COUNTY OF LEXINGTON
Procurement Services, 212 South Lake Drive, Suite 503, Lexington, SC 29072
Ph: (803) 785-8166 / Fax: (803) 785-2240

INVITATION FOR BIDS

BID NUMBER: B15016-11/20/14K DATE: October 29, 2014

OPENING DATE AND TIME: ***November 20, 2014 @ 10:00 AM E.S.T.***

OPENING LOCATION: Lexington County Administration Building,
5th Floor Procurement Conference Room
212 South Lake Drive, Suite 503, Lexington SC

MAILING ADDRESS: Lexington County Procurement Office
County Administration Bldg., 5th Floor
212 South Lake Drive, Suite 503, Lexington SC 29072

PROCUREMENT FOR: **ADMINISTRATION BUILDING ELEVATOR MODERNIZATION / INSTALLATION PROJECT**

Subject to the conditions, provisions and the enclosed specifications, sealed bids will be received at this office until the stated date and time and then publicly opened. Any bid received after the scheduled deadline, will be immediately disqualified. The county assumes no responsibility for delivery of bids which are mailed. No Faxed Bids Will Be Permitted.

IT IS REQUIRED THAT THE BID NUMBERS MUST BE SHOWN ON THE OUTSIDE OF ENVELOPE. ANY ENVELOPE THAT DOES NOT SHOW BID NUMBERS WILL BE RETURNED TO THE VENDOR

DIRECT ALL INQUIRES TO: _____
Kay Keisler
Procurement Officer

NOTICE TO BIDDERS: NOTICE TO BIDDERS: **There will be a Mandatory Pre-Bid Conference on November 10, 2014 @ 9:00 AM at 212 South Lake Drive, Conference Room 2A, 2nd Floor, Lexington, SC 29072. The Mandatory Pre-Bid Conference will start promptly at 9:00 AM and any persons arriving late will be deemed non-responsible.** Due to the importance of all bidders having a clear understanding of the scope and requirements for this contract, *attendance at this meeting will be a prerequisite for bidding on this contract.* Therefore, bids will be considered only from those bidders who are represented at this pre-bid conference. Attendance at the conference will be evidenced by the representative's signature on the attendance roster. It may be helpful to bring the Invitation to Bid with you. Any changes that may be agreed upon as a result of this conference will be noted in an amendment to the bid invitation and mailed to all attendees. Each bidder shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this bid. The failure or omission of a bidder to acquaint himself with existing conditions shall in no way relieve him of any obligation with respect to this bid or to the contract. All amendments to and interpretations of this solicitation shall be in writing and issued by the Procurement Manager of the County. Lexington County shall not be legally bound by any amendment or interpretation that is not in writing. **BIDS WILL NOT BE CONSIDERED FROM ANY VENDOR THAT OWES DELINQUENT TAXES TO THE COUNTY OF LEXINGTON.**

If downloading this solicitation from our website or alternate internet location, it is the responsibility of the bidder to email kkeisler@lex-co.com to be registered as a potential bidder to receive any subsequent amendments. Deadline for questions is November 10, 2014 at 4:00 p.m. All questions must be submitted in writing.

_____
Jeffrey A. Hyde
Procurement Manager

SOLICITATION #: **B15016-11/20/14K**
PROCUREMENT: **ADMINISTRATION BUILDING ELEVATOR MODERNIZATION /INSTALLATION PROJECT**

"NO BID" RESPONSE FORM

To submit a "No Bid" response for this project, this form must be completed for your company to remain on our bidders list for commodities/services referenced. If you do not respond your name may be removed from this bidders list. In order to ensure that the County file has current information, or if you wish to be added to Lexington County's Vendor Listing, you must also return the Certificate of Familiarity form completed in its entirety.

Note: Please show the solicitation number on the outside of the envelope.

Please check statement(s) applicable to your *"No Bid"* response --

- ☐ Specifications are restrictive; i.e. geared toward one brand or manufacturer only (explain below).
- ☐ Specifications are ambiguous (explain below).
- ☐ We are unable to meet specifications.
- ☐ Insufficient time to respond to the solicitation.
- ☐ Our schedule would not permit us to perform.
- ☐ We are unable to meet bond requirements.
- ☐ We are unable to meet insurance requirements.
- ☐ We do not offer this product or service.
- ☐ Remove us from your vendor list for this commodity/service.
- ☐ Other (specify below).

Comments:

_____

_____

_____

_____ _____
Company Name (as registered with the IRS) **Authorized Signature**

_____ _____
Correspondence Address **Printed Name**

_____ _____
City, State, Zip **Title**

_____
E-mail Address (Please Print)

_____ _____ / _____
Date **Telephone** **Fax**

BOND REQUIREMENTS

1. **BID BOND:** Each offeror shall submit with his Bid a Bid Bond with a good and sufficient surety or sureties company licensed in South Carolina, in the amount of five percent (5%) of the total Bid amount. The Bid bond penalty may be expressed in terms of a percentage of the Bid price or may be expressed in dollars and cents.

   CERTIFIED CHECKS: If a certified check is submitted in lieu of a Bid bond, it will be made payable to the Lexington County Treasurer's Office, in the amount of 5% of the total Bid amount.

   Bid Bonds/Certified Checks will be returned to the unsuccessful offerors after award and will be returned to the successful offeror after acceptance of the final contract by the offeror.

2. **PERFORMANCE AND PAYMENT SURETY:** The successful contractor shall pay the cost and furnish within ten days after written notice of acceptance of Bid, an irrevocable Surety in the form of a Performance and Payment Bond, Certificate of Deposit, Cashier's Check or irrevocable letter of credit. The Surety shall be issued in the amount of 100% of the total contract covering the entire term of the contract as awarded.

   OPTION 1: PERFORMANCE BOND: Bond must be issued by a Surety Company licensed to do business in South Carolina, with an "A" minimum rating of performance as stated in the most current publication of "Best's Key Rating Guide, Property Liability" which shall show a financial strength rating of at least five (5) times the contract price. Each bond shall be accompanied by a Power of Attorney, authorizing the attorney-in-fact to bind the surety and certified to include the date of the bond.

   OPTION 2: A CERTIFIED CHECK: Equal to 100% of the contract amount to be retained by Lexington County until satisfactory completion of the contract.

   OPTION 3: IRREVOCABLE LETTER OF CREDIT: Shall be issued by a Financial Institution insured by the FDIC or FSLIC in the amount of 100% of contract amount.

FAILURE TO SUBMIT A PROPER AND CORRECT BID GUARANTEE WILL RESULT IN THE REJECTION OF YOUR BID.

INSTRUCTIONS TO BIDDERS

1. Only one copy of bid invitation is required, unless otherwise stated.

2. Bids, amendments thereto or withdrawal request must be received by the time advertised for bid openings to be timely filed. It is the vendor's sole responsibility to insure that these documents are received by the Procurement Office at the time indicated in the bid document.

3. When specifications or descriptive papers are submitted with the bid invitation, enter bidder's name thereon.

4. Submit your signed bid on the forms provided. Show bid number on envelope as instructed. Lexington County assumes no responsibility for unmarked or improperly marked envelopes. Unsigned bids will be rejected.

5. Bidders must clearly mark as "Confidential" each part of their bid which they consider to be proprietary information that could be exempt from disclosure under Section 30-4-4C Code of Laws of South Carolina, 1976, (1986 Cum Supp) Freedom of Information Act. The County reserves the right to determine whether this information should be exempt from disclosure and no legal action may be brought against the County or its agents for its determination in this regard.

6. By submission of a bid, you are guaranteeing that all goods and services meet the requirements of the solicitation during the contract period.

7. This solicitation does not commit the County of Lexington to award a contract, to pay any cost incurred in the preparation of the bid, or to procure or contract for goods or services listed herein.

8. CORRECTION OF ERRORS ON THE BID FORM: All prices and notations shall be printed in ink or typewritten. Errors should be crossed out, corrections entered and initialed by the person signing the bid. Erasures or use of typewriter correction fluid may be cause for rejection. No bid shall be altered or amended after specified time for opening.

9. BIDDERS SCHEDULE: Enter the manufacturer, brand, and model/catalog number, as applicable, and your bid price in the space provided on the bidders schedule. Additional pages may be attached, when applicable, for alternates, etc.

10. NOTIFICATION: In order to receive a copy of the bid tabulation, you must enclose a self addressed stamped envelope. Intent to Award and/or Statement of Award will be posted on the Lexington County web site at www.lex-co.com.

11. RIGHT TO PROTEST: Any prospective bidder, offeror, or contractor, who is aggrieved in connection with the solicitation of a contract shall protest in writing to the Procurement Manager within ten (10) calendar days of the date of issuance of the Invitation to Bid, Requests for Proposals or other solicitation documents, whichever is applicable, or any amendment thereto, if the amendment is at issue. Any actual bidder, offeror, or contractor, who is aggrieved in connection with the intended award or award of a contract, shall protest in writing to the procurement manager within ten (10) calendar days of the notification of intent to award or statement of award.

12. PROTEST PROCEDURE: A protest shall be in writing, submitted to the procurement manager, and shall set forth the specific grounds of the protest with enough particularity to give notice of the issues to be decided.

13. QUESTIONS REGARDING SPECIFICATIONS AND/OR THE BIDDING PROCESS:
    - To ensure fair consideration for all bidders, the County prohibits any type of communications to or with any department, employee, or County official during the solicitation process, except as provided on page one of the solicitation. This includes any communications initiated by a bidder

to any County Official or employee evaluating or considering the bidder, prior to the time an award decision has been made public.

- Any communications between the bidder and the County shall be initiated by the Procurement Office or the appropriate County representative in order to obtain necessary information or clarification needed to develop a proper and accurate evaluation of the bid. **Any communications initiated by a bidder shall be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future solicitations.**

- It will be the sole responsibility of the bidder to contact the Procurement Office prior to submitting a bid to ascertain if any amendments or addendums have been issued in order to obtain all such documentation, and to return the executed documentation with their bid.

GENERAL PROVISIONS

1. The County of Lexington reserves the right to reject any and all bids, to cancel a solicitation, and to waive any technicality if deemed to be in the best interest of the county.

2. Unit prices will govern over extended prices unless otherwise stated in this bid invitation.

3. PROHIBITION OF GRATUITIES: Amended section 8-13-700 and 705 of the 1976 Code of Laws of South Carolina states: "Whoever gives or offers to any public official or public employee any compensation including a promise of future employment to influence his action, vote, opinion or judgment as a public official or public employee or such public official solicits or accepts such compensation to influence his action, vote, opinion or judgment shall be subject to the punishment as provided by Section 16-9- 210 and Section 16-9-220."

4. BIDDERS QUALIFICATIONS: Consideration will be given only to the contractors who can produce conclusive evidence that they can meet the following requirements:

   4.1 Adequate capital and credit rating sufficient to complete all operations under this contract in a satisfactory manner.
   4.2 An efficient office force with satisfactory record in expediting delivery of materials to field force, and capable of fulfilling proper liaison service with mechanical trade.
   4.3 An adequate and efficient field force with extensive knowledge of all types of work involved under this contract.
   4.4 A record of amicable relations with labor.
   4.5 An adequate supply of applicable equipment in good operating condition to fulfill the contract.

5. LICENSES, PERMITS, INSURANCE, & TAXES: All costs for required licenses, permits, insurances and taxes shall be borne by the Contractor.

6. INSURANCE:

6.1 The amount and types of insurance required should be reasonably commensurate with the hazards and magnitude of the undertaking, but in no event of lesser amount nor more restrictive than the limits of liability and schedule of hazards below described. Without limiting its liability under the contract agreement, the Contractor shall procure and maintain, at its expense during the life of this contract, insurance of the types in the minimum amounts stated below:

SCHEDULE	**LIMIT**
WORKERS COMPENSATION	Statutory
As required by the State of South Carolina.	
COMPREHENSIVE GENERAL LIABILITY	
Premises Operations	$1,000,000 Single Limit
Contractual Liability	
Independent Contractors	

Personal Injury
Products - Completed Operations
AUTOMOBILE LIABILITY
All Owned, Non-Owned, and Hired $ 100,000 Combined

6.2 The Contractor's comprehensive general liability policy shall also include blanket contractual liability coverage or shall be endorsed to cover the liability assumed by the Contractor. Said insurance shall be written by a company or companies approved to do business in the State of South Carolina and acceptable to the County. Before commencing any work hereunder, certificates evidencing the maintenance of said insurance shall be furnished to the County of Lexington. The County of Lexington, its officials, employees and volunteers are to be covered as insured's as respects: liability arising out of activities performed by or on behalf of the contractor, including the insured's general supervision of the contract; products and completed operations of the contractor; premises owned, occupied or used by the Contractor; or automobiles owned, leased, hired or borrowed by the contractor. The coverage shall contain no special limitations on the scope of protection afforded to the County of Lexington, its officials, employees or volunteers. To accomplish this objective, the County of Lexington shall be named as an additional insured under the Contractor's insurance as outlined above.

6.3 The contractor shall take out and maintain, during the life of this contract, the statutory Workmen's Compensation and Employer's Liability Insurance for all of his employees to be engaged in work on the project under this contract, and in case any such work is sublet, the contractor shall require the subcontractor similarly to provide Workmen's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such work.

6.4 Contractors insurance coverage shall be primary insurance as respects the County of Lexington, it officials, employees and volunteers. Any insurance or self-insurance maintained by the County of Lexington shall be in excess of the Contractor's insurance and shall not be required to contribute. To accomplish this objective, the following wording should be incorporated in the previously referenced additional insured endorsement:

Other Insurance: This insurance is primary, and our obligations are not affected by any other insurance carried by the additional insured whether primary, excess, contingent or on an other basis.

6.5 Each insurance required by the County of Lexington shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, reduced in coverage or in limits except after thirty (30) days prior written notice by certified mail, return receipt requested, has been given to the County of Lexington.

6.6 Contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates and endorsements for each subcontractor. All coverages for subcontractors shall be subject to all the requirements stated herein.

6.7 All certificates and endorsements must be received and approved by the County of Lexington within ten (10) days after notification of award.

6.8 The County, its officers and employees shall be named as an "additional insured" in the Automobile and General Liability policies and it shall be stated on the Insurance Certificate with the provision that this coverage "is primary to all other coverage the County may possess".

6.9 Lexington County reserves the right to review and approve contracted vendor's insurance carrier.

7. BIDDERS RESPONSIBILITY: Each bidder shall fully acquaint himself with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this bid. It is expected that this will sometimes require on-site observation. The failure or omission of a bidder to acquaint himself with existing conditions shall in no way relieve him of any obligation with respect to this bid or to the contract.

8. AWARD CRITERIA: The contract shall be awarded to the lowest responsible and responsive bidder(s) whose bid meets the requirements and criteria set forth in the Invitation for Bid. The award may be made to one or a multiple of contractors; whichever is in the best interest of the County, or unless otherwise stated on bidders schedule.

   8.1 All things considered equal, tied bids will be resolved by the flip of the coin, or to the Lexington County contractor, whichever the case may be.

9. WAIVER: The County reserves the right to waive any Instruction to Bidders, General or Special Provisions, General or Special Conditions, or specifications deviation if deemed to be in the best interest of the county.

10. COMPETITION: This solicitation is intended to promote competition. If any language, specifications, terms and conditions, or any combination thereof restricts or limits the requirements in this solicitation to a single source, it shall be the responsibility of the interested contractor to notify the Procurement Services Office in writing within five (5) days prior to the opening date. The solicitation may or may not be changed but a review of such notification will be made prior to the award.

11. REJECTION: Lexington County reserves the right to reject any bid that contains prices for individual items or services that are inconsistent or unrealistic when compared to other prices in the same or other bids or ambiguous bids which are uncertain as to terms, delivery, quantity, or compliance with specifications may be rejected or otherwise disregarded if such action is in the best interest of the county.

BIDS WILL NOT BE CONSIDERED FROM ANY VENDOR THAT OWES DELINQUENT TAXES TO THE COUNTY OF LEXINGTON.

GENERAL CONDITIONS

1. DEFAULT: In case of default by the contractor, the county reserves the right to purchase any or all items in default in the open market, charging the contractor with any excessive costs. Should such charge be assessed, no subsequent bids will be considered or purchase orders issued to the defaulting contractor until the assessed charge has been satisfied.

2. NON-APPROPRIATION: Any contract entered into by the County resulting from this bid invitation shall be subject to cancellation without damages or further obligation when funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal period or appropriated year.

3. INDEMNIFICATION: The contractor agrees to indemnify and save harmless the County of Lexington and all County officers, agents and employees from claims, suits, actions, damages and costs of every name and description, arising out of or resulting from the use of any materials furnished by the Contractor, provided that such liability is not attributable to negligence on the part of the county or failure of the county to use the materials in the manner outlined by the Contractor in descriptive literature or specifications submitted with the Contractor's bid.

4. CONTRACT ADMINISTRATION: Questions or problems arising after award of this contract shall be directed to the Procurement Officer. Copies of all correspondence concerning this contract shall be sent to the Procurement Manager, 212 South Lake Drive, Suite 503, Lexington, SC 29072. All change orders must be authorized in writing by the Procurement Manager. Lexington County shall not be bound to any change in the original contract unless approved in writing by the Procurement Manager.

