair of each elevator concerned.

3. Contractor shall provide at the building a spare part metal; lockable storage cabinet and metal safety containers for storage of waste and other flammable materials.

G. Items of Preventive Maintenance Work

1. The preventive maintenance specified herein is considered the minimum for all equipment. If specific equipment covered by this contract required additional preventive maintenance for safe, reliable operation as specified by the manufacturer, the Contractor shall perform the required additional preventive maintenance without added cost to the Owner. If specific equipment covered by this contract required additional preventative maintenance for safe, reliable operation as specified by the manufacturer, the Contractor shall perform the required additional preventative maintenance without added cost to the Owner.

2. Monthly

a. Perform general inspection of machinery, sheaves, worm and gear motor, brake, selector or floor controllers. Lubricate as required.

b. Empty drain pans, discard oil, in an approved manner. Check and maintain oil level.

c. Replace all burned out lamps in elevator machine room, pit, hall lanterns, etc.

d. Remove litter, dust, oil, etc. from all machine room equipment.

e. Clean trash from car top and pit. and empty drip pans.

f. Check governor and tape tension sheave lubrication.

g Burned out lamps in hall lanterns, pushbuttons, and corridor position indicators, remote arrival signals, remote dispatch panels, and other signal fixtures shall be supplied and installed by the Contractor. Burned out lamps in elevator, machine rooms and pit shall be supplied by the Owner and installed by the Contractor.

h. Observe operation of elevator throughout its full range and at all floors it serves to test controls, safety devices, leveling and re-leveling and other devices.

i. Check door operation, clean, lubricate and adjust brakes, checks, linkages, gears, wiring motors, check keys, set screws, contacts, chains, cams and door closer.

j. Check selector. Clean, adjust and lubricate bushings, dashpots, travel cables, chain, pawl magnets, wiring, contacts, relays, tape drive and broken type switch.

k. Check car. Clean, adjust and lubricate car door and gate tracks, pivots, hangers, ventilation grilles, side and top exits.

l. Inspect interior of elevator cab. Test intercom/telephone or intercommunication system, normal and emergency lights, fan, emergency call system or alarm. Make needed repairs.

m. Visually inspect controller, contacts and relays. Check adjustment and replace contacts as required.

n. Observe operation of signal and dispatching system. Inspect compensating hitches, buffers, rope clamps, slack cable switch, couplings, keyways, and pulleys. Check load weighing device and dispatching time settings. Clean, adjust and lubricate as necessary.

o. Check oil level in car and counterweight oil buffers and add oil as required.

p. Check hoist ropes and compensating chains/ropes. Lubricate as required.

q. Check brushes and commutators. Inspect commutators for finish, grooving, eccentricity and mica level. If required, clean, turn or refinish commutator to provide proper commutation. Inspect brushes for tension seal and wear, replace or adjust as required.

r. Perform fire service test, per Code.

s. Check and adjust:
    1) Car ventilation system.
    2) Car position indicators.
    3) Hall and car call buttons.
    4) Hall lanterns.
    5) Main dispatch panels/remote monitoring panel

3. Quarterly

a. Check leveling operation. Clean and adjust leveling switches, hoistway vanes, magnets, and inductors. Repair and/or adjust for proper leveling.

b. Check hoistway doors. Clean, lubricate and adjust tracks, hangers and upthrust eccentrics, linkage gibs and interlocks.

c. Clean, adjust, and lubricate car door or gate tracks, pivots and hangers.

d. On hoistway doors, clean, lubricate and adjust tracks, hangers and eccentrics, linkage gibs and interlocks.

e. Inspect all fastenings and ropes for wear and lubrication. Clean both governor and hoist ropes and lubricate hoist ropes if needed.

f. Inspect all rope hitches and shackles and equalize rope tension.

g. Inspect hoist reduction gear brake and brake drum, drive sheave and motor, and any bearing wear.

h. In the car, test alarm bell system. Clean light fixtures. Inspect, clean and adjust retiring can device, chain, dashpots, commutators, brushes, cam pivots, and fastenings. Test emergency switch (ground case if necessary). Inspect safety parts, pivots, set screws, switches, etc. Check adjustment of car and counterweight gibs, shoes or roller guides. Lubricate and adjust, if necessary.

i. In the pit, lubricate compensating sheave and inspect hitches. Inspect governor and tape tension sheave fastenings. Empty and clean oil drip pans.

j. Clean all parts of safeties and lubricate moving parts to assure their proper operation. Check and adjust clearance between safety jamb and guide rails. Visually inspect all safety parts.

k. Clean and examine governor ropes, replacing if needed. (Do not lubricate governor rope.)