5. PUBLICITY RELEASES: Contractor agrees not to refer to award of this contract in commercial advertising in such a manner as to state or imply that the products or services provided are endorsed or preferred by the User. The contractor shall not have the right to include the county's name in its published list of customers without prior approval of the county. With regard to news releases, only the name of the County, type and duration of contract may be used and then only with prior approval of the

county. The contractor also agrees not to publish, or cite in any form, any comments or quotes from the County Staff unless it is a direct quote from the Public Information Officer.

6. QUALITY OF PRODUCT: Unless otherwise indicated in this bid it is understood and agreed that any items offered or shipped on this bid shall be new and in first class condition unless otherwise indicated herein.

7. S.C. LAW CLAUSE: Upon award of a contract under this bid, the person, partnership, association or corporation to whom the award is made must comply with the laws of South Carolina which require such person or entity to be authorized and/or licensed to do business with this State. Notwithstanding the fact that applicable statutes may exempt or exclude the successful bidder from requirements that it be authorized and/or licensed to do business in this State, by submission of this signed bid, the bidder agrees to subject himself to the jurisdiction and process of the courts of the State of South Carolina as to all matters and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability for taxes, licenses, or fees levied by the State.

8. ASSIGNMENT: No contract or its provisions may be assigned, sublet, or transferred without the written consent of the Procurement Manager.

9. AFFIRMATIVE ACTION: Contractor agrees that it will not discriminate in hiring, promotion, treatment, or other terms and conditions of employment based upon race, sex, national origin, age, disability, or in any way violation of Title VII of 1964 Civil Rights Act and amendments or the South Carolina Human Affairs Law, except as permitted by said laws.

10. BIDDING CONDITION OF PRICE: All bid prices submitted shall remain effective for a minimum period of 90 days, or until evaluation of bids is complete and award is made. Thereafter, the contract prices shall remain effective for the term of the contract.

11. 7% S.C. SALES TAX: The County shall add 7% sales tax to all orders, however lump sum bids shall include sales tax in bid price unless otherwise noted. ***By submission of a signed bid, you are certifying, under penalties of perjury, that you comply with Title 12, Chapter 36, Article 1 of the SC Code of Laws relating to payment of any applicable taxes. This will certify to the County your compliance.***

    Forms to register for all taxes administered by the South Carolina Department of Revenue may be obtained by calling the License and Registration Section at (803) 898-5872 or by writing to the South Carolina Department of Revenue, Registration Unit, Columbia, South Carolina 29214-0140.

12. PAYMENT TERMS: Payment of invoices shall be due within thirty (30) days after receipt of an accurate, undisputed, and properly submitted invoice to the County after acceptance of completed order/project. Early payment discount, if available, will be calculated from date of acceptance. Application for payment shall reflect services completed and billed through the last day of the month. ***There will be no exceptions to these payment terms unless approval is obtained in writing from the Procurement Manager prior to bid opening date.*** Until the final payment is made, the County shall pay 90% of the amount due to the Contractor on progress payments, with the remaining 10% to be held as retainage. All invoices and correspondence shall be sent to: Procurement Services, County of Lexington, 212 South Lake Drive, Lexington, SC 29072-3493

13. BID REQUIREMENTS: Bid requirements on the equipment specified are not intended to be restrictive to potential bidders, but indicate the required features for satisfactory performance. Lexington County will determine if minor deviations from these features are acceptable.

14. DEVIATIONS FROM SPECIFICATIONS: Any deviation from specifications indicated herein must be clearly pointed out; otherwise, it will be considered that items offered are in strict compliance with these specifications, and successful bidder will be held responsible therefore. Deviations must be explained in detail on separate attached sheet(s). The listing of deviations, if any, is required but will not be construed as waiving any requirements of the specifications. Deviations found in the evaluation of the bid and not

listed may be cause for rejection. Bidders offering substitute or equal items must provide information sufficient enough to determine acceptability of item offered.

15. CONTRACT: This bid and submitted documents, when properly accepted by Lexington County along with a written purchase order, shall constitute a contract equally binding between the successful offeror, and Lexington County. No different or additional terms will become a part of this contract with the exception of a Change Order.

16. CHANGE ORDERS: No oral statement of any person shall modify or otherwise change, or affect the terms, conditions or specifications stated in the resulting contract. All change orders to the contract will be made in writing by the Procurement Manager.

17. AMENDMENTS: All amendments to and interpretations of this solicitation shall be in writing and issued by the Procurement Manager of Lexington County. Lexington County shall not be legally bound by any amendment or interpretation that is not in writing.

18. BID EVALUATION: Bids received will be evaluated by the Procurement Manager or designee. However, based on bid total, final decision for bid award may rest with the Lexington County Council.

    Factors to be considered during the evaluation process include, but are not limited to:
    18.1 - Cost.
    18.2 - Reputation and dependability of the contractor.

19. ARBITRATION: Under no circumstances and with no exception will Lexington County act as arbitrator between the Contractor.

20. DELIVERY: Lexington County requires that delivery be made to specified destination within the shortest time frame possible. Delivery shall arrive between the hours of 8:00 a.m. and 4:30 p.m., Monday through Friday, provided that such day is not a legal holiday. The current purchase order number must be indicated on all delivery tickets.

21. SHIPPING: All deliveries shall be shipped F.O.B. point Destination-freight prepaid, the seller pays and bears all freight charges; collect shipments will not be accepted. It is agreed by the parties hereto that delivery by the contractor to the common carrier does not constitute delivery to the County. Any claim for loss or damage shall be between the contractor and the carrier.

22. "OR APPROVED EQUAL": Certain processes, types of equipment or kinds of material are described in the specifications and/or on the drawings by means of trade/brand names and catalog numbers. In each instance where this occurs, it is understood and inferred that such description is followed by the words "or approved equal". Such method of description is intended merely as a means of establishing a standard of comparability. However, the Owner reserves the right to select the items, which, in the judgment of the Owner, are best suited to the needs of the Owner, based on price, quality, service, availability and other relative factors. Bidders should indicate brand name, model, model number, size, type, weight, color, etc., of the item bid, if not exactly the same as the item specified. Vendor's stock number or catalog number is not sufficient to meet this requirement. If any bidder desires to furnish an item different from the specifications, vendor should submit along with the bid, the information, data, pictures, designs, cuts, etc., of the material they plan to furnish so as to enable the Owner to compare the material specified; and, such material shall be given due consideration. The Owner reserves the right to insist upon, and receive items as specified if the submitted items do not meet the Owner's standards for acceptance.

23. ALTERNATE BIDS: Bidders wishing to submit an alternate for consideration that does not meet the county specifications (or approved deviations), must submit their proposal as an alternate bid.

24. PROMPT PAYMENT DISCOUNT TERMS: Prompt payment discount terms will be calculated from the point of complete order acceptance for services and/or commodities ordered.

25. DRUG-FREE WORKPLACE: By submittal of this bid, you are certifying that you will comply with Title 44, Code of Laws of South Carolina, 1976, Section 44-107-30.

26. ILLEGAL IMMIGRATION & PUBLIC CONTRACTS: In accordance with the South Carolina Illegal Immigration Reform Act, 2008, Act No. 280. Section 3 of this Act added to Chapter 14 to Title 8 of the South Carolina Code of Laws prohibits covered persons from entering into covered contracts unless the contractor agrees either (a) to verify all new employees through the federal work authorization program [and requires the same from subcontractors and sub-subcontractors] or (b) to employ only qualifying workers. Effectively, the Act also requires contractors to agree to provide any documentation required to establish either (a) that the Act does or does not apply to the contractor, subcontractor, or sub-subcontractor; or (b) that the contractor, and any subcontractor or sub-subcontractor, are in compliance with Section 3 of the Act."

27. NO CONTACT POLICY: After the date and time established for receipt of proposals by the County, any contact initiated by any offeror with any County representative, other than the Purchasing Department representative listed herein, concerning this request for proposals is prohibited. Any such unauthorized contact may cause the disqualification of the offeror from this procurement transaction.

28. TERMINATION: Subject to the provisions below, the contract may be terminated for any reason by the County providing a 30 day advance notice in writing is given to the contractor.

28.1 Termination for Cause: Termination by the County for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provisions, termination costs, if any, shall not apply. The thirty (30) days advance written notice requirement is waived and the default provision in this bid shall apply; see General Conditions.

28.2 Termination for Convenience: The County, by written notice, may terminate this contract in whole or in part, when it is in the best interest of the County.

28.3 Termination requirement does not apply if contract is to terminate at the end of an established contract term.

28.4 Termination for Nonappropriations: If the Lexington County Council fails to appropriate or authorize the expenditure of sufficient funds to provide the continuation of this contract, or if a lawful order issued in or for any fiscal year during the term of the contract reduces the funds appropriated or authorized in such amount as to preclude making the payments set out therein, the contract shall terminate on the date said funds are no longer available without any termination charges or other liability incurring to the County. Any termination for non-appropriations shall not prohibit the County from obtaining services from another source or in another manner, which is in the best interest of the County.

SCOPE OF WORK AND SPECIFICATIONS

1. The modernization of two (2) existing traction passenger elevators and addition of one (1) traction passenger elevator as specified. (See Attachments A and B - The Wagner Consulting Group's Specifications). Elevator work includes:
   a. Commercial, standard two (2) existing traction passenger elevator;
   b. One (1) new elevator in an existing shaft;
   c. Elevator car and hoistway signal equipment;
   d. Operation and control systems; and
   e. Accessibility provisions for physically disabled persons.

2. The scope of work covers and includes the furnishing and installing of passenger geared or gearless traction elevator equipment as specified. (See attached specifications from The Wagner Consulting Group).

3. The anticipated County Council approval date for this project is December 9, 2014. The awarded vendor will have a contract issued to them on December 10, 2014 and must return all required items (contract, bonds, and certificate of insurance) no later than December 19, 2014. The anticipated "Notice to Proceed" shall be December 22, 2014.

4. Vendor shall provide alternate for renovation only to the two (2) existing elevators.

COUNTY OF LEXINGTON

Procurement Services, 212 South Lake Drive, Suite 503, Lexington, SC 29072
Ph: (803) 785-8166 / Fax: (803) 785-2240

BIDDERS SCHEDULE

BID NUMBER: B15016-11/20/14K **DATE:** October 29, 2014

OPENING DATE AND TIME: ***November 20, 2014 @ 10:00 AM E.S.T.***

OPENING LOCATION: Lexington County Procurement Office
County Administration Bldg., 5th Floor
212 South Lake Drive, Suite 503, Lexington SC

PROCUREMENT: Provide all materials, equipment, and labor for **Administration Building Elevator Modernization/Installation Project** in accordance with the specifications, conditions, and provisions as applicable to this solicitation. All prices are to include all applicable shipping costs.

Delivery Requirements: FOB Destination-Freight Prepaid to Lexington, South Carolina.

ITEM NUMBER	QTY U/I	DESCRIPTION MFG/MDL/STK #	TOTAL PRICE
01	01 JOB	Modernization of two (2) existing traction passenger elevators in accordance with the specifications, conditions, and provisions as applicable to this solicitation.	$_____
02	01 JOB	Furnish and install one (1) passenger geared or gearless traction elevator equipment in accordance with the specifications, conditions, and Provisions as applicable to this solicitation.	$_____
		TOTAL BID	$_____
ALTERNATE:			
01	01 JOB	Renovation to the interior of the two (2) existing traction passenger elevators in accordance with the specifications, conditions, and provisions as applicable to this solicitation.	$_____

Delivery_____ Days after Receipt of Order

Bidder Checklist:
Bidder is acknowledging that the following items have been provided with the bid.

_____ Bid Bond
Initial

_____ Acknowledgement of Amendment(s)
Initial ___ - ___

_____ Certificate of Familiarity
Initial

_____ List of References
Initial

BIDDER: _____ SIGNATURE: _____

The attached Certificate of Familiarity must be returned with bid.

COUNTY OF LEXINGTON

B15016-11/20/14K
ADMINISTRATION BUILDING ELEVATOR MODERNIZATION/INSTALLATION PROJECT

LIST OF REFERENCES

Please list four (4) references that your company has recently or currently provided similar products and/or services for.

_____	_____
Company Name	Company Name
_____	_____
Representative	Representative
_____	_____
Address	Address
_____	_____
City, State, Zip Code	City, State, Zip Code
_____	_____
Telephone # / Fax #	Telephone # / Fax #
_____	_____
E-Mail Address	E-Mail Address
_____	_____
Company Name	Company Name
_____	_____
Representative	Representative
_____	_____
Address	Address
_____	_____
City, State, Zip Code	City, State, Zip Code
_____	_____
Telephone # / Fax #	Telephone # / Fax #
_____	_____
E-Mail Address	E-Mail Address

COMPANY: _____ AUTHORIZED SIGNATURE: _____

BID NUMBER: B15016-11/20/14K **DATE: OCTOBER 29, 2014**

CERTIFICATE OF FAMILIARITY

The undersigned, having fully familiarized himself with the information contained within this entire solicitation and applicable amendments, submits the attached bid and other applicable information to the County, which I verify to be true and correct to the best of my knowledge. I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm or person submitting a bid for the same materials, supplies or equipment, and is in all respects, fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid. I further certify that this bid is good for a period of ninety (90) days, unless otherwise stated.

_____	_____
Company Name as registered	Authorized Signature with the IRS
_____	_____
Correspondence Address	Printed Name
_____	_____
City, State, Zip	Title
_____	_____ _____
Date	Telephone Number Fax Number

CONTRACTOR'S LICENSE #_____

_____	_____
Remittance Address	E-mail Address (PLEASE PRINT)
_____	
City, State, Zip	
_____	_____
Telephone Number	Toll-Free Number if available
_____	_____
Federal Tax ID Number	SC Sales and Use Tax Number

DOES YOUR FIRM OWE THE COUNTY OF LEXINGTON ANY DELINQUENT TAXES?

___ YES/___ NO

TO: KAY KEISLER, PROCUREMENT OFFICER
FAX: 803-785-2240
E-MAIL: kkeisler@lex-co.com

REQUEST FOR WRITTEN RESPONSE TO QUESTIONS
BID NO. B15016-11/20/14K
ADMINISTRATION BUILDING ELEVATOR MODERNIZATION/INSTALLATION PROJECT

Deadline for questions is November 10, 2014 at 4:00 p.m.
All questions must be submitted in writing.

OFFEROR NAME AND ADDRESS: DATE:

CONTACT PERSON:

TELEPHONE #:

FAX #:

(PLEASE REFER TO PAGE AND PARAGRAPH NUMBER WHEREVER POSSIBLE)

ATTACHMENT

“A”

Part 1 GENERAL

A) Existing Elevator and Machine Room Photographs

Part 1.01 SUMMARY

SUMMARY

A) Section includes: The modernization of two existing traction passenger elevator as specified. Elevator work includes:

1) Commercial, standard two existing traction passenger elevator.
2) Elevator car and hoistway signal equipment.
3) Operation and control systems.
4) Accessibility provisions for physically disabled persons.

B) Equipment, machines, control systems and devices as required for safely operating the specified elevator at rated speed of 350 fpm with existing elevator capacity of 2,500 lbs.

C) Materials and accessories as required for completing the elevator modernization.

D) Removal and disposal of existing equipment.

E) Required hoisting, hoisting permits and traffic coordination and/or permits with local, State jurisdictions and the State of South Carolina as required.

F) Required permits and coordination and/or permits with State and local jurisdictions and the State of South Carolina and the city of Lexington as required.

G) The elevator can only be out of service for maximum 7 weeks once the elevator is removed from service. Only one elevator can be removed from service at a time.

F) The following equipment will be retained on both existing elevators

1. Car Frame
2. Car Sling
3. Main guide rails
4. Elevator car enclosure
5. Buffers in the pit area and all pit channels

G) The following equipment will be replaced on both existing elevators

1. Motor
2. Governor
3. Controller
4. All hoistway doors
5. All car gates
6. All electrical wiring in the elevator hoistway
7. All electrical wiring in the machine room
8. Traveling Cables on both existing elevators

Part 1.02 RELATED WORK:

All related work will be the responsibility of the elevator contractor.

A) HVAC WORK REQUIREMENTS:

1) **Machine room HVAC** if required, to maintain temperature and humidity to between 55° F and 90° F with relative humidity of not more than 85% non-condensing. The elevator contractor shall provide actual calculations for total anticipated heat loads generated by all elevator machine room equipment.

a) Machine room HVAC must be positioned per the ASME A17.1 Safety Code for Elevators 2010 Edition and as approved by the elevator contractor and/or consultant. There shall be no drain lines or condensation allowing water in the machine room.

b) HVAC system is required to have an electrical disconnect lockable in the off position with proper labels identifying source of power and purpose. As per the National Electric Code (NEC) 2011 Edition.

c) HVAC Contractor must verify if machine room HVAC system will meet all latest editions of all applicable codes and standards.