4. Semi-Annually

a. Check controllers. Clean with blower, check alignment of switches, relays, timers, contacts, hinge pins, etc., adjust and lubricate. Check oil in overload relays, settings and operation of overloads. Clean and inspect fuses and holders and all controller connections.

b. In hoistway examine guide rails, cams and fastenings. Inspect and test limit and terminal switches. Check and adjust car shoes, gibs or roller guides. Adjust or replace as required.

c. Clean all overhead cams, sheaves, sills, bottom of platform, car tops, counterweights and hoistway walls.

d. Inspect sheaves to ensure they are tight on shafts. Sound spokes and rim with hammer for cracks.

e. Examine all hoist ropes for wear, lubrication, length and tension. Replace, lubricate and adjust as required to meet code requirements.

f. On tape drive, check hitches and broken tape switch.

g. Check car stile channels for bends or cracks, also car frame, cams, supports and car steadying plates.

h. Lubricate moving parts of vertical rising or collapsible car gates.

i. Check pivot points, sheaves, guides and track for wear.

j. Lubricate guide shoe stems.

k. Check governor and tape tension sheave fastenings.

l. For bi-parting doors, clean chains, tracks and sheaves, lubricate as required. Check door contacts.

m. Check fastenings and operation of door checks, interlocks, clean and lubricate pivot points as required.

5. Annually

a. Thoroughly clean car and counterweight guide rails using a nonflammable or high flash point solvent to remove lint, dust and excess lubricant.

b. Remove, clean and lubricate brake cores on brakes, clean linings, if necessary and inspect for wear. Correct excess wear and adjust.

c. Inspect motor generator and hoist motor armatures and rotor clearance. Check motor and MG set connection and lubricate in accordance with manufacturer's instructions.

d. Drain, flush and refill oil reservoirs of each hoisting motor and motor generator.

e. Check and reset, if necessary, all brushes for neutral settings, proper quartering and spacing on commutators.

f. Group supervisory control systems where installed shall be checked out. The system's dispatching, scheduling and emergency service features shall be tested and adjusted in accordance with manufacturer's literature.

H. The Contractor shall during the course of all monthly examinations remove and discard immediately all accumulated dirt and debris from the car top(s) and pit area(s).

2.4 PAINTING

A. The Contractor shall keep the exterior of the machinery and any other parts of the equipment subject to rust properly painted, identified and presentable at all times. Motor windings and controller coils shall be periodically treated with proper insulating compound. The machine room floor and all storage areas shall be painted annually with a good quality deck enamel as typically used and accepted in the elevator industry.

2.5 INSPECTIONS / TESTS

A. The Contractor shall conduct Safety, Efficiency and Maintained Conditions surveys, inspections and tests as follows:

1. Semi-Annual quality control evaluations by a qualified supervisor to ensure and confirm the services and procedures as specified herein are properly executed relative to maintenance and performance standards for the systems serviced.

2. Contractor shall examine monthly all safety devices and governors and conduct Annual Safety No Load Tests (Category 1), Five Year Full Load Safety Test (Category 5), and Full Speed Tests of: safety mechanism, overhead speed governors, car and counterweight buffers. Additionally, during these tests, the car balances will be checked, and the governor set, recalibrated and sealed for proper tripping speed. All results of said tests must be forwarded to the Owner and Consultant. All testing shall be as per ASME/ANSI A17.1, .A17.2, .A17.3. All periodic test and inspections shall be included in the terms and conditions of this contract. No additional charges for will be accepted. Contractor shall not be held responsible for any damage that may occur during the Five Year Test. All filing fees payable to authorities having jurisdiction (State of Ohio Department of Commerce Industrial Compliance

3. Elevator Division) for testing shall be payable by the Contractor under the base scope of services of the Contract and shall not be separately billable to the Owner.