B) ELECTRICAL WORK REQUIREMENTS:

1) **Electrical Requirements for Hoistway and Machine Room:** HVAC, lighting, GFCI receptacles and including disconnects, as required by NFPA 70 National Electrical Code 2011 and as required by latest applicable edition of ASME A17.1 Safety Code for Elevators and Escalators as identified in Part 1.04 Code and Standard References. All Electrical work must be coordinated and scheduled with, at least 5 days' notice, with the building owner. Elevator shall be removed from service while electrical trades are working in same or adjacent hoistways or machine room.

a) Electrical service to main disconnect in elevator machine room; electrical power for elevator installation and testing; electrical service for machine room; machine room and pit receptacles with ground-fault current protection; lighting in machine room and pit; wiring for telephone service to machine room.

b) Main line disconnects to be verified as appropriately sized and type for power requirements of new elevator equipment prior to installation. If existing disconnect is not acceptable, install new disconnects for elevator main line power

c) Provide new electric wiring from disconnect switches to the terminals of the new elevator controller in the new location, inclusive of a normal 120 VAC, 15 AMP supply at each controller.

d) All electrical systems shall include proper grounding and bonding as required by NEC-2011.

e) Provide proper disconnect switches to air conditioner installed in machine room. Machine room to include proper thermostat for any remote installed system.

f) Install new Cab light disconnect for elevator cab lighting system as per NEC-2011.

g) Provide new GFCI receptacles in machine room and hoistway as required by NFPA 70 NEC 2011. Provide a single receptacle non-GFCI for each sump in each elevator hoistway.

h) Provide and install additional pit lighting and machine room lighting as per NEC-2011 with enclosed and protected lamps, if required. Machine Room lighting level illumination shall be not less than 200 lx (19 fc) at the floor level. Pit lighting level illumination shall be not less than 100 lx (10 fc) at the floor level.

i) Pit receptacles, with GFCI protection shall be installed.

j) Pit lighting switch and emergency stop switch shall be installed approximately 18” above first floor landing adjacent to opening and operable at side of each pit access door.

k) All lighting fixtures in machine rooms, elevator cars and on top of car to be suitably guarded in accordance with ASME A17.1-2010, Safety Code for Elevators and Escalators clearance requirements and NFPA 70 NEC 2011 requirements for guarding.

l) All disconnects shall be labeled according to NFPA 70 NEC 2011 including source of power, Elevator Number and all required warning signs.

2) **Emergency Generator:** It has been determined that the generator does power one of the elevators in the building.

C) FIRE ALARM WORK REQUIREMENTS:

1) **Fire Alarm** including all initiating devices as per NFPA 70 National Electrical Code 2011 and NFPA 72 National Fire Alarm Code 2010. Elevator contractor will be responsible for connecting to Fire Alarm to the elevator controller.

a) Verify that proper connections exist for fire recall devices to the elevator controller. If required, provide connection from new or existing fire recall devices to the elevator controllers in machine room. For each elevator within the building, a minimum of three separate elevator control circuits shall be terminated at the designated elevator controller within each elevator machine room in accordance with NFPA 72-2010, section 6.15.3.10. Operation of the elevator shall be in accordance with Section 2.27 of ASME A17.1-2010, the smoke detectors or other automatic fire detection as permitted by NFPA 72-2010, shall actuate the elevator control circuits as detailed in NFPA 72-2010,

b) Fire alarm contractor shall demonstrate at time of elevator inspection, compliance and testing of all alarm initiating devices as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, ASME A17.1-2010, and NFPA 72 National Fire Alarm Code 2010. .

c) Installation of alarm system and devices shall conform to ASME A17.1-2010, and NFPA 72-2010 including NFPA 70 NEC-2011.

D) TELEPHONE WORK REQUIREMENTS:

1) **Telephone Lines**: A telephone line is required for the elevator.

a) Provide or re-use existing telephone lines and wiring to elevator controllers for telephone system including all wiring in machine room to be installed inside conduit as per NFPA 70 NEC-2011.

a) All emergency telephone devices shall include a minimum of 4 hours emergency backup power including power from emergency generator if supplied.

E) GENERAL CONSTRUCTION WORK REQUIREMENTS:

1) **Building general construction** conditions, cleaning and painting of miscellaneous surfaces: The elevator contractor shall be responsible for all work as detailed in this section.

a) Removal or protection of all non-elevator related pipes, wiring, conduit, openings in machine rooms and hoistways to include a 2 hour fire rating. All foreign pipes, wiring or conduit not in use or directly related to the elevator system shall be removed from machine rooms and hoistways. If these items cannot be removed then a variance to the ASME Safety Code for Elevators shall be requested form the Authority Having Jurisdiction.

b) All projections or recesses in walls of hoistway greater than 4" shall be beveled not less than 70 degrees with sheet metal not less than 16 gauge.

c) Remove and replace the existing floor covering with walk off carpet tile or as required assuring proper level of adjoining surfaces of cab floor and sill including hall sills and finished flooring at each landing. All sills must be substantially level to all adjacent finished flooring surfaces.

d) All above work and materials to be performed to meet compliance with International Building Code and all applicable local codes including amendments, ASME A17.1-2010, NFPA 70 National Electrical Code 2011, and NFPA 72 Fire Alarm Code 2010.

e) Failure to perform required testing at time of scheduled elevator acceptance testing and inspection will require full advance payment by contractor at fault for all expenses relating to re-inspection, permit and scheduling fees to building management.

Part 1.03 WORK BY ELEVATOR CONTRACTOR

A) All work, including work detailed in Part 1.02, Related Work, necessary for a complete and useable elevator system, will be the responsibility of the Elevator Contractor. Specifically to include non-traditional Elevator Contractor work detailed in Part 1.03 B as detailed below, in addition to traditional Elevator Contractor work as detailed in all other sections of this specification

B) **Non-Traditional Work**:

1) **Patching:** Patching of all openings as required by elevator installation work and shall be completed with fire rating of hoistway or machine room equal or greater than 2 hours in accordance with International Building Code including amendments and all applicable local codes. All patching shall be with performed with UL tested fire rated materials or fire rated assemblies that meet or exceed existing wall fire rating.

a) All openings left from the removal of any surface mounted devices will be patched appropriately and surface restoration performed by the elevator contractor.

C) **Electrical, Emergency Generator and HVAC Requirements Information**: In order to insure that all associated work is initiated and completed in time for the elevator modernization, the Elevator Contractor is required to provide the following information within 30 days of bid award:

1) **Electrical Info**: Successful bidder shall supply electrical power requirements for new elevator equipment for determination of electrical requirements by electrical contractor.

2) **HVAC Info**: Successful bidder shall supply HVAC requirements for new elevator equipment necessary for determination of proper sizing of HVAC system for machine room by HVAC contractor.

Part 1.04 CODE AND STANDARD REFERENCES

A) Comply with applicable building codes and elevator codes at the project site, including but not limited to the following:

1) All local codes and standards that pertain to elevators and related work.
2) International Building Code 2012 including amendments.
3) ASME A17.1-2010.
4) ASME A17.2-2010 Guide for Inspection of Elevators and Escalators
5) ADAAG, Americans with Disabilities Act Accessibility Guidelines.
6) NFPA 70, National Electrical Code 2011.
7) ANSI/UL 10B, Fire Tests of Door Assemblies.
8) NFPA 72, National Fire Alarm Code 2010
9) O.S.H.A. Requirements for construction and repairs of existing buildings.
10) Elevator Industry Field Employees' Safety Handbook 2010
11) State of South Carolina Requirements
12) NFPA 70E National Electrical Safety Code

Part 1.05 PAINTING

A) Cleaning and Painting of Miscellaneous Surfaces: The elevator contractor shall be responsible for all miscellaneous painting as detailed in this specification and not designated to be performed by others in Part 1.02, Related Work.

B) All cleaning or painting work that produces any vapors or fumes must be adequately vented. Work of this nature must be scheduled and coordinated three (3) days prior to execution of work.

C) The procedures proposed for the accomplishment of the work shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property, which is to remain undisturbed, and coordination with other work in progress. The work plan shall include a Safety and Health plan describing procedures for handling monitoring, and disposition of Volatile Organic Compounds "VOCs" and other hazardous and toxic materials. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

D) All paint products and application method must be pre-approved prior to application by owner or owner's agent. Paint products and application methods are to be equal or better than existing product applicable with matching color as approved by owner.

E) All products of paint, thinners or cleaning agents must be pre-approved prior to use for VOC's or any additional health concerns.

F) Interior work zones having a volume of 1,000 cubic feet or less shall be ventilated at a minimum of 2 air exchanges per hour. Ventilation in larger work zones shall be maintained by means of mechanical exhaust. Solvent vapors shall be exhausted outdoors, away from air intakes, building occupants and workers. Building air conditioning return air inlets in the work zone shall be temporarily sealed before start of work until the prepared surfaces have dried and are free of odor. Operators and personnel in the vicinity of paint removal processes involving chemicals or mechanical action (sanding or blasting) shall wear respirators.

Part 1.06 ELEVATOR SYSTEM DESCRIPTION:

A) Elevator Arrangement.

1) These elevators are identified as the Passenger Elevators. It shall be the bidders' responsibility to review and verify as required for proper installation. Specifications for elevator include minimum requirements of elevator and it shall be the responsibility of the bidder to complete all work to code compliance.

2) The elevators are Otis machines with MCE controls South Carolina State Numbers are 3200052 and 3200053

B) Quantity: Two (2)

C) Type: (2) Electric Traction Elevator

D) Number of Stops: 1) 7 front

E) Floor Designations: 1,2,3,4,5,6,7

F) Number of Openings: 1) 7 front, 0 rear

G) Rise: All existing conditions

H) Rated Capacity/Speed: Maintain existing conditions
1) Capacity rated at 2,500 pounds
2) Speed rated at 350 fpm

I) Minimum Car Inside: 1) Maintain existing dimensions

J) Inside Cab Height:
1) Maintain existing clear headroom dimensions inside car.

K) Entrance Width & Type:
1) Center Sliding doors, approximately 36 inches wide

L) Main Power Supply: Existing 460 Volts + or - 5% of normal, 3 Phase, 60 Cycle with a separate equipment grounding conductor (**Contractors shall field verify prior to submitting bids for work**).

M) Lighting Power Supply: 120 Volts, 1 Phase, 15 Amp, 60 Hz.

N) Stopping Accuracy: ±1/4" under any loading condition or direction of travel.

O) Car Operation: Using a Simplex Selective Collective microprocessor-based controller, the operation shall be automatic by means of the car and hall buttons.

Part 1.07 SUBMITTALS

A) Shop drawings of all materials and required submittals below to be used on the project shall be submitted for review and approval prior to purchase any materials.

B) Product data: When requested, submit product data for the following:
1) Elevator car and hoistway fixtures.
2) Lobby Panel and Communication Devices.
3) Operation, control, and signal systems.
4) Drive, motor, machine and all major components of system.

C) Shop drawings:
1) Show equipment arrangement in the machine room, pit and hoistway. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location as required.

2) Indicate elevator system capacities, sizes, performances, safety features, finishes and other pertinent information.

3) Show floors served, existing travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work, if required.

4) Indicate electrical power requirements and branch circuit protection device recommendations and locations.

D) Certificates: Inspection and acceptance certificates of elevator system installation.

E) Operation and maintenance data. Include the following:

1) Operation and maintenance instructions.

2) Parts list, with recommended parts inventory.

3) Wiring diagrams for control system including any in field modifications.

4) Copy of field pull sheet wiring as built notes. Pull sheets to include wire numbers and colors.

Part 1.08 QUALITY ASSURANCE

A) Elevator Contractor Qualifications: Elevator Contractor shall provide pre-engineered elevator system components by manufacturer(s) regularly engaged in the manufacture of elevator systems and that complies with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References in its entirety, all applicable sections of the International Building Code including amendments in its entirety, and additional requirements specified herein.

1) The elevator contractor shall have a documented, on-going quality assurance program.

B) Installer Qualifications: The manufacturer or an authorized agent of the manufacturer with not less than ten years of satisfactory experience installing elevators equal in character and performance to the project elevators.

C) Permits and Inspections: Apply and secure all required permits from the local Authority Having Jurisdiction permits. Elevator contractor is responsible for proper posting of all required licenses, permits and safety documentation.

D) Regulatory Requirements:

1) ASME A17.1-2010.

2) International Building Code including amendments

3) NFPA 70 National Electrical Code 2011

4) NFPA 72 National Fire Alarm Code 2010

5) Americans with Disabilities Act - Accessibility Guidelines (ADAAG).

6) Any changes or updates as required by International Building Code or the local Authority Having Jurisdiction by time of permit application.

7) Any and all onsite workmen and receiving of products to site are required to follow security and safety procedures as per policies due to facility regulations.

E) Inspection and testing: Elevator Installer shall obtain and pay for all required tests, permits and fees for elevator installation as required by the South Carolina Department of Licensing and Labor Department Elevator and Amusement Device Section.

1) Town of Lexington designated, of Wagner Consulting Group, Inc., as their consultant on this project. Wagner Consulting Group, Inc., in accordance with ASME A17.1-2010, Inspection and Test Requirements, will be present for and review all acceptance inspections for this elevator. Elevator Installer in accordance with ASME A17.1-2010, including the Inspection and Test Requirements will schedule and coordinate all acceptance tests and arrange for inspection for this elevator. Elevator contractor must notify building owner and elevator consultant 7 days prior to inspection advising of the date and time of all inspections and tests. Elevator consultant must qualify and approve any inspector prior to inspection other than the Authority Having Jurisdiction employed inspectors.

2) Elevator contractor shall be solely responsible for the application, securing, maintaining, completion and posting of existing elevator permits as per the local Authority Having Jurisdiction and delivery to the Owner upon completion and acceptance of elevator work, the certificate of operation.

3) Failures by elevator contractor to successfully perform required testing and pass alteration acceptance inspection, at time of scheduled elevator acceptance testing, will require a re-inspection. All costs for re-inspection required due to elevator contractor fault will be paid by elevator contractor.

F) All signage as required by the International Building Code and any local code requirements including amendments, latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010 to be posted in elevator lobbies, fire alarm panels, disconnects, machine rooms and machine room doors.

G) Letter of guarantee that any and all equipment installed shall be **completely non-proprietary** and shall not require the need for specialized testing or programming tools currently or in the future. Future information for trouble shooting or adjusting shall be available to any licensed elevator maintenance contractor by the supplier of the control system at a reasonable cost comparable to cost of competitive parts within marketplace. Contractor shall provide complete schematics and wiring diagrams for control systems including information for change of program, on board diagnostics or mnemonics, or other on board switches or settings. Any controller by a manufacturer other than specified must be pre-approved prior to bid. Letter stating agreement to the above compliance shall be signed by an officer of elevator contractor and shall be notarized. Any equipment that is provided for installation which would require any specialized tool, devices, manuals, source codes, access codes, objects, passwords and/or software to input parameters, make adjustments, troubleshoot, perform diagnostics, perform testing functions or required for any other type of maintenance or repair function shall be included with the modernization cost of this contract and will become the property of the building owner. At the time of bid submission, this shall be identified as such on the bid document.

H) Elevator contractor is responsible for all protection both inside and outside of hoistway to all personnel inside or outside of hoistway areas. This includes providing and maintaining of protective barricades at hall entrances, screening of each hoistway during work and protection from trip hazards due to storage or use of materials or drop cords.

I) Elevator contractor is to provide due care to protect building flooring and walls from excessive debris, dirt or damage due to workmen onsite.

Part 1.09 DELIVERY, STORAGE AND HANDLING

A) Deliver elevator materials, components and equipment in manufacturer's protective packaging.

B) Store materials in a dry protected area provided by owner. The space provided by the owner is limited and is located in the basement of the building. Protect and handle materials in accordance with manufacturer's recommendations to prevent damage, soiling, or deterioration.

C) Elevator contractor shall be responsible for the material handling of all elevator equipment to site storage area. Elevator contractor will be responsible for keeping all stored materials inside storage area with lock and key.

D) Locked and protected storage for elevator contractor’s tools or materials at site is contractor’s responsibility. Key will be provided for elevator machine room, which is located on the basement building level, and can be utilized for storage or securing of tools and equipment. This is the only area available on site for storage of any elevator materials, equipment or tools.

E) Authorized elevator personnel only are responsible for temporary installed barrier panels as may be required during construction to protect the openings at elevators at each floor. Panels may be removed only while the authorized elevator personnel are to perform work in the immediate area of the unprotected opening. Authorized elevator personnel shall re-install all barriers as required to maintain the original solid and safe protection to the opening prior to leaving immediate work area of the opening.

Part 1.10 PROJECT CONDITIONS

A) Prohibited Use: Elevator that is turned over to the contractor for modernization work shall not be used for any purpose during the construction period before Substantial Completion. The elevator will only be turned over to the owner upon completion of all modernization work, including successful completion of all required inspections and tests including acceptance by consultant.

B) Security: Any and all onsite workmen and receiving of products to site are required to follow security and safety procedures as per OSHA and Division the Town of Lexington policies due to facility regulations.

C) Painting:

1) Except as otherwise specified, paint all metal work provided by the elevator manufacturer and installer.