4. Perform test of the elevator's Fire Safety System monthly; i.e., Manual Recall and Firemen's Elevator Operation in the designated elevators. Confirmation and results of all tests shall be forwarded in writing to Consultant and Owner upon completion of testing.

5. The Owner retains the right to have these tests performed on a not-to-interfere basis at any hour of the day and any day of the week. There shall be no additional costs for overtime testing if requested by Owner.

6. **The Owner’s designated third-party witness shall be B Squared Engineering, LLC for all elevators at all properties specified herein. All testing shall be scheduled with the Owner and Witness at least 30 days prior to test date.**

If applicable, independent testing of Fire Emergency Operating Systems and/or Emergency Power System tests in accordance with local law requirements and ASME standards. The Owner retains the right to have these tests performed on a not-to-interfere basis at any hour of the day and any day of the week. There shall be no additional costs for overtime testing if requested by Owner.

7. Whenever necessary for the safe and/or satisfactory operation of the elevator equipment, the Contractor shall examine and equalize the tension of all hoistway ropes and shall re-socket the hoist at the car crosshead. Whenever necessary to ensure the maintenance of an adequate safety factor or when required by the elevator inspection or companies ensuring the elevators in question against accident, the Contractor shall replace any and all ropes, including but not limited to hoist ropes and governor ropes when there is any loss of cross section or if the ropes exhibit rouge.

8. Whenever necessary for the safe and satisfactory operation of the elevator equipment, the Contractor shall repair and/or replace any or all the electrical equipment from the load side of each elevator disconnect switch.

9. Whenever necessary for the safe and/or satisfactory operation of the elevator equipment, the Contractor shall repair and/or replace any and all mechanical parts of each elevator.

10. Owner’s Inspections: Up to two inspections per year shall be scheduled at the convenience of both the Contractor and the Consultant to jointly inspect all work included in this contract.

11. Contractor shall assist Owner’s Elevator Consultant and/or Third-Party Witness with any and all City of Warrensville Heights and State of Ohio mandated testing including any additional testing requirements are mandated after the execution of this agreement.

12. The Owner shall reserve the right, from time to time to employ others to test the condition, speed and safety of the elevators as it may be deemed advisable. If it is found that the elevators do not conform to the required standards as set forth under the terms of this contract, the Owner will immediately demand that the elevators be placed in satisfactory condition, and if the work has not commenced within twenty-four (24) hours, the Owner can enter into agreement with others to perform such work and deduct the total cost of said work from the Contractor's monthly charge for the services specified. If the above happens repeatedly, the Owner may void this contract and not allow this Contractor to bid on future work.

2.7 VIOLATIONS

A. Contractor agrees that he/she and his/her agents shall comply with any violation issued by the City of Warrensville Heights and State of Ohio or any other agency having jurisdiction, assuming all repairs are covered under the scope of work outlined in this agreement. The contractor shall provide a separate proposal for any repairs not covered by this agreement. Any affirmations of correction and/or other paperwork, expediting, hearings and or any other means necessary to clear all violations shall be the sole responsibility of the elevator contractor. The Owner and/or Owner’s representative shall forward any violation issued to the elevator contractor within five (5) business days. All fines related to violations on covered items shall be the responsibility of the elevator contractor. Any fines which have accrued prior to the date the elevator contractor was given the violation shall be the responsibility of the Owner, however, after twenty (20) calendar days, if left uncured, the contractor will be responsible for fines incurred afterward.

B. If there is work that needs to be performed by someone other than the elevator contractor, or work that is not included in this contract, the contractor MUST inform the Owner/Management and the Owner's elevator consultant in writing. In either case, clearing of the violation shall be the responsibility of the Elevator Contractor, once the Owner or Owners Representative has stated completion.

2.6 OBSOLESCENCE OF PARTS

A. Definition of Obsolescence:

1. 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 3rd party parts supplier or fabricator in the same form, fit and function.

B. During the term of this agreement, any system, component or part not meeting the Definition of Obsolescence in 1.4.A.1 above shall be covered as prescribed in this document. Systems, Components or Parts which are repairable or re-buildable as noted above shall be covered under the following conditions:

1. Part is repairable, either through the manufacturer or through any 3rd party provider, up to the cost that the original part would have been at its latest available date.

2. Part is custom makeable up to the cost that the original part would have been at its latest available date.

3. Additionally, should the cost of the part repair or fabrication is greater than the original part, Contractor shall submit documentation to substantiate the original part cost and the current repair/fabrication cost. Purchaser shall not be responsible for additional labor cost associated with this repair or fabrication.

C. Should a part become obsolete meeting the definition in 1.4.A.1, the Contractor shall submit the following:

1. A separate quotation to the Purchaser stating:

   a. The cost of the obsolete part and the cost of the replacement part. Purchaser shall only be responsible for the cost difference in parts.

   b. The cost of labor to replace the obsolete part and the cost of labor to install the replacement part. Purchaser shall only be responsible for the cost difference in labor.

2. Documentation to substantiate the part is obsolete and attempts to locate 3rd party providers has occurred for any material cost associated with the part.

3. Documentation as to equipment changes required to replace the obsolete part with that of the new part for any labor costs associated with the part replacement.

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 consider 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.

2.7 ESCALATION

A. For any optional contract extensions, price escalation is permitted. The escalation shall be calculated based upon two components on the following basis:

Material (20%)
Pre-variance (increase or decrease) shall be defined based upon the metals index published by the appropriate authorities.

Labor (80%)
Pre-variance (increase or decrease) shall be based upon negotiated increases by applicable IUEC or IBEW union labor authorities and personnel. These shall be quantified and qualified by the Contractor as required by Owner and Consultant and supported by official documents as requested.

B. In either event, the Contractor agrees not to increase the maintenance for a four-year period by more than three (3%) percent each year with a cap of 9% (calculated from the first year of the optional extension) for the life of this contract.

C. This price escalation shall apply to Contractor’s hourly billing rates as well.

PART 3 - EXECUTION AND SUPPLEMENTAL REQUIREMENTS

3.1 PERFORMANCE TIMES, LEVELING AND CONTRACT SPEED

A. The control system shall be maintained to provide smooth acceleration and retardation. Contractor must maintain elevators in accordance with the original equipment manufacturer design performance specifications (including floor-to-floor times door timing, rated speed, group supervisory system, etc.). The door close pressure must never exceed 30 pounds. The following performance schedule shall be adhered to:

1. Contract Speed: The contract speed shall be provided for up direction travel with full-capacity load in the elevator car. The speed in either direction under any loading condition shall not vary more than 5% of the contract speed.

2. In accordance with the ASME A17.1 Code, the elevators shall be maintained and adjusted to safely lower, stop and hold the car with a load of 125% of the rated capacity.

3. Leveling Accuracy: The elevator shall be adjusted to provide accurate leveling within ±1/4" of the floor level without releveling regardless of load. This is MANDATORY.

4. Door Operating Times:
    a. Door Open 2.5 to 3.0 Seconds
    b. Door Close 4.8 to 5.75 Seconds

5. Non-interference Door Dwell Times:
    a. Car Calls 3.0 Minimum
    b. Hall Calls 5.0 Minimum

6. Floor to Floor Time (Flight Time):
    a. Optimized based on Contract Speed of Elevator

7. Measured noise levels in a moving car outside the leveling zone shall not exceed 55 dBA under any condition including car ventilation blower or fan on highest speed. Measured noise levels in car within the leveling zone or when car is stopped shall not exceed 60 dBA. There shall be no discernible sound in the elevator car from hoist machine, suspension means, sheaves, counterweight, pump unit, electrical power conversion unit(s), platform(s), car enclosure walls, or car and counterweight guide assemblies unless it is mutually determined by Contractor and Owner that such sounds are attributable to the design of the equipment, provided such design exception shall not apply to the extent that Contractor has provided design or redesign Services under this Agreement or related Agreement.