2) Provide all ferrous metals installed in the hoistway shop primed with a rust inhibitive primer.

3) Remove rust, clean, degrease and paint any existing required parts or components for a like new condition.

Part 1.11 WARRANTY

A) Warranty: The elevator contractor's acceptance is conditional on the understanding that their warranty covers defective material and workmanship. The guarantee period shall extend to one

(1) Year from the date of completion or acceptance thereof by beneficial use; whichever is earlier, of each elevator. The guarantee excludes ordinary wear and tear or improper use, vandalism, abuse, misuse, or neglect or any other causes beyond the control of the elevator contractor and this express warranty is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. Any defective condition or workmanship not mutually agreeable as satisfactory to building owner and elevator contractor shall be determined by the independent elevator consultant as final for the replacement, repair or continued use or product or part in question.

Part 1.12 CONTRACT PREVENTIVE MAINTENANCE

A) **Current Maintenance Contract**: The existing maintenance agreement for this specific elevator will be held in abeyance once on-site work is initiated for this elevator, during the period of modernization and during the twelve (12) months of maintenance as detailed below. At the conclusion of the twelve (12) month maintenance period the existing maintenance contractor will resume maintenance responsibilities in accordance with the terms of their existing contract.

B) **Maintenance Requirements**:

1) Maintenance service consisting of a minimum of monthly examinations, adjustments and lubrication of the elevator equipment shall be provided by the elevator contractor for a period of twelve (12) months after the elevator has been turned over for the customer's beneficial use at the completion of all required testing. This service shall not be subcontracted, but shall be performed by the elevator contractor. All work shall be performed by competent employees during regular working hours of regular working days and shall include emergency 24-hour callback service. This service shall not cover adjustments, repairs or replacement of parts due to negligence, misuse, abuse or

accidents caused by persons other than the elevator contractor. Only genuine parts and supplies as used in the manufacture and installation of the original equipment shall be provided.

2) Maintenance contractor shall provide a service manual for the elevator describing monthly, quarterly and annual maintenance tasks. All maintenance will be performed in accordance to the requirements detailed in the service manual in accordance with the minimum requirements of the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References. Each task shall include an area for signature by a Certified Elevator Technician upon completion of task. Service manual shall also include page(s) for documenting all required inspections and tests. Service manual shall contain a section to record all related maintenance, repair and replacement information in accordance with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, Part 8.6 and remain on site.

3) The service manual is maintained by the elevator contractor, but the manual is the property of the building owner and shall not be removed from the premises.

4) All maintenance manuals, documents, checklists or other records are the property of the building owner and shall be turned over to the building owner's representative. These documents shall be maintained by the elevator contractor but will remain the property of the building owner. The elevator contractor is allowed to make copies of these documents, but the original remains the property of the building owner.

5) Maintenance contractor shall provide documentation and shall perform monthly testing of fire service recall operation as per the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References and ASME A17.2-2010.

6) Submit parts catalog and show evidence of local parts inventory with complete list of recommended spare parts. Manufacturer of original equipment shall produce parts.

7) Manufacturer shall have a service office and full time service personnel within a two hour radius of the project site.

8) Maintenance service shall include all required tests for inspection services as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References and ASME A17.2 Inspectors Guide.

9) Emergency In-Car Telephone Response: The elevator maintenance contractor is to provide emergency in-car telephone response and will remain the provider of this service for the duration of the maintenance period.

Part 2 PRODUCTS

Part 2.01 ACCEPTABLE MANUFACTURER

A) Only products and components produced or provided by manufacturer(s) regularly engaged in the manufacture of elevator products, and that complies with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, in its entirety, ASME A17.2, all applicable sections of the International Building Code, and additional requirements specified herein are acceptable.

Part 2.02 MATERIALS, GENERAL

A) Colors, patterns, and finishes: As selected by the Town of Lexington representative from manufacturer's full range of standard colors, patterns, and finishes.

1) Steel:

a) Shapes and bars: ASTM A 36.

b) Sheet: ASTM A 366, cold-rolled steel sheet, commercial quality, Class 1, matte finish, stretcher leveled.

c) Finish: Factory-applied baked or powder coated enamel.

2) Stainless steel:

a) Shapes and bars: ASTM A 276, Type 300 (18-8).

b) Tubing: ASTM A 269, Type 300 (18-8).

Part 2.03 HOISTING EQUIPMENT

A) **Platform**: Existing frame shall be retained. Underside of the platform shall be verified and maintained fireproof by the elevator contractor.

1) Existing platform guards (apron) shall be removed.

2) New Platform Guards (Aprons) shall be installed. The front entrance side of the platform of each elevator shall be provided with a smooth metal guard plate of not less than 1.5 mm (0.059 in.) thick steel, or material of equivalent strength and stiffness, adequately reinforced and braced to the car platform. The guard plate shall extend not less than the full width of the widest hoistway door opening. The guard plate shall have a straight vertical face, extending below the floor surface of the platform no less than 1 220 mm (48 in.).

B) **Car Top Guard Railing**: A standard railing conforming to latest applicable edition of ASME A17.1-2010, Part 2.10.2 shall be provided on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance.

C) **Sling**: Existing steel stiles affixed to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure shall be retained.

D) **Guide Rails**: Existing guide rails shall be retained, fastened to the building with steel brackets verified in alignment, secure to wall and brackets with surface planed smooth. Existing guide rails shall be cleaned and aligned as necessary for the proper performance of the elevator and properly lubricated with the original manufacturers' lubrication identified on the crosshead data plate, or equal.

E) **Car Guides**: Rebuild or replace all components as necessary to provide a like new condition. Assemblies that cannot be rebuilt will be replaced with new components. All slide guide inserts will be replaced with new inserts and adjusted for proper operation.

F) **Buffers**: Retain existing car buffers. All buffers shall be completely cleaned and painted. Verify the buffer(s) comply with the stroke and load requirements of the ASME A17.1-2010. Buffer data plates shall be maintained or replaced for compliance with ASME A17.1-2010.

G) **Replace traction electrical motor**

1) Replace Drive: Variable Voltage Variable Frequency (VVVF) type or approved alternate.

2) The drive shall use power semiconductor devices and pulse width modulation, with a carrier frequency of not less than 2 kHz, to synthesize the three-phase, variable voltage variable frequency output to operate the hoist motor in an essentially synchronous mode. The drive shall have the capability of being adjusted or programmed to achieve the required motor voltage, current and frequency, in order to properly match the characteristics of the AC elevator hoist motor.

3) The drive shall not create excessive audible noise in the elevator motor. The drive shall be a heavy-duty type, capable of delivering sufficient current required to accelerate the elevator to contract speed with rated load. The drive shall provide speed regulation appropriate to the motor type.

4) For non-regenerative drives, a means shall be provided for removing regenerated power from the drive's DC power supply during dynamic braking. This power shall be dissipated in a resistor bank, which is an integral part of the controller. Failure of the system to remove the regenerated power shall cause the drive's output to be removed from the hoist motor.

5) A contactor shall be used to disconnect the hoist motor from the output of the drive unit each time the elevator stops. This contactor shall be monitored and the elevator shall not start again if the contactor has not returned to the de-energized position when the elevator stops.

6) Speed of the elevator shall be maintained.

I) **Traction Electrical Motor:** Shall be replaced with an Imperial electrical motor or an approved equalivant.

J) **Suspension and Governor Ropes**: Shall be replaced

K) **Counterweight**: Shall be retained

L) **Deflector Sheaves**: Shall be cleaned painted and serviced and shall be retained.

M) **Cable Guards**: Shall be installed per the ASME A17.1 Safety Code for Elevators and Escalators 2010 edition.

N) **Car Safety**: Shall be cleaned and serviced. Shall be retained.

O) **Centrifugal Speed Governor**: Shall be replaced

P) **Governor Tail Sheave**: Shall be replaced

Q) **Governor Rope**: Shall be replaced

R) **Automatic Terminal Limits**: Replace automatic terminal limits. Place electric limit switches in the hoistway near the terminal landings. Limit switches shall be designed to cut off the electric current and stop the car if it runs beyond either terminal landing.

S) **Automatic Self-Leveling**: Provide each elevator car with a self-leveling feature to automatically bring the car to the floor landings and correct for over travel or under travel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained level to less than ½" with the landing irrespective of its load.

T) **Ascending Car Protection**: Shall be installed per the ASME A17.1 Safety Code for Elevator and Escaltors.

U) **Load Weighing Devices**: Provide and install load weighing device(s). Draka Micelect beam sensor or approved EMCO equal load weighing device(s) shall be installed to provide signals to the controller for various load monitoring and dispatching operations. Audible/visual indicator shall be mounted in the car operating panel to warn of overload conditions. Maximum of 5% of overload to actuate the load weighing devices. Signage shall be provided in the elevator lobbies and in the car enclosure stating "WHEN VISUAL SIGNAL IS ON AND THE AUDIABLE SIGNAL IS ON THE LOAD WEIGHING DEVICES HAVE BEEN ACTIVATED. PLEASE REMOVE THE LOAD FROM THE ELEVATOR"

V) **Traveling Cable**: Existing traveling cables shall be removed and replaced with new traveling cables.

1) Traveling cables shall terminate at numbered terminal blocks in car and machine room.

2) Traveling cable shall be provided with a separate shielded circuit for communication system and hang to obtain proper size of loop. Traveling cable outer covering will be of fire resistant and meet UL standard testing.

3) Traveling cable will be hung free of all contact from hoistway or car equipment and shall be provided with 10 percent spare conductors for each car.

W) **Hoistway & Machine Room Wiring**:

1) Provide and install all new wiring throughout the elevator machine room and hoistway, adequately sized and constructed for the proper operation of the equipment. Multi-conductor type wiring for light and signal circuits shall be used in the elevator hoistway. All conductors will be copper and the minimum size of conductors, excluding those which form an integral part of control devices, shall be No. 14 for lighting circuits and No. 18 for operating, control and signal circuits. All wiring will be installed in accordance with applicable NEC and latest applicable edition of ASME A17.1 codes. Hoistway door interlock wiring will be replaced with new SF-2 high heat resistance wiring and shall include a grounding conductor. All other new wiring will have flame retarding and moisture resistant outer covering.

2) Equipment grounding shall be provided. The equipment grounding conductor will be run with the circuit conductors and shall be a copper conductor. Ground all conductors, supports, controller enclosure, and other non-current conducting metal enclosures for electrical equipment in accordance with NEC. The ground wires shall be solid or stranded; insulated, covered, or bare copper, sized as required by NEC, and shall be colored green if less than #6, and have green marking if #6 or larger.

3) Retain and reutilize to the maximum extent possible all ducts and conduit in machine room and hoistway. Install new ducts and conduit as required.

4) Hoistway travel cable and associated wiring shall be coordinated with controller manufacture for wiring configuration requirements to match all controller wiring color coded and numbered diagrams for installation.

X) **Pit Ladder**: Existing pit ladder will remain. .

Y) **Pit Stop Switch**: Provide and install new pit stop switch as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Z) **Pit Light**: New pit lighting will be installed by electrical contractor.

Part 2.04 PASSENGER DOORS, GATES and HOISTWAY ENTRANCES

A) **PASSENGER DOORS AND GATES:** The existing hoistway horizontal sliding doors shall be replaced. The elevator car gate shall be replaced.

a) All operating mechanisms for the hoistway doors shall be replaced with new equipment manufactured by the elevator contractor or approved equal components.

b) Door panel assemblies shall be properly balanced for smooth and even operation.

2) **Power Operated Car Gate:** The existing horizontal center sliding car gate assembly shall be removed and replaced with a new power operated car gate assembly, including new door tracks and hardware. Car gate shall comply with the latest A 17.1 Safety Code for Elevators. Car gate and all components shall be manufactured by an approved equal.

a) Power Operated One Section Car Gate: horizontal sliding, power operated car gate shall be provided. The gate shall be synchronized to operate with the hoistway doors and be equipped with an approved electric contact.

b) Power Operation of Car Gates: The gate shall be electrically operated by a power gate operator. The motor shall be two-speed. Gate travel shall be determined by direct drive limit switch actuation; motor speed controlled for consistent smooth closing and opening, and shall be designed to ensure full opening and full closing.

c) Electronic Door Detector: An electronic car door protection device shall be provided on the car gate. Electronic door protection shall be The Peelle Sensor Beam or approved equal. It shall be a noncontact device, comprised of a through beam infrared source and a detector, located at opposite ends of the leading edge of the car gate. The reopening device shall provide coverage while the gate is closing, across the full width of the gate. While the gate is closing, the beam projects across the full width of the gate, 125mm / 5 in. below its leading edge, detecting any obstruction in its path. The vertical range of detection is from 150 mm / 6 in. below full opening height to 25 mm / 1 in. above the floor. The beam mountings retract upwards as the gate reaches the closed position. Should the beam detect an obstruction the protection device will send a signal to reopen the car gate and landing doors.

d) The gate panels shall have a baked powder coat finish as provided by the manufacturer.

B) **Control (Power Operated)**:

1) The average closing speed shall not exceed 0.3 m/s (1 ft/s) for a for each panel of the bi-parting counterbalanced hoistway door or car gate, and shall not exceed 0.6 m/s (2 ft/s) for the vertically sliding counterweighted car door or gate.

2) Control shall monitor the position of doors and gates at all times without the use of door & gate limit switches.

a.) Deceleration points shall be automatically adjusted by control so that final open and final closed positions are reached smoothly without shock or jarring of doors or gate and without stopping 'short' of fully open or closed position and then restarting. Initial setting and adjusting of full open and closed positions shall be established through operation of 'open', 'close', and 'stop' push buttons inside car. For safer operation, opening and closing speeds for doors & gate are to be independently and fully adjustable to allow any closing speed up to A17.1/B44 Code maximums.

b) All control components are to be commercially available and nonexclusive to control supplier. Control assembly to bear label of approved testing facility such as Underwriters Laboratories.

C) **Operation:**

1) Opening is to be automatic upon car arrival or in response to momentary pressure push button. Closing is to be by momentary pressure push button.

D) **Finish**:

1) Each surface (except sliding surfaces of door and gate guides) to receive one heavy coat of factory applied corrosion resistant primer with appropriate finish color approved by a Town of Lexington representative.

E) **Braille Signage on Door Jambs**: Verify that all hoistway door entrance jambs have Braille jamb plates installed in accordance with current code requirements. Braille jamb plates are required to be installed at all entrances of the front doors. Any Braille jamb plates not in compliance will be replaced with new markings and be permanently fixed on jambs at a location in accordance with Americans with Disabilities Act (ADA) and International Building Code as applicable. Any new plates will be 4" x 4" stainless steel plates having raised floor markings with Braille and be installed in matched sets. All braille plates shall match existing braille plates

Part 2.05 CAR OPERATING PANELS

A) **Car Operating Station, General**: The car operating station shall include the components identified below into a single car operating panel for each opening. Separate sections of car operating panel are not acceptable. Car operating panel shall be compliant with the ASME A17.1 Safety Code For Elevators and Escalators 2010 edition.

B) **New Car Operating Station**: The car control is to be located at the front opening of the elevator car and shall contain the devices required for specific operation mounted directly to an aluminum backing plate with a stainless steel no. 4 brush finish applied faceplate. The panel shall consist of a series of modules, key switches or approved buttons for optimum viewing and accessibility. All engraving shall be on flush mounted hairline faceplates securely mounted to the aluminum backing plate.

1) The lowest section shall contain the "door open," "door close," "alarm" buttons.

2) Intermediate section shall contain floor buttons, which illuminate when a call is registered and remain illuminated until the call is answered. Raised floor indications and handicap symbols shall be located immediately adjacent to the floor buttons.

3) The next section shall contain required keyed switches.

4) The top section shall contain fire service features inside a locked cabinet in accordance with ASME A17.1-2010, including operating instructions.

5) All car and hall fixtures by Monitor Controls or approved equal. All push buttons to be Monitor Controls, Model TR 1000. Car operating panels by Monitor Controls, Model “Monitor Series” Stainless Steel #4 brushed finish. No adhesive type applied plates will be accepted at either car or hall stations.

6) Car station shall be pre-wired by the car station manufacture with terminal strip connection to control wiring.

C) **Position Indicators**: A 2” electronic segmented digital position indicator mounted in the control panel of each car operating panel for optimum viewing. As the car travels, its position in the hoistway shall be indicated by the illumination of the alpha/numeric character corresponding to the landing which the elevator is stopped or passing. On one side of digital numeric indicator in the car panel will also be a matching indicator with direction of travel.

D) **Emergency Light**: An emergency light and capacity plate shall be attached to the aluminum backing plate in each of the Car Operating Panels. Emergency light shall illuminate automatically upon loss of the building's normal power supply.

E) **Emergency Communications System**: Provide an EMS G3, or equal, emergency communications device mounted in the main car station panel including lobby phone. Emergency communications device shall comply with Americans with Disabilities Act (ADA) and ASME A17.1-2010.

1) All wiring to install the emergency communication system is to be provided by elevator contractor and installed in the conduit provided by the electrical contractor in accordance with Part 1.02 Related Work by others, subpart B) paragraph n) of this specification.