8. Contractor shall maintain a quiet and comfortable car ride with smooth acceleration, deceleration, and accurate stop. Door operation shall be smooth and quiet.

3.2 PERFORMANCE RELIABILITY METRICS

A. Performance reliability metrics shall apply to this contract as listed in this section. Compliance with reliability performance metrics will be calculated monthly and the results of the previous month's metrics will be sent to the maintenance contractor by the 15th of the following month. Penalties will be calculated and assessed as described below.

1. Entrapments: Callbacks involving passenger entrapments shall be limited to no more than one entrapment per quarter per building. If a building contains multiple elevators or only a single elevator, a maximum of one entrapment per building per quarter is allowed for compliance with this reliability metric.
2. Mean Time Between Callbacks (MTBC): MTBC shall average no less than 91 days per unit for each property and the minimum allowable MTBC rate for any unit within a property shall be 36 days.
3. Equipment Availability: The average equipment Availability for beneficial use during the hours of 7:00am and 7:00pm Monday through Friday shall be 98% per property and 90% per single unit calculated on a monthly basis. Single unit properties will adhere to 98% availability.

3.3 PENALTIES FOR NON-COMPLIANCE WITH PERFORMANCE RELIABILITY METRICS

A. If Contractor fails to meet the Elevator Reliability Performance Requirements at any Property for three (3) consecutive months, Contractor's monthly invoice for recurring monthly maintenance fees for such property (for the property, not just for the elevator) shall reflect a "Performance Credit" in the amount of 50% of the total monthly maintenance fees for the property for the subsequent one-month period. The performance credit will continue as long as the Contractor consecutively fails to meet the monthly performance reliability metrics.

B. If Contractor fails to meet the Elevator Reliability Performance Requirements at any Property for four (4) consecutive months, Owner may request an audit at the property from Owner's designated Elevator Consultant, reimbursable by Contractor. The cost of maintenance audits subject to payment by Contractor shall be the same as agreed between Elevator Consultant and Owner.

C. If MTBC falls to 36 days or less on any single elevator or escalator, a penalty of $1,000 per month for each month MTBC is less than 36 days shall apply in addition to any "performance credits" identified in item A above.

3.4 PARTS INVENTORY AND WIRING DIAGRAMS

A. The Contractor shall maintain an inventory of spare parts at the site of the work for scheduled preventive maintenance procedures and common emergency call-back service repairs. Such parts shall include but are not limited to contacts, coils, solid-state boards, relays, resistors, timing devices, computer devices, interlock safety switch and linkage parts, bottom guides, door closers, fuses, bulbs, car guides and an assortment of hardware.

B. The Contractor shall maintain and continually update wiring diagrams and control schematics to ensure "as built" documents remain on site and the property of the Purchaser per the maintenance agreement.

3.5 PROTECTION OF WORK AND PROPERTY

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

3.6 NO LIABILITY

A. Fordham University shall at no time be liable (except if they are negligent} for loss of or damage to Contractor's tools, materials and/or equipment. Notwithstanding any other provision in the contract to the contrary, neither party shall be liable for any loss, damage or delay due to any cause beyond either party's reasonable control, including but not limited to acts of government, labor disputes, theft, weather, natural or man-made disaster, civil commotion, mischief or act of God. Under no circumstances shall either party be liable for special, indirect or consequential damages of any kind including, but not limited to, loss of profits, loss of goodwill, loss of business opportunity, additional financing costs or loss of use of any equipment or property.

3.7 COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS

A. Contractor agrees that he/she and his/her agents and employees will comply with all municipal, state, and federal laws, rules and regulations applicable to the business to be conducted under this Contract, and that he/she shall obtain all necessary permits, pay all license fees and taxes to comply therewith. Contractor may also comply with the terms and conditions of the Exhibit attached hereto. If a strike, boycott, picketing, work stoppage, slowdown, or other labor activities is directed against the Contractor at the Owner's Facilities which results in the discontinuation of services performed by the Contractor, the Owner shall have the unrestricted right during said period to cause itself or by any other third person or persons to perform said services of Contractor using such equipment which is used by the Contractor and without cost to the Owner.