2) Elevator contractor is to provide junction box inside hoistway at lobby level convenient for coordination and connection to conduit provided by electrical contractor to fire control center location.
3) Operating instructions shall be incorporated with or adjacent to the two-way voice communication device located outside the car.

F) Special Accessories in car station panels:

1) **Car Operating Panel**

a) Light key switch

b) Fan: 2 speed key switch

c) Independent service key switch

d) Hoistway Access Key Switch: If the distance from the top of the car to the landing sill exceeds 900 mm (35 in.) when the car platform is level with the landing immediately below the top landing hoistway access is required and a key-operated inspection switch, which will render normal operation inoperative for the purpose of using the hoistway access switch will be provided in the car operating station.

e) Certificate frame integral in panel

f) Engraved Capacity

g) A momentary pressure switch or button shall be provided in the car and at each landing, that, when operated, shall cause the car door or gate and the hoistway door at the landing to stop or to stop and reopen.

h) Fire Fighters Service Key switch including operations required as required by the ASME A17.1-2010, shall be engraved on a flush mounted hairline faceplate.

i) The “FIRE OPERATION” switch, the “CALL CANCEL” button, the “STOP” switch, the door open button(s), the door close button(s), the additional visual signal, and the operating instructions shall be grouped together at the top of the main car operating panel behind a locked cover.

(1) The buttons for both the front and rear doors shall be provided in the firefighters’ operation panel. The door open and door close buttons for the front entrance shall be labeled “OPEN FRONT” and “CLOSE FRONT.” The door open and door close buttons for the rear entrance shall be labeled “OPEN REAR” and “CLOSE REAR”.

(2) The firefighters' operation panel cover shall be openable by the same key that operates the "FIRE OPERATION" switch. The cover shall be permitted to open automatically when the car is on Phase I Emergency Recall Operation and at the recall level. When the key is in the "FIRE OPERATION" switch, the cover shall not be capable of being closed. When closed, the cover shall be self-locking.

(3) All buttons and switches shall be readily accessible, located not more than (72 in.) above the floor.

(4) The front of the cover shall contain the words "FIREFIGHTERS' OPERATION" in red letters at least 0.4 in. high.

(5) Fire service instructions are to be either engraved or permanently mounted on the inside of the Phase 2 compartment door.

j) All required Braille for buttons and other switches as required by the applicable accessibility

k) Engraved directly into the car-operating panel ADA required telephone instructions.

l) There shall be NO ADHESIVE APPLIED PLATES, SIGNS or PANELS affixed to the car-operating panel.

m) Hall and car operating stations must be approved prior to ordering fixtures by contractor.

Part 2.06 CAR TOP INSPECTION STATION

A) **Car Top Inspection**: Provide a new car top inspection station with an "emergency stop" switch and constant pressure "up-down" direction buttons to make the normal operating devices inoperative and give the inspector complete control of the elevator. Car top Inspection unit manufactured by Monitor Controls. Mount the car top inspection station as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Part 2.07 CAB INTERIOR

A) **Elevator Cab**: **See the bid option for this item**

B) **Car Lighting Fixtures**: Existing normal power car lighting fixtures shall be removed and replaced with new LED lighting fixtures. Suitable LED fixtures shall be furnished in the car. An on off switch for controlling light shall be located in the car. The minimum illumination at the car threshold, with the door closed, shall be not less than 25 lx (2.5 fc) for passenger elevators.

C) **Car Top Exit Switch**: Car tops shall include emergency escape hatch safety switch and signage as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Part 2.08 CONTROL AND LANDING SYSTEM

A) New G.A.L. Galaxy elevator controller or preapproved equal: The elevator controller shall use a microprocessor base logic system and shall comply with all applicable elevator and electrical safety codes to include the following:

1) All power feed lines to the brake shall be opened by an electro-mechanical switch. A single ground, short circuit or solid-state control failure shall not prevent application of the brake.

2) The automatic leveling zone shall not extend more than 6" (152.4 mm) above or below the landing level, nor shall the doors begin to open until the car is within 6" (152.4 mm) of the landing. In addition, the inner leveling zone shall not extend more than 3" (76.2 mm) above or below the landing. The car shall not move if it stops outside the inner leveling zone unless the doors are fully closed and locked.
the inner leveling zone unless the doors are fully closed and locked.

3) The system shall use an automatic two-way leveling device to control the leveling of the car to within 0.25" (6.35 mm) or better above or below the landing sill. Over travel, under travel or rope stretch must be compensated for and the car brought level to the landing sill.

4) The closed loop feedback power control shall be arranged to continuously monitor the actual elevator speed signal from the velocity transducer and compare it with the intended speed signal to verify proper and safe operation of the elevator.

5) During operation of the elevator with an overhauling load (empty car up or loaded car down), precision speed control shall be obtained by the regulation system used in the power control. The power control shall have the capability to maintain regulation under varying loads.

6) The controller shall provide steepless acceleration and deceleration and smooth operation at all speeds. The system shall provide the required electrical operation of the elevator control system including automatic application of the brake, which shall bring the car to rest in the event of a power failure.

7) The controller shall include absolute floor encoding which, upon power up, shall move the car to the closest floor to identify the position of the elevator. With absolute floor encoding it is not necessary to travel to a terminal to establish floor position.

8) The controller shall use a variable voltage, variable frequency drive to control three-phase AC induction and Permanent Magnet AC motors.

9) The drive shall use a three-phase, full-wave bridge rectifier and capacitor bank to provide a DC voltage bus for the solid-state inverter.

10) The drive shall use power semiconductor devices and pulse width modulation with a carrier frequency of not less than 8 kHz to synthesize the three-phase, variable voltage, and variable frequency output to operate the hoist motor in an essentially synchronous mode.

11) The drive shall have the capability of being adjusted or programmed to achieve the required motor voltage, current and frequency to properly match the characteristics of the AC elevator hoist motor.

12) The drive shall not create excessive audible noise in the elevator motor.

13) The drive shall be a heavy-duty type, capable of delivering sufficient current to accelerate the elevator to contract speed with rated load. The drive shall provide speed regulation appropriate to the motor type.

14) A means shall be provided for removing regenerated power from the drive DC power supply during dynamic braking. This power shall be dissipated in a resistor bank which is an integral part of the controller. Failure of the system to remove the regenerated power shall cause drive output to be removed from the hoist motor.

15) A contactor shall be used to disconnect the hoist motor from the output of the drive unit each time the elevator stops. This contactor shall be monitored. The elevator shall not start again if the contactor has not returned to the de-energized position when the elevator stops.

16) All power feed lines to the brake shall be opened by an electro-mechanical switch. A single ground, short circuit or solid-state control failure shall not prevent application of the brake.

17) The controller shall provide step-less acceleration and deceleration and smooth operation at all speeds.

18) The controls shall be arranged to continuously monitor the performance of the elevator so that, if car speed exceeds 150 fpm during access, inspection, or leveling, the car shall shut down immediately, requiring a reset operation.

19) The controller shall include absolute floor encoding which, upon power up, shall move the car to the closest floor to identify the position of the elevator. With absolute floor encoding it is not necessary to travel to a terminal to establish floor position.

20) The controller shall have an RFI Filter to reduce EMI and RFI noise.

21) Failure of the brake to lift as detected by a mechanical switch (if provided) shall cause the control system to take the elevator out of service at the next stop where it shall remain out of service until the condition is corrected.

B) Hoistway Equipment Minimization

1) The control system shall allow slowdown, emergency terminal, and hoistway access limit switches to be eliminated. These switches shall exist as virtual switches in system software.

2) The control system shall allow leveling magnets and/or vanes to be eliminated.

C) Programmable Logic

1) All available programming options or parameters shall be field programmable, without need for any external device or knowledge of any programming languages. Programmable options and parameters shall be stored in nonvolatile memory. At a minimum, there shall be a 32-character alphanumeric display used for programming and diagnostics. Programmable parameters and options shall include, but are not limited to, the following:

a. Single Automatic Pushbutton / Selective Collective/Single Button Collective
b. Programmable Fire Code Options/Fire Floors (Main, Alternates)
c. Floor Encoding (Absolute PI)
d. Digital Position Indicators/Single
e. Programmable CE Microcom floor labels
f. Programmable Door Times
g. Programmable Motor Limit Timer
h. Programmable Car Fan and Light Timer
i. Door Nudging, Automatic and Fire Operation
j. Emergency Power
k. Parking Floors
l. Lobby Floor
m. Door Pre-opening
n. Hall or Car Gong Selection
o. Retiring Cam Option for Freight Doors
p. Standard Security
q. Attendant Service
r. Load Weighing for Light, Heavy and Overload Car
s. High Speed Inspection Enable
t. Door behavior selections
u. Door type selection
v. Fault Bypass – Inspection Operation
w. Fault Bypass – Automatic Operation

D) ADA Requirements

1) The elevator shall comply with ICC/ANSI A117.1, the American National Standard for Accessible and Usable Buildings and Facilities and the International Building Code.

2) Leveling Accuracy: The controller shall have a self-leveling feature that shall automatically bring the car to floor landings within a tolerance of 0.25" (6.35 mm) or better under all loading conditions up to the rated load.

3) Hall Lanterns: The controller shall have outputs to drive the visible and audible signals that are required at each hoistway entrance to indicate which elevator car is answering a call. Audible signals shall sound once for up, twice for down. (In-car lanterns located in cars, visible from the vicinity of hall call buttons, and conforming to the above requirements, shall be acceptable.)

4) Car Position Indicators: The controller shall have a position indicator output to drive the required position indicator which shall indicate the corresponding floor numbers as the car passes or stops at a floor. An audible signal shall sound as the position indicator changes floors.

E) Environmental Considerations

1) The elevator control shall be capable of operating within the following environmental conditions:

a. Ambient temperature: 32°F to 104°F (0°C degrees to 40°C degrees).
b. Humidity: Non-condensing up to 95%
c. Altitude: Up to 7500 feet (2286 m)

F) Building and System Configuration

1) The elevator controller shall be microprocessor based and designed specifically for elevator applications. Elevator and drive logic shall be implemented independently of safety functions.

2) Elevator logic shall be implemented to facilitate tight coordination between subsystems and enhance reliability. The implementation shall utilize a real-time, multi-tasking operating system to allow the processors to simultaneously execute elevator control logic, drive control logic, operator interface logic, and communication support.

3) The elevator controller shall have an independent safety system in order to implement safety features required by ASME A17.1 code. The safety system shall incorporate check redundant, multi-processor, multi-path, solid-state, ASME compliant implementation that meets CSA and CE standards.

4) The elevator controller shall be configured and packaged in such a way that external “jumpers” cannot be used (intentionally or unintentionally) while the elevator is running in any passenger mode of operation. Non-passenger modes

of operation shall be provided, along with means to bypass safety functionality, to allow inspection testing and other setup and/or troubleshooting operations.

5) The elevator control logic configuration shall be fully field programmable. Changes in number of floors, I/O configuration, starter setup, eligibility etc. shall not require the replacement/reprogramming of EEPROMs or other storage devices. Further, changes in the controller configuration shall be user adjustable in the field.

G) Diagnostics - must be supplied

1) The control system shall provide comprehensive means of accessing the computer memory for elevator diagnostic purposes. It shall have permanent indicators for important elevator status conditions as an integral part of the controller.

2) The microprocessor boards shall be equipped with on-board diagnostics for ease of troubleshooting and field programmability of specific control variables. Field changes shall be stored permanently, using nonvolatile memory. The microprocessor board shall provide the features listed below:

a. On-board diagnostic switches and an alphanumeric display to provide user friendly interaction between the mechanic and the controller.

b. An on-board event log shall store and display time-stamped events for diagnostic purposes. (Viewable only with monitoring software.)

c. An on-board real time clock shall display the time and date and be adjustable by means of on-board switches.

d. Field programmability of specific timer values (i.e., door times, etc.) may be viewed and/or altered through on-board switches and pushbuttons.

e. The elevator controller shall have extensive diagnostic capability. A built-in LCD display or equivalent shall allow access to major user functions and diagnostic features. The display shall be a multi-character, multi-line type with associated keypad to allow users to enter information. The display shall show data and menus in readily understood character format. No numeric, hexadecimal, or binary codes are acceptable.

f. Dedicated indicators shall be provided in a conspicuous location on the elevator controller to indicate important system statuses, such as when the safety string is made, when the door locks are made, when the elevator is on Inspection/Access, etc. In addition, other special or error conditions detected by the main processor or safety subsystem shall be displayed.

H) CAN Bus Connectivity

1) Circuit boards within the controller shall communicate through CAN Bus connections for reliable performance and simplified board replacement. Power for individual circuit boards shall also be distributed through the CAN Bus connection. Communication and power connection shall radiate from a central, multi-connection point such that single-point board failure shall not affect operation of other boards.

I) Universal I/O

1) Field I/O boards shall be universal in that 24V to 120V AC or DC connections shall be accepted without requirement for unique circuit boards for each. I/O boards shall provide built-in current limiting protection.

J) Intended Operation of Critical Components

1) Failure of any single magnetically operated switch, contactor, or relay to release in the intended manner; the failure of any static control device, speed measuring circuit, or speed pattern generating circuit to operate as intended; the occurrence of a single accidental ground or short circuit shall not permit the car to start or run if any hoistway door or gate interlock is unlocked or if any hoistway door or car door or gate contact is not in the made position. Furthermore, while on car top inspection or hoistway access operation, failure of any single magnetically operated switch, contactor or relay to release in the intended manner, failure of any static control device to operate as intended or the occurrence of a single accidental ground, shall not permit the car to move even with the hoistway door locks and car door contacts in the closed or made position.

K) Status Indicators

1) Dedicated permanent status indicators shall be provided on the controller to indicate when the safety string is made, when the door locks are made, when the elevator is operating at high speed, when the elevator is on independent service, when the elevator is on Inspection or Access, when the elevator is on fire service, when the elevator out of service timer has elapsed, and when the elevator has failed to successfully complete its intended movement. A means shall be provided to display other special or error conditions detected by the microprocessor.

2) Every field connection input or output shall have a dedicated LED such that no volt meter or other test equipment is required to see when and input or output is active.

L) Out of Service Timer 1) An out of service timer (T. O. S.) shall be provided to take the car out of service if the car is delayed in leaving the landing while calls exist in the system.

M) High or Low Speed Inspection 1) A selection shall be provided on the controller to select high or low speed during access or inspection operation as long as contract speed does not exceed 150 feet per minute.

N) Door Operation

1) Door protection timers shall be provided for both opening and closing directions to protect the door motor and help prevent the car from getting stuck at a landing. The door open protection timer shall cease attempting to open the door after a predetermined time if the doors are prevented from reaching the open position. In the event that the door closing attempt fails to make up the door locks after a predetermined time, the door close protection timer shall reopen the doors for a short time. If, after a predetermined number of attempts, the doors cannot successfully be closed, the doors shall be opened and the car removed from service.

2) A minimum of four different door standing open times shall be provided. A car call time value shall predominate when only a car call is canceled. A hall call time value shall predominate whenever a hall call is canceled. In the event of a door reopen caused by the safety edge, photo eye, etc., a separate short door time value shall predominate. A separate door standing open time shall be available for lobby return.

O) Door Pre-opening

1) When selected, this option shall start to open the doors when the car is in final leveling, 3" (76.2 mm) from the floor. If pre-opening is not selected, the doors shall remain closed until the car is at the floor, at which time the doors shall commence opening.

P) Car and Hall Call Registration

1) Car and hall call registration and lamp acknowledgment shall be by means of a single wire per call, in addition to the ground and the power bus. Systems that register the call with one wire, and light the call acknowledgment lamp with a separate wire can be accommodated.

2) The user shall be able to register car calls via the on-board LCD display and keypad.

Q) Emergency Power Operation 1) Emergency power in the building is sized to power all elevator cars in the building at any time.

R) Fire Service Operation

1) Fire Phase I emergency recall operation, alternate level Phase I emergency recall operation and Phase II emergency in-car operation shall be provided according to latest applicable edition of ASME A17.1.

S) Independent Service

1) Independent service operation shall be provided in such a way that actuation of a key switch in the car operating panel will cancel any existing car calls, and hold the doors open at the landing. The car will then respond only to car calls. Car and hoistway doors will only close with constant pressure on a car call pushbutton or door close button. While on independent service, hall arrival lanterns or jamb mounted arrival lanterns shall be inoperative.

T) Simplex Selective Collective Operation

1) Simplex selective collective automatic operation shall be provided for all single car installations. Operation of one or more car or hall call pushbuttons shall cause the car to start and run automatically, provided the hoistway door interlocks and car door contacts are closed.

2) An "UP" and "DOWN" button shall be provided at each landing. Multiple calls may be registered and the elevator shall respond to them as follows:

a) When the car arrives at its destination, a period shall be provided to allow time for opening the gate and door. If this time passes without the gate or door being opened, the car may be called to another landing. If the door or gate is opened within this period, it will not be possible to call the car away from the landing until the gate and door are closed. An operator entering the parked car may initiate travel in the appropriate direction of travel by pressing a car button.

b) If no car call is entered and the door and gate have been closed, the car will become available to respond to hall calls. If there is one or more hall calls registered in the car's current direction of travel, it shall respond to the nearest hall call registered in the same direction. If no calls are registered, the car shall remain at the last landing served until a hall call is registered.

U) Leveling

1) The car shall be equipped with two-way leveling to automatically bring the car level at any landing, within the required range of leveling accuracy, with any load up to full load.

V) Test Switch

1) A controller test switch shall be provided. In the test position, this switch shall allow independent operation of the elevator with the door open function deactivated for purposes of adjusting or testing the elevator. The elevator shall not respond to hall calls and shall not interfere with any other car in a duplex or group installation.
Inspection 1) To enhance safety, an inspection switch, enable switch, and an up/down toggle switch shall be provided in the controller and on the car top to place the elevator on inspection operation and allow the user to move the car. Activation of the car top inspection switch shall render the controller inspection switch inoperative.

W) Inspection

1) To enhance safety, an inspection switch, enable switch, and an up/down toggle switch shall be provided in the controller and on the car top to place the elevator on inspection operation and allow the user to move the car. Activation of the car top inspection switch shall render the controller inspection switch inoperative.

X) Uncanceled Call Bypass

1) A timer shall be provided to limit the amount of time a car is held at a floor due to a defective hall call or car call, including stuck pushbuttons. Call demand at another floor shall cause the car, after a predetermined time, to ignore the defective call and continue to provide service in the building.

Y) Load Weighers

1) Load weighing devices shall be installed to provide signals to the controller for various load monitoring and dispatching operations.

2) By identifying the load (light, heavy or overload), the system can activate anti-nuisance car call cancellation, loaded car hall call bypass, or overload.

Z) Absolute Floor Encoding

1) The controller shall include absolute floor encoding, which upon power up, shall move the car to the closest floor to identify the position of the elevator.

AA) Landing/Positioning System Information

1) The landing/positioning system shall use a Gray code, magnetically permanent encoded tape and two, independent sensor heads in a single housing for absolute position control under all powered conditions. The tape shall provide a unique code for every 1mm of travel. A third, independent system shall provide speed feedback directly from the hoist motor. The system shall continuously compare inputs from the three independent systems to assure accuracy and safety.

BB) Service Enhancements

1) The manufacturer shall make software updates for controller and/or group control available via Internet download, email attachment, or physical EEPROM shipment. Internet download and email attachment deliveries require an optional, hand-held user interface to facilitate software transfer from the user's PC to the elevator or group.

CC) Conduits and raceways in as new condition may be utilized by the contractor providing no open holes or covers. If contractor is to utilize existing wire ways or conduit, the contractor is responsible for assuring proper support and full code compliance

Part 2.09 HALL STATIONS

A) Hall and car operating stations must be approved prior to ordering fixtures by contractor. **ALL HALL STATIONS SHALL BE FLUSH MOUNTED**; surface mounted hall stations are not acceptable. Any patching of openings from installation and/or removal of hall stations will be by the Elevator Contractor. (as in 2.10.B)

B) **New Hall Stations**: Buttons shall illuminate to indicate call has been registered at that floor for the indicated direction. Faceplates shall be stainless steel no. 4 finish. Provide one set of risers.

1) All hall stations shall be one piece construction and flush mounted. If drilling, cutting or removal of existing lobby appurtenances is required, the elevator contractor must clarify in writing. All hall stations must be installed in accordance with requirements of Americans with Disabilities Act (ADA) and International Building Code requirements.

2) All hall and car push button lamps shall include long life LED type lamps.

3) A momentary pressure switch or button shall be provided at each landing, that, when operated, shall cause the car door or gate and the hoistway door at the landing to stop or to stop and reopen.

4) Each terminal station shall contain one illuminating push button, access key switch and other applicable accessories.

5) Each intermediate station shall consist of two illuminating push buttons, one for the up direction and one for the down position.

6) Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level. Fire Service instructions as per ASME A17.1-2010, shall be engraved in the main floor hall station panel. The same hall station shall include Emergency Power signal and door access switches (as required) for each car including labels.

7) Hoistway Access Switch: A hoistway access key switch shall be provided for the elevator at the top landing if the distance from the top of the car to the landing sill exceeds 900 mm (35 in.) when the car platform is level with the landing immediately below the top landing. a) The movement of the car initiated and maintained by the upper access switch shall be limited in the down direction to a travel not greater than the height of the car crosshead above the car platform, and limited in the up direction to the distance the platform guard extends below the car platform as permitted by latest applicable edition of ASME A17.1.

8) In case of fire use stair signs shall be engraved into each hall station panel with exact signage as per International Building Code 2012 including.

9) Floor Identification Plates: Install all door jamb plates at each floor. Stainless Steel jamb plates shall comply with Americans with Disabilities Act (ADA) and International Building Code requirements.

Part 2.10 HALL POSITION INDICATOR

A) Hall Position Indicator: Each floor shall contain one 2” electronic segmented digital position indicator. They shall be provided and mounted in the existing position indicator location for optimum viewing. As the car travels, its' position in the hoistway shall be indicated by the illumination of the alpha/numeric character corresponding to the landing which the elevator is stopped or passing.

B) Any patching of openings from installation and/or removal of hall position indicator(s) and/or hall stations will be completed by elevator contractor in accordance with Part 1.03 Work by Elevator Contractor.

C) Hall and car operating stations must be approved prior to ordering fixtures by contractor

PART 3 EXECUTION.

Part 3.01 PREPARATION

A) Examination:

1) Before starting elevator modernization, inspect hoistway, hoistway openings, pit and machine room, as constructed, verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator modernization until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

2) Modernization constitutes acceptance of existing conditions and responsibility for satisfactory performance.

B) Scheduling: Only one (1) elevator at a time will be turned over to the elevator contractor for modernization work. Upon completion of all modernization work on this elevator, including successful completion of all required inspections and tests, the elevator will be turned over to the building for use.

1) Elevator contractor shall be responsible for screening and protection of hoistway door openings when necessitated by work execution.

C) Signage:

1) County of LExington, in accordance with the General Materials section of this specification, will approve all signage in order to maintain consistent appearance for entire elevator installation.

2) All signage as required by International Building Code including amendments, and as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, NFPA 70 National Electrical Code 2008 and NFPA 72 Fire Alarm

Code 2010 to be posted in elevator lobbies, fire alarm panels, disconnects, machine rooms and machine room doors.

3) All existing signage shall be checked for conformance to International Building Code, ASME A17.1-2010, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010 requirements. If acceptable, it will be reutilized. If required signage is not in conformance with requirements of ASME A17.1-2010, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010, it shall be replaced as a part of this specification.

Part 3.02 INSTALLATION

A) Install elevator systems components and coordinate repairs of hoistway wall construction.

B) Only competent elevator installation personnel shall perform work.

C) Perform work with competent, skilled workmen under the direct control and supervision of the elevator manufacturer's experienced foreman.

D) Comply with the National Electrical Code for electrical work required during installation.

E) Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports, and bracing including all setting templates and diagrams for placement.

F) Welded construction: Provide welded connections for installation of elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn Parts. Comply with AWS B2.1 Standard Welding Procedure and Performance Qualification.

G) Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.

H) Install machinery, guides, controls, car and all equipment and accessories to provide a quiet, smoothly operating installation, free from side sway, oscillation or vibration.

I) Sound isolation: Mount rotating and vibrating elevator equipment and components on vibration-absorption mounts, designed to effectively prevent the transmission of vibrations to the structure, and eliminate sources of structure-borne noise from the elevator system.

J) Lubricate operating parts of system, including ropes, as recommended by the manufacturer.

K) Elevator contractor shall be required to install all data plates as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, on complete elevator system including alteration and original equipment.

All data plates shall be manufactured and printed with proper data for each elevator by CodeDataPlate.com or approved equal.

Part 3.03 FIELD QUALITY CONTROL

A) Acceptance testing: Upon completion of the elevator modernization and before permitting use of elevator, perform acceptance tests as required by the Authority Having Jurisdiction and recommended by Code and governing regulations or agencies. Perform other tests, if any, as required by governing regulations or agencies.

B) Advise Owner, Elevator Consultant, and governing authorities in advance as required of dates and times tests are to be performed on the elevator.

B) County of Lexington has designated the Wagner Consulting Group Inc. as their consultant on this project. The elevator contractor shall be responsible, in accordance with ASME A17.1-2010, for all acceptance inspections for this elevator. Elevator Installer in accordance with ASME A17.1-2010, Inspection and Test Requirements will perform all acceptance tests for this elevator. Elevator contractor must notify building owner and elevator consultant 7 days prior to inspection advising of the date and time of all inspections and tests. Elevator inspector other than Elevator and Amusement Device Bureau must be approved prior to inspection date by consultant.

Part 3.04 ADJUSTING

A) Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

B) The elevator contractor shall be required to perform and pass all required testing of all equipment as per ASME A17.1-2010.

C) Elevator contractor is to return at 30 days, 90 days and 180 days after final installation to examine and readjust rope tension and hoist machine as may be required for optimum performance.

Part 3.05 CLEANING:

A) Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided.

B) For duration and/or completion of elevator work, remove tools, equipment, and surplus materials from site daily.

C) Clean equipment rooms and hoistway.

D) Remove trash and debris daily from premises.

Part 3.06 PROTECTION:

A) During all elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Protect all areas of work from public access or dangers including tripping or fall hazards. Maintain protective measures throughout remainder of construction period.

Part 3.07 DEMONSTRATION:

A) The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative present prior to turning the elevator over for use. The elevator contractor shall demonstrate that control systems and operating devices are functioning properly.

B) Instruct Owner's personnel in proper use, operations, and daily care or operation of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies.

C) Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

D) Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion.

E) Demonstrate that control systems and operating devices are functioning properly.

F) Complete all consultants' and Owners' punch list items as may be required.

Part 3.08 ADDITIONAL REQUIREMENTS:

A) Elevator Contractor shall provide the following additional requirements in accordance to the referenced sections of ASME A17.1-2010:

1) Final Electrical Schematics and Drawings as required by Requirement 8.6.

2) Maintenance Requirements as required by Requirement 8.6.

3) Emergency Evacuation Procedures for Elevators: The Elevator Contractor shall supply and post a written emergency evacuation procedure for the elevator(s) by Requirement 8.6.11.4. The written procedure shall be kept on the premises where the elevator(s) are located. The procedure shall incorporate the ASME A17.4 Guide for Emergency Personnel as part of the emergency evacuation procedures plan. The plan shall be available to authorized elevator and emergency personnel and shall detail the safety precautions to be utilized in evacuation of passengers from a stalled elevator.

4) Elevator shall provide a Maintenance Control Program (MCP) for each elevator being modernized per the ASME A17.1 Safety Code for Elevators 2010 edition. This shall become the property of the owner.

ATTACHMENT

"B"

The Wagner Consulting Group

Part 1 GENERAL

Part 1.01 Description of Work Reference

SUMMARY

A) Section includes: Covers and includes the furnishing and installing of passenger geared or gearless traction elevator equipment as hereinafter described. This unit shall be completed and placed into service prior to removing any other units from service to be modernized.

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B) All items of this specification shall have their meaning defined in the ASME A17.1 Safety Code for Elevators and Escalators 2010 edition of the code and all revisions and references.

C) All work shall be performed in a first quality manner and is to include all work and material in accordance with the drawings and as specified herein.

D) In all cases where a device or part of the equipment is here in referred to as a single component, it is intended that such reference shall apply to as many such devices as are required to complete the installation.

E) Required hoisting, hoisting permits and traffic coordination and/or permits with local, State jurisdictions and the State of South Carolina as required.

F) All work shall be performed in accordance with the latest edition of the ASME A17.1 Safety Code for Elevator and Escalators, the National Electrical Code (NEC) 2011 edition. South Carolina Building Code(s) and all other required codes that may be applicable.

G) Required permits and coordination and/or permits with State and local jurisdictions and the State of South Carolina and the Town of Lexington as required.

H) The elevator can only be out of service for maximum 7 weeks once the elevator is removed from service.

I) Machine Roomless equipment will not be allowed for this installation

Part 1.02 RELATED WORK:

All related work will be the responsibility of the elevator contractor.

A) General Contractor shall provide the following in accordance with the requirements of the ASME A17.1 Safety Code for Elevators and Escalators, South Carolina Building Codes, National Fire Protection Act (NFPA) 72, NFPA 13 and NFPA 70 National Electric Code (NEC) and all other applicable codes.

1) A properly framed and clear, plumb hoistway with variations not to exceed1/2" at any point, including adequate guards and protection of the hoistway during the assembly period.
2) Access to the machine room and machinery spaces as required the ASME A17.1 Code and the South Carolina Building code.
3) Legal size machine room with ventilation and temperature to be maintained as per the elevator manufacturer.

A) HVAC WORK REQUIREMENTS:

1) **Machine room HVAC** is required, to maintain temperature and humidity to between 55° F and 90° F with relative humidity of not more than 85% non-condensing. The elevator contractor shall provide actual calculations for total anticipated heat loads generated by all elevator machine room equipment.

a) Machine room HVAC must be positioned per the ASME A17.1 Safety Code for Elevators 2010 Edition and as approved by the elevator contractor and/or consultant. There shall be no drain lines or condensation allowing water in the machine room.

b) HVAC system is required to have an electrical disconnect lockable in the off position with proper labels identifying source of power and purpose. As per the National Electric Code (NEC) 2011 Edition.

c) HVAC Contractor must verify if machine room HVAC system will meet all latest editions of all applicable codes and standards.

B) ELECTRICAL WORK REQUIREMENTS:

1) **Electrical Requirements for Hoistway and Machine Room:** HVAC, lighting, GFCI receptacles and including disconnects, as required by NFPA 70 National Electrical Code 2011 and as required by latest applicable edition of ASME A17.1 Safety Code for Elevators and Escalators as identified in Part 1.04 Code and Standard References. All Electrical work must be coordinated and scheduled with, at least 5 days' notice, with the building owner. Elevator shall

be removed from service while electrical trades are working in same or adjacent hoistways or machine room. All electrical work shall be installed per the electrical drawings.

a) Electrical service to main disconnect in elevator machine room; electrical power for elevator installation and testing; electrical service for machine room; machine room and pit receptacles with ground-fault current protection; lighting in machine room and pit; wiring for telephone service to machine room.

b) Main line disconnects to be shall be supplied and be appropriately sized and type for power requirements of new elevator equipment prior to installation. If existing disconnect is not acceptable, install new disconnects for elevator main line power

c) New electric wiring from disconnect switches to the terminals of the new elevator controller in the new location, inclusive of a normal 120 VAC, 15 AMP supply at each controller.

d) All electrical systems shall include proper grounding and bonding as required by NEC-2011.

e) Provide and install proper disconnect switches to air conditioner installed in machine room. Machine room to include proper thermostat for any remote installed system.

f) Provide and install new Cab light disconnect for elevator cab lighting system as per NEC-2011.

g) Provide and install new GFCI receptacles in machine room and hoistway as required by NFPA 70 NEC 2011. Provide a single receptacle non-GFCI for each sump in each elevator hoistway.

h) Provide and install pit lighting and machine room lighting as per NEC-2011 with enclosed and protected lamps, if required. Machine Room lighting level illumination shall be not less than 200 lx (19 fc) at the floor level. Pit lighting level illumination shall be not less than 100 lx (10 fc) at the floor level.

i) Provide and install pit receptacles, with GFCI protection.

j) Pit lighting switch and emergency stop switch shall be installed approximately 18” above first floor landing adjacent to opening and operable at side of each pit access door.

k) All lighting fixtures in machine rooms, elevator cars and on top of car to be suitably guarded in accordance with ASME A17.1-2010, Safety Code for Elevators and Escalators clearance requirements and NFPA 70 NEC 2011 requirements for guarding.

l) All disconnects shall be labeled according to NFPA 70 NEC 2011 including source of power, Elevator Number and all required warning signs.

2) **Emergency Generator:** It has been determined that the generator does power one of the elevator in the building.

C) FIRE ALARM WORK REQUIREMENTS:

1) **Fire Alarm** including all initiating devices as per NFPA 70 National Electrical Code 2011 and NFPA 72 National Fire Alarm Code 2010. Elevator contractor will be responsible for connecting to Fire Alarm to the elevator controller.

a) Verify that proper connections exist for fire recall devices to the elevator controller. If required, provide connection from new or existing fire recall devices to the elevator controllers in machine room. For each elevator within the building, a minimum of three separate elevator control circuits shall be terminated at the designated elevator controller within each elevator machine room in accordance with NFPA 72-2010, Operation of the elevator shall be in accordance with Section 2.27 of ASME A17.1-2010, the initiating devices or other automatic fire detection as permitted by NFPA 72-2010, shall actuate the elevator control circuits as detailed in NFPA 72-2010,

b) Fire alarm contractor shall demonstrate at time of elevator inspection, compliance and testing of all alarm initiating devices as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, ASME A17.1-2010, and NFPA 72 National Fire Alarm Code 2010. .

c) Installation of alarm system and devices shall conform to ASME A17.1-2010, and NFPA 72-2010 including NFPA 70 NEC-2011.