B. Payments required to be made by the Owner to the Contractor under the Contract shall be excused and terminated during such period. Equipment damage, exclusive of normal wear and tear, will be reimbursed to the Contractor.

3.8 BENEFITS

A. Contractor is solely responsible for any benefits due to any employees during the term on this contract according to its Union Labor Agreement, if any.

3.9 SAFETY

A. Contractor will take all the necessary precautions for the safety of its employees, Owner’s and Agent’s staff, other contractors' employees, and the tenants' employees while performing work under this Contract. Contractor must be in compliance with Federal and State OSHA. Laws including but not limited to "the right to know" Law.

3.10 SOLE RESPONSIBILITY

A. The maintenance work shall be performed only by properly uniformed and trained elevator men directly employed and supervised by the Contractor, who are experienced and skilled in maintaining elevators(s) similar to those to be maintained under this Contract and shall not be assigned or transferred to any Owner or subcontractor. However, the Owner retains the right to hire third party vendors to make repairs to said elevators.

3.11 LABOR CONTRACTS AND OVERTIME

A. It is further understood and agreed that the Contractor shall furnish to the Owner, in duplicate, a copy of his current labor contract and any subsequent labor contracts effective during the term of this Contract pertaining to his elevator maintenance personnel, and the Contractor further agrees to furnish any additional information concerning overtime to the Owner at any time upon request.

3.12 LABOR RELATIONS

A. Contractor shall retain and pay all people rendering services to the building pursuant to this agreement, as its own employees, throughout the term hereof.

B. Contractor, Owner and Agent shall cooperate with each other to the end that there shall be no labor difficulties in or about the Building. If any such conflict shall arise as a result of anything Contractor shall do or fail to do, Contractor shall eliminate the basis therefore within 24 hours after notice from Owner or Agent.

3.13 REPRESENTATION

Contractor represents that it will (i) perform elevator maintenance services under this Agreement in accordance with acceptable industry professional and ethical standards, (ii) not proceed with performance of various aspects of the Services, unless pre-authorized ("Pre-approved Services") by the Owner, (iii) conduct any handling of Owner's Confidential Information in accordance with acceptable industry professional and ethical standards, (iv) not represent to any third party that it has authority to sign, endorse or represent a contractual relationship with or in Owner's name, or enter into any agreement on behalf of Owner in connection herewith (unless expressly pre-authorized in writing by Owner), (v) safeguard the physical security of Owner's Confidential Information if it has access to or possession of such information, (vi) ensure that only "Authorized Representatives" of this Agreement, will have access to any of Owner's Confidential Information while rendering the Services, and that it will not be copied, or disseminated to anyone other than the Authorized Representative, and (vii) ensure that all of its employees, representatives, agents or assigns will not solicit any of Owner's employees for any purpose. The Parties agree that any alteration to any of the Addenda or Exhibits hereto shall be null and void, unless made in writing by mutual consent of the Parties. The obligations of Contractor set forth herein shall remain in full force and effect for the later of a period of one (1) year from the date of termination or expiration of this Agreement, or the date the Confidential Information is returned to whomever disclosed such information, after the date of termination or expiration of this Agreement.

3.14 TERMINATION

6.1 Either party may terminate this Agreement at the end of the initial one (1) year term or subsequent term by giving the other party not less than sixty (60) days written notice.

6.2 The Owner may also terminate this Agreement at any time upon thirty (30) days written notice to the Contractor due to the following reasons:

6.2.1 Unacceptable performance by the Contractor, which shall be determined in Owners' sole and absolute discretion.

6.2.2 Contractor's failure to comply with all of its duties and obligations under this Contract.

6.2.3 If the Owner chooses to modernize vertical transportation equipment, during any term of this Agreement.

6.2.4 Sale of building

6.2.5 Permanent removal of equipment from service

6.2.6 Owner's convenience.

END OF SECTION