D) TELEPHONE WORK REQUIREMENTS:

1) **Telephone Lines**: A telephone line is required for the elevator.

a) Provide or re-use existing telephone lines and wiring to elevator controllers for telephone system including all wiring in machine room to be installed inside conduit as per NFPA 70 NEC-2011.

a) All emergency telephone devices shall include a minimum of 4 hours emergency backup power including power from emergency generator if supplied.

E) GENERAL CONSTRUCTION WORK REQUIREMENTS:

1) **Building general construction** conditions, cleaning and painting of miscellaneous surfaces: The elevator contractor shall be responsible for all work as detailed in this section.

a) Removal or protection of all non-elevator related pipes, wiring, conduit, openings in machine rooms and hoistways to include a 2 hour fire rating. All foreign pipes, wiring or conduit not in use or directly related to the elevator system shall be removed from machine rooms and hoistways. If these items cannot be removed then a variance to the ASME Safety Code for Elevators shall be requested form the Authority Having Jurisdiction.

b) All projections or recesses in walls of hoistway greater than 4" shall be beveled not less than 70 degrees with sheet metal not less than 16 gauge.

c) Provide and install walk off carpet tile required assuring proper level of adjoining surfaces of cab floor and sill including hall sills and finished flooring at each landing. All sills must be substantially level to all adjacent finished flooring surfaces.

d) All above work and materials to be performed to meet compliance with International Building Code and all applicable local codes including amendments, ASME A17.1-2010, NFPA 70 National Electrical Code 2011, and NFPA 72 Fire Alarm Code 2010.

e) Failure to perform required testing at time of scheduled elevator acceptance testing and inspection will require full advance payment by contractor at fault for all expenses relating to re-inspection, permit and scheduling fees to building management.

Part 1.03 WORK BY ELEVATOR CONTRACTOR

A) All work, including work detailed in Part 1.02, Related Work, necessary for a complete and useable elevator system, will be the responsibility of the Elevator Contractor. Specifically to include non-traditional Elevator Contractor work detailed in Part 1.03 B as detailed below, in addition to traditional Elevator Contractor work as detailed in all other sections of this specification

B) **Non-Traditional Work**:

1) **Patching:** Patching of all openings as required by elevator installation work and shall be completed with fire rating of hoistway or machine room equal or greater than 2 hours in accordance with International Building Code including amendments and all applicable local codes. All patching shall be with performed

with UL tested fire rated materials or fire rated assemblies that meet or exceed existing wall fire rating.

a) All openings left from the removal of any surface mounted devices will be patched appropriately and surface restoration performed by the elevator contractor.

C) **Electrical, Emergency Generator and HVAC Requirements Information**: In order to insure that all associated work is initiated and completed in time for the elevator modernization, the Elevator Contractor is required to provide the following information within 30 days of bid award:

1) **Electrical Info**: Successful bidder shall supply electrical power requirements for new elevator equipment for determination of electrical requirements by electrical contractor.

2) **HVAC Info**: Successful bidder shall supply HVAC requirements for new elevator equipment necessary for determination of proper sizing of HVAC system for machine room by HVAC contractor.

Part 1.04 CODE AND STANDARD REFERENCES

A) Comply with applicable building codes and elevator codes at the project site, including but not limited to the following:

1) All local codes and standards that pertain to elevators and related work.
2) International Building Code 2012 including amendments.
3) ASME A17.1-2010.
4) ASME A17.2-2010 Guide for Inspection of Elevators and Escalators
5) ADAAG, Americans with Disabilities Act Accessibility Guidelines.
6) NFPA 70, National Electrical Code 2011.
7) ANSI/UL 10B, Fire Tests of Door Assemblies.
8) NFPA 72, National Fire Alarm Code 2010
9) O.S.H.A. Requirements for construction and repairs of existing buildings.
10) Elevator Industry Field Employees' Safety Handbook 2010
11) State of South Carolina Requirements
12) NFPA 70E National Electrical Safety Code

Part 1.05 PAINTING

A) Cleaning and Painting of Miscellaneous Surfaces: The elevator contractor shall be responsible for all miscellaneous painting as detailed in this specification and not designated to be performed by others in Part 1.02, Related Work.

B) All cleaning or painting work that produces any vapors or fumes must be adequately vented. Work of this nature must be scheduled and coordinated three (3) days prior to execution of work.

C) The procedures proposed for the accomplishment of the work shall provide for safe conduct of the work, careful removal and disposition of materials specified to be salvaged, protection of property, which is to remain undisturbed, and coordination with other work in progress. The work plan shall include a Safety and Health plan describing procedures for handling monitoring, and disposition of Volatile Organic Compounds "VOCs" and other hazardous and toxic materials. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations.

D) All paint products and application method must be pre-approved prior to application by owner or owner's agent. Paint products and application methods are to be equal or better than existing product applicable with matching color as approved by owner.

E) All products of paint, thinners or cleaning agents must be pre-approved prior to use for VOC's or any additional health concerns.

F) Interior work zones having a volume of 1,000 cubic feet or less shall be ventilated at a minimum of 2 air exchanges per hour. Ventilation in larger work zones shall be maintained by means of mechanical exhaust. Solvent vapors shall be exhausted outdoors, away from air intakes, building occupants and workers. Building air conditioning return air inlets in the work zone shall be temporarily sealed before start of work until the prepared surfaces have dried and are free of odor. Operators and personnel in the vicinity of paint removal processes involving chemicals or mechanical action (sanding or blasting) shall wear respirators.

Part 1.06 ELEVATOR SYSTEM DESCRIPTION:

A) Elevator Arrangement.

1) These elevators are identified as the Passenger Elevators. It shall be the bidders' responsibility to review and verify as required for proper installation. Specifications for elevator include minimum requirements of elevator and it shall be the responsibility of the bidder to complete all work to code compliance.

2) The elevators are Otis machines with MCE controls South Carolina State Numbers are 3200052 and 3200053

B) Quantity: Two (2)

C) Type: (2) Electric Traction Elevator

D) Number of Stops: 1) 7 front

E) Floor Designations: 1,2,3,4,5,6,7

F) Number of Openings: 1) 7 front, 0 rear

G) Rise: All existing conditions

H) Rated Capacity/Speed: Maintain existing conditions
1) Capacity rated at 2,500 pounds
2) Speed rated at 350 fpm

I) Minimum Car Inside: 1) Provide a ASME A17.1 code compliant inside car dimension

J) Inside Cab Height:
1) Provide a ASME A17.1 code compliant clear headroom dimensions inside car.

K) Entrance Width & Type:
1) Center Sliding doors, approximately 36 inches wide

L) Main Power Supply: Existing 460 Volts + or - 5% of normal, 3 Phase, 60 Cycle with a separate equipment grounding conductor (**Contractors shall field verify prior to submitting bids for work**).

M) Lighting Power Supply: 120 Volts, 1 Phase, 15 Amp, 60 Hz.

N) Stopping Accuracy: ±1/4" under any loading condition or direction of travel.

O) Car Operation: Using a Simplex Selective Collective microprocessor-based controller, the operation shall be automatic by means of the car and hall buttons.

Part 1.07 SUBMITTALS

A) Shop drawings of all materials and required submittals below to be used on the project shall be submitted for review and approval prior to purchase any materials.

B) Product data: When requested, submit product data for the following:
1) Elevator car and hoistway fixtures.
2) Lobby Panel and Communication Devices.
3) Operation, control, and signal systems.
4) Drive, motor, machine and all major components of system.

C) Shop drawings:
1) Show equipment arrangement in the machine room, pit and hoistway. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location as required.

2) Indicate elevator system capacities, sizes, performances, safety features, finishes and other pertinent information.

3) Show floors served, existing travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work, if required.

4) Indicate electrical power requirements and branch circuit protection device recommendations and locations.

D) Certificates: Inspection and acceptance certificates of elevator system installation.

E) Operation and maintenance data. Include the following:

1) Operation and maintenance instructions.

2) Parts list, with recommended parts inventory.

3) Wiring diagrams for control system including any in field modifications.

4) Copy of field pull sheet wiring as built notes. Pull sheets to include wire numbers and colors.

Part 1.08 QUALITY ASSURANCE

A) Elevator Contractor Qualifications: Elevator Contractor shall provide pre-engineered elevator system components by manufacturer(s) regularly engaged in the manufacture of elevator systems and that complies with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References in its entirety, all applicable sections of the International Building Code including amendments in its entirety, and additional requirements specified herein.

1) The elevator contractor shall have a documented, on-going quality assurance program.

B) Installer Qualifications: The manufacturer or an authorized agent of the manufacturer with not less than ten years of satisfactory experience installing elevators equal in character and performance to the project elevators.

C) Permits and Inspections: Apply and secure all required permits from the local Authority Having Jurisdiction permits. Elevator contractor is responsible for proper posting of all required licenses, permits and safety documentation.

D) Regulatory Requirements:

1) ASME A17.1-2010.

2) International Building Code including amendments

3) NFPA 70 National Electrical Code 2011

4) NFPA 72 National Fire Alarm Code 2010

5) Americans with Disabilities Act - Accessibility Guidelines (ADAAG).

6) Any changes or updates as required by International Building Code or the local Authority Having Jurisdiction by time of permit application.

7) Any and all onsite workmen and receiving of products to site are required to follow security and safety procedures as per policies due to facility regulations.

E) Inspection and testing: Elevator Installer shall obtain and pay for all required tests, permits and fees for elevator installation as required by the South Carolina Department of Licensing and Labor Department Elevator and Amusement Device Section.

1) Town of Lexington designated, Wagner Consulting Group, Inc., as their consultant on this project. Wagner Consulting Group, Inc., in accordance with ASME A17.1-2010, Inspection and Test Requirements, will be present for and review all acceptance inspections for this elevator. Elevator Installer in accordance with ASME A17.1-2010, including the Inspection and Test Requirements will schedule and coordinate all acceptance tests and arrange for inspection for this elevator. Elevator contractor must notify building owner and elevator consultant 7 days prior to inspection advising of the date and time of all inspections and tests. Elevator consultant must qualify and approve any inspector prior to inspection other than the Authority Having Jurisdiction employed inspectors.

2) Elevator contractor shall be solely responsible for the application, securing, maintaining, completion and posting of existing elevator permits as per the local Authority Having Jurisdiction and delivery to the Owner upon completion and acceptance of elevator work, the certificate of operation.

3) Failures by elevator contractor to successfully perform required testing and pass alteration acceptance inspection, at time of scheduled elevator acceptance testing, will require a re-inspection. All costs for re-inspection required due to elevator contractor fault will be paid by elevator contractor.

F) All signage as required by the International Building Code and any local code requirements including amendments, latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010 to be posted in elevator lobbies, fire alarm panels, disconnects, machine rooms and machine room doors.

G) Letter of guarantee that any and all equipment installed shall be **completely non-proprietary** and shall not require the need for specialized testing or programming tools currently or in the future. Future information for trouble shooting or adjusting shall be available to any licensed elevator maintenance contractor by the supplier of the control system at a reasonable cost comparable to cost of competitive parts within marketplace. Contractor shall provide complete schematics and wiring diagrams for control systems including information for change of program, on board diagnostics or mnemonics, or other on board switches or settings. Any controller by a manufacturer other than specified must be pre-approved prior to bid. Letter stating agreement to the above compliance shall be signed by an officer of elevator contractor and shall be notarized. Any equipment that is provided for installation which would require any

specialized tool, devices, manuals, source codes, access codes, objects, passwords and/or software to input parameters, make adjustments, troubleshoot, perform diagnostics, perform testing functions or required for any other type of maintenance or repair function shall be included with the modernization cost of this contract and will become the property of the building owner. At the time of bid submission, this shall be identified as such on the bid document.

H) Elevator contractor is responsible for all protection both inside and outside of hoistway to all personnel inside or outside of hoistway areas. This includes providing and maintaining of protective barricades at hall entrances, screening of each hoistway during work and protection from trip hazards due to storage or use of materials or drop cords.

I) Elevator contractor is to provide due care to protect building flooring and walls from excessive debris, dirt or damage due to workmen onsite.

Part 1.09 DELIVERY, STORAGE AND HANDLING

A) Deliver elevator materials, components and equipment in manufacturer's protective packaging.

B) Store materials in a dry protected area provided by owner. Protect and handle materials in accordance with manufacturer's recommendations to prevent damage, soiling, or deterioration. The owner has limited space for storage, this space is located in the basement of the building.

C) Elevator contractor shall be responsible for the material handling of all elevator equipment to site storage area. Elevator contractor will be responsible for keeping all stored materials inside storage area with lock and key.

D) Locked and protected storage for elevator contractor’s tools or materials at site is contractor’s responsibility. Key will be provided for elevator machine room, which is located on the basement floor of the building level, and can be utilized for storage or securing of tools and equipment. This is the only area available on site for storage of any elevator materials, equipment or tools. Owner can also supply an area where a storage container can be placed in lieu of an area in the building. Elevator contractor shall be responsible for obtaining the storage container.

E) Authorized elevator personnel only are responsible for temporary installed barrier panels as may be required during construction to protect the openings at elevators at each floor. Panels may be removed only while the authorized elevator personnel are to perform work in the immediate area of the unprotected opening. Authorized elevator personnel shall re-install all barriers as required to maintain the original solid and safe protection to the opening prior to leaving immediate work area of the opening.

Part 1.10 PROJECT CONDITIONS

A) Prohibited Use: Elevator that is turned over to the contractor for work shall not be used for any purpose during the construction period before Substantial Completion. The elevator will only be turned over to the owner upon completion of all modernization work, including successful completion of all required inspections and tests including acceptance by consultant.

B) Security: Any and all onsite workmen and receiving of products to site are required to follow security and safety procedures as per OSHA and Division the Town of Lexington policies due to facility regulations.

C) Painting:

1) Except as otherwise specified, paint all metal work provided by the elevator manufacturer and installer.

2) Provide all ferrous metals installed in the hoistway shop primed with a rust inhibitive primer.

3) Remove rust, clean, degrease and paint any existing required parts or components for a like new condition.

Part 1.11 WARRANTY

A) Warranty: The elevator contractor's acceptance is conditional on the understanding that their warranty covers defective material and workmanship. The guarantee period shall extend to one

(1) Year from the date of completion or acceptance thereof by beneficial use; whichever is earlier, of each elevator. The guarantee excludes ordinary wear and tear or improper use, vandalism, abuse, misuse, or neglect or any other causes beyond the control of the elevator contractor and this express warranty is in lieu of all other warranties, express or implied, including any warranty of merchantability or fitness for a particular purpose. Any defective condition or workmanship not mutually agreeable as satisfactory to building owner and elevator contractor shall be determined by the independent elevator consultant as final for the replacement, repair or continued use or product or part in question.

Part 1.12 CONTRACT PREVENTIVE MAINTENANCE

A) **Current Maintenance Contract**: The existing maintenance agreement for this specific elevator will be held in abeyance once on-site work is initiated for this elevator, during the period of modernization and during the twelve (12) months of maintenance as detailed below. At the conclusion of the twelve (12) month maintenance period the existing maintenance contractor will resume maintenance responsibilities in accordance with the terms of their existing contract.

B) **Maintenance Requirements**:

1) Maintenance service consisting of a minimum of monthly examinations, adjustments and lubrication of the elevator equipment shall be provided by the elevator contractor for a period of twelve (12) months after the elevator has been turned over for the customer's beneficial use at the completion of all required testing. This service shall not be subcontracted, but shall be performed by the elevator contractor. All work shall be performed by competent employees during regular working hours of regular working days and shall include emergency 24-hour callback service. This service shall not cover adjustments, repairs or replacement of parts due to negligence, misuse, abuse or accidents caused by persons other than the elevator contractor. Only genuine parts and supplies as used in the manufacture and installation of the original equipment shall be provided.

2) Maintenance contractor shall provide a service manual for the elevator describing monthly, quarterly and annual maintenance tasks. All maintenance will be performed in accordance to the requirements detailed in the service manual in accordance with the minimum requirements of the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References. Each task shall include an area for signature by a Certified Elevator Technician upon completion of task. Service manual shall also include page(s) for documenting all required inspections and tests. Service manual shall contain a section to record all related maintenance, repair and replacement information in accordance with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, Part 8.6 and remain on site.

3) The service manual is maintained by the elevator contractor, but the manual is the property of the building owner and shall not be removed from the premises.

4) All maintenance manuals, documents, checklists or other records are the property of the building owner and shall be turned over to the building owner's representative. These documents shall be maintained by the elevator contractor but will remain the property of the building owner. The elevator contractor is allowed to make copies of these documents, but the original remains the property of the building owner.

5) Maintenance contractor shall provide documentation and shall perform monthly testing of fire service recall operation as per the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References and ASME A17.2-2010.

6) Submit parts catalog and show evidence of local parts inventory with complete list of recommended spare parts. Manufacturer of original equipment shall produce parts.

7) Manufacturer shall have a service office and full time service personnel within a two hour radius of the project site.

8) Maintenance service shall include all required tests for inspection services as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References and ASME A17.2 Inspectors Guide.

9) Emergency In-Car Telephone Response: The elevator maintenance contractor is to provide emergency in-car telephone response and will remain the provider of this service for the duration of the maintenance period.

Part 2 PRODUCTS

Part 2.01 ACCEPTABLE MANUFACTURER

A) Only products and components produced or provided by manufacturer(s) regularly engaged in the manufacture of elevator products, and that complies with the latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, in its entirety, ASME A17.2, all applicable sections of the International Building Code, and additional requirements specified herein are acceptable.

Part 2.02 MATERIALS, GENERAL

A) Colors, patterns, and finishes: As selected by the Town of Lexington representative from manufacturer's full range of standard colors, patterns, and finishes.

1) Steel:

a) Shapes and bars: ASTM A 36.

b) Sheet: ASTM A 366, cold-rolled steel sheet, commercial quality, Class 1, matte finish, stretcher leveled.

c) Finish: Factory-applied baked or powder coated enamel.

2) Stainless steel:

a) Shapes and bars: ASTM A 276, Type 300 (18-8).

b) Tubing: ASTM A 269, Type 300 (18-8).

Part 2.03 HOISTING EQUIPMENT

A) **Platform**: Existing frame shall be retained. Underside of the platform shall be verified and maintained fireproof by the elevator contractor.

1) Existing platform guards (apron) shall be removed.

2) New Platform Guards (Aprons) shall be installed. The front entrance side of the platform of each elevator shall be provided with a smooth metal guard plate of not less than 1.5 mm (0.059 in.) thick steel, or material of equivalent strength and stiffness, adequately reinforced and braced to the car platform. The guard plate shall extend not less than the full width of the widest hoistway door opening. The guard plate shall have a straight vertical face, extending below the floor surface of the platform no less than 1 220 mm (48 in.).

B) **Car Top Guard Railing**: Provide A standard railing conforming to latest applicable edition of ASME A17.1-2010, Part 2.10.2 shall be provided on the outside perimeter of the car top on all sides where the perpendicular distance between the edges of the car top and the adjacent hoistway enclosure exceeds 300 mm (12 in.) horizontal clearance.

C) **Sling**: Provide Steel stiles affixed to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure shall be retained.

D) **Guide Rails**: Provide Guide rails shall be retained, fastened to the building with steel brackets verified in alignment, secure to wall and brackets with surface planed smooth. Existing guide rails shall be cleaned and aligned as necessary for the proper performance of the elevator and properly lubricated with the original manufacturers' lubrication identified on the crosshead data plate, or equal.

E) **Car Guides**: Provide all components as necessary to provide a like new condition. Assemblies that cannot be rebuilt will be replaced with new components. All slide guide inserts will be replaced with new inserts and adjusted for proper operation.

F) **Buffers**: Provide car buffers. All buffers shall be completely cleaned and painted. Verify the buffer(s) comply with the stroke and load requirements of the ASME A17.1-2010. Buffer data plates shall be maintained or replaced for compliance with ASME A17.1-2010.

G) **Provide traction electrical motor**

1) Provide Drive: Variable Voltage Variable Frequency (VVVF) type or approved alternate.

2) The drive shall use power semiconductor devices and pulse width modulation, with a carrier frequency of not less than 2 kHz, to synthesize the three-phase, variable voltage variable frequency output to operate the hoist motor in an essentially synchronous mode. The drive shall have the capability of being adjusted or programmed to achieve the required motor voltage, current and frequency, in order to properly match the characteristics of the AC elevator hoist motor.

3) The drive shall not create excessive audible noise in the elevator motor. The drive shall be a heavy-duty type, capable of delivering sufficient current required to accelerate the elevator to contract speed with rated load. The drive shall provide speed regulation appropriate to the motor type.

4) For non-regenerative drives, a means shall be provided for removing regenerated power from the drive's DC power supply during dynamic braking. This power shall be dissipated in a resistor bank, which is an integral part of the controller. Failure of the system to remove the regenerated power shall cause the drive's output to be removed from the hoist motor.

5) A contactor shall be used to disconnect the hoist motor from the output of the drive unit each time the elevator stops. This contactor shall be monitored and the elevator shall not start again if the contactor has not returned to the de-energized position when the elevator stops.

6) Speed of the elevator shall be maintained.

I) **Traction Electrical Motor:** Provide an Imperial electrical motor or an approved equalivant.

J) **Suspension and Governor Ropes**: Provide

K) **Counterweight**: Shall be provided

L) **Deflector Sheaves**: Shall be provided if necessary

M) **Cable Guards**: Shall be installed per the ASME A17.1 Safety Code for Elevators and Escalators 2010 edition.

N) **Car Safety**: Shall be provided

O) **Centrifugal Speed Governor**: Shall be provided

P) **Governor Tail Sheave**: Shall be provided

Q) **Governor Rope**: Shall be provided

R) **Automatic Terminal Limits**: Provide automatic terminal limits. Place electric limit switches in the hoistway near the terminal landings. Limit switches shall be designed to cut off the electric current and stop the car if it runs beyond either terminal landing.

S) **Automatic Self-Leveling**: Provide each elevator car with a self-leveling feature to automatically bring the car to the floor landings and correct for over travel or under travel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained level to less than ½" with the landing irrespective of its load.

T) **Ascending Car Protection**: Shall be installed per the ASME A17.1 Safety Code for Elevator and Escalators.

U) **Load Weighing Devices**: Provide and install load weighing device(s). Draka Micelect beam sensor or approved EMCO equal load weighing device(s) shall be installed to provide signals to the controller for various load monitoring and dispatching operations. Audible/visual indicator shall be mounted in the car operating panel to warn of overload conditions. Maximum of 5% of

overload to actuate the load weighing devices. Signage shall be provided in the elevator lobbies and in the car enclosure stating “WHEN VISUAL SIGNAL IS ON AND THE AUDIABLE SIGNAL IS ON THE LOAD WEIGHING DEVICES HAVE BEEN ACTIVATED. PLEASE REMOVE THE LOAD FROM THE ELEVATOR”

V) **Traveling Cable**: Provide traveling cables per the ASME A17.1 Safety Code for Elevators and Escalators and National Electrical Code.

1) Traveling cables shall terminate at numbered terminal blocks in car and machine room.

2) Traveling cable shall be provided with a separate shielded circuit for communication system and hang to obtain proper size of loop. Traveling cable outer covering will be of fire resistant and meet UL standard testing.

3) Traveling cable will be hung free of all contact from hoistway or car equipment and shall be provided with 10 percent spare conductors for each car.

W) **Hoistway & Machine Room Wiring**:

1) Provide and install all new wiring throughout the elevator machine room and hoistway, adequately sized and constructed for the proper operation of the equipment. Multi-conductor type wiring for light and signal circuits shall be used in the elevator hoistway. All conductors will be copper and the minimum size of conductors, excluding those which form an integral part of control devices, shall be No. 14 for lighting circuits and No. 18 for operating, control and signal circuits. All wiring will be installed in accordance with applicable NEC and latest applicable edition of ASME A17.1 codes. Hoistway door interlock wiring will be replaced with new SF-2 high heat resistance wiring and shall include a grounding conductor. All other new wiring will have flame retarding and moisture resistant outer covering.

2) Equipment grounding shall be provided. The equipment grounding conductor will be run with the circuit conductors and shall be a copper conductor. Ground all conductors, supports, controller enclosure, and other non-current conducting metal enclosures for electrical equipment in accordance with NEC. The ground wires shall be solid or stranded; insulated, covered, or bare copper, sized as required by NEC, and shall be colored green if less than #6, and have green marking if #6 or larger.

3) Provide and installall ducts and conduit in machine room and hoistway. Install new ducts and conduit as required.

4) Hoistway travel cable and associated wiring shall be coordinated with controller manufacture for wiring configuration requirements to match all controller wiring color coded and numbered diagrams for installation.

X) **Pit Ladder**: Provide and install a new pit ladder

Y) **Pit Stop Switch**: Provide and install new pit stop switch as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Z) **Pit Light**: New pit lighting will be installed by electrical contractor.

Part 2.04 PASSENGER DOORS, GATES and HOISTWAY ENTRANCES

A) **PASSENGER DOORS AND GATES:** Provide and install center sliding hoistway horizontal sliding doors shall be provided. The elevator car gate shall be provided.

a) All operating mechanisms for the hoistway doors shall be replaced with new equipment manufactured by the elevator contractor or approved equal components.

b) Door panel assemblies shall be properly balanced for smooth and even operation.

2) **Power Operated Car Gate:** Provide and install a new center horizontal sliding new power operated car gate assembly, including new door tracks and hardware. Car gate shall comply with the latest A 17.1 Safety Code for Elevators. Car gate and all components shall be manufactured by an approved equal.

a) Power Operated One Section Car Gate: Center horizontal sliding, power operated car gate shall be provided. The gate shall be synchronized to operate with the hoistway doors and be equipped with an approved electric contact.

b) Power Operation of Car Gates: The gate shall be electrically operated by a power gate operator. The motor shall be two-speed. Gate travel shall be determined by direct drive limit switch actuation; motor speed controlled for consistent smooth closing and opening, and shall be designed to ensure full opening and full closing.

c) Electronic Door Detector: An electronic car door protection device shall be provided on the car gate. Electronic door protection shall be The Peelle Sensor Beam or approved equal. It shall be a noncontact device, comprised of a through beam infrared source and a detector, located at opposite ends of the leading edge of the car gate. The reopening device shall provide coverage while the gate is closing, across the full width of the gate. While the gate is closing, the beam projects across the full width of the gate, 125mm / 5 in. below its leading edge, detecting any obstruction in its path. The vertical range of detection is from 150 mm / 6 in. below full opening height to 25 mm / 1 in. above the floor. The beam mountings retract upwards as the gate reaches the closed position. Should the beam detect an obstruction the protection device will send a signal to reopen the car gate and landing doors.

d) The gate panels shall have a baked powder coat finish as provided by the manufacturer.

B) **Control (Power Operated)**:

1) The average closing speed shall not exceed 0.3 m/s (1 ft/s) for a for each panel of the bi-parting counterbalanced hoistway door or car gate, and shall not exceed 0.6 m/s (2 ft/s) for the vertically sliding counterweighted car door or gate.

2) Control shall monitor the position of doors and gates at all times without the use of door & gate limit switches.

a.) Deceleration points shall be automatically adjusted by control so that final open and final closed positions are reached smoothly without shock or jarring of doors or gate and without stopping 'short' of fully open or closed position and then restarting. Initial setting and adjusting of full open and closed positions shall be established through operation of 'open', 'close', and 'stop' push buttons inside car. For safer operation, opening and closing speeds for doors & gate are to be independently and fully adjustable to allow any closing speed up to A17.1/B44 Code maximums.

b) All control components are to be commercially available and nonexclusive to control supplier. Control assembly to bear label of approved testing facility such as Underwriters Laboratories.

C) **Operation:**

1) Opening is to be automatic upon car arrival or in response to momentary pressure push button. Closing is to be by momentary pressure push button.

D) **Finish**:

1) Each surface (except sliding surfaces of door and gate guides) to receive one heavy coat of factory applied corrosion resistant primer with appropriate finish color approved by a Town of Lexington representative.

E) **Braille Signage on Door Jambs**: Verify that all hoistway door entrance jambs have Braille jamb plates installed in accordance with current code requirements. Braille jamb plates are required to be installed at all entrances of both front and rear doors. Any Braille jamb plates not in compliance will be replaced with new markings and be permanently fixed on jambs at a location in accordance with Americans with Disabilities Act (ADA) and International Building Code as applicable. Any new plates will be 4" x 4" stainless steel plates having raised floor markings with Braille and be installed in matched sets. All braille shall match existing braille.

Part 2.05 CAR OPERATING PANELS

A) **Car Operating Station, General**: The car operating station shall include the components identified below into a single car operating panel for each opening. Separate sections of car operating panel are not acceptable. Car operating panel shall be compliant with the ASME A17.1 Safety Code for Elevators and Escalators 2010 edition.

B) **New Car Operating Station**: The car control is to be located at the front opening of the elevator car and shall contain the devices required for specific operation mounted directly to an aluminum backing plate with a stainless steel no. 4 brush finish applied faceplate. The panel shall consist of a series of modules, key switches or approved buttons for optimum viewing and accessibility. All engraving shall be on flush mounted hairline faceplates securely mounted to the aluminum backing plate.

1) The lowest section shall contain the "door open," "door close," "alarm" buttons.

2) Intermediate section shall contain floor buttons, which illuminate when a call is registered and remain illuminated until the call is answered. Raised floor indications and handicap symbols shall be located immediately adjacent to the floor buttons.

3) The next section shall contain required keyed switches.

4) The top section shall contain fire service features inside a locked cabinet in accordance with ASME A17.1-2010, including operating instructions.

5) All car and hall fixtures by Monitor Controls or approved equal. All push buttons to be Monitor Controls, Model TR 1000. Car operating panels by Monitor Controls, Model “Monitor Series” Stainless Steel #4 brushed finish. No adhesive type applied plates will be accepted at either car or hall stations.

6) Car station shall be pre-wired by the car station manufacture with terminal strip connection to control wiring.

C) **Position Indicators**: A 2” electronic segmented digital position indicator mounted in the control panel of each car operating panel for optimum viewing. As the car travels, its position in the hoistway shall be indicated by the illumination of the alpha/numeric character corresponding to the landing which the elevator is stopped or passing. On one side of digital numeric indicator in the car panel will also be a matching indicator with direction of travel.

D) **Emergency Light**: An emergency light and capacity plate shall be attached to the aluminum backing plate in each of the Car Operating Panels. Emergency light shall illuminate automatically upon loss of the building's normal power supply.

E) **Emergency Communications System**: Provide an EMS G3, or equal, emergency communications device mounted in the main car station panel including lobby phone. Emergency communications device shall comply with Americans with Disabilities Act (ADA) and ASME A17.1-2010.

1) All wiring to install the emergency communication system is to be provided by elevator contractor and installed in the conduit provided by the electrical contractor in accordance with Part 1.02 Related Work by others, subpart B) paragraph n) of this specification.

2) Elevator contractor is to provide junction box inside hoistway at lobby level convenient for coordination and connection to conduit provided by electrical contractor to fire control center location.
3) Operating instructions shall be incorporated with or adjacent to the two-way voice communication device located outside the car.

F) Special Accessories in car station panels:

1) **Car Operating Panel**

a) Light key switch

b) Fan: 2 speed key switch

c) Independent service key switch

d) Hoistway Access Key Switch: If the distance from the top of the car to the landing sill exceeds 900 mm (35 in.) when the car platform is level with the landing immediately below the top landing hoistway access is required and a key-operated inspection switch, which will render normal operation inoperative for the purpose of using the hoistway access switch will be provided in the car operating station.

e) Certificate frame integral in panel

f) Engraved Capacity

g) A momentary pressure switch or button shall be provided in the car and at each landing, that, when operated, shall cause the car door or gate and the hoistway door at the landing to stop or to stop and reopen.

h) Fire Fighters Service Key switch including operations required as required by the ASME A17.1-2010, shall be engraved on a flush mounted hairline faceplate.

i) The “FIRE OPERATION” switch, the “CALL CANCEL” button, the “STOP” switch, the door open button(s), the door close button(s), the additional visual signal, and the operating instructions shall be grouped together at the top of the main car operating panel behind a locked cover.

(1) The buttons for both the front and rear doors shall be provided in the firefighters’ operation panel. The door open and door close buttons for the front entrance shall be labeled “OPEN FRONT” and “CLOSE FRONT.” The door open and door close buttons for the rear entrance shall be labeled “OPEN REAR” and “CLOSE REAR”.

(2) The firefighters' operation panel cover shall be openable by the same key that operates the "FIRE OPERATION" switch. The cover shall be permitted to open automatically when the car is on Phase I Emergency Recall Operation and at the recall level. When the key is in the "FIRE OPERATION" switch, the cover shall not be capable of being closed. When closed, the cover shall be self-locking.

(3) All buttons and switches shall be readily accessible, located not more than (72 in.) above the floor.

(4) The front of the cover shall contain the words "FIREFIGHTERS' OPERATION" in red letters at least 0.4 in. high.

(5) Fire service instructions are to be either engraved or permanently mounted on the inside of the Phase 2 compartment door.

j) All required Braille for buttons and other switches as required by the applicable accessibility

k) Engraved directly into the car-operating panel ADA required telephone instructions.

l) There shall be NO ADHESIVE APPLIED PLATES, SIGNS or PANELS affixed to the car-operating panel.

m) Hall and car operating stations must be approved prior to ordering fixtures by contractor.

Part 2.06 CAR TOP INSPECTION STATION

A) **Car Top Inspection**: Provide and install a new car top inspection station with an "emergency stop" switch and constant pressure "up-down" direction buttons to make the normal operating devices inoperative and give the inspector complete control of the elevator. Car top Inspection unit manufactured by Monitor Controls. Mount the car top inspection station as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Part 2.07 CAB INTERIOR

A) **Elevator Cab**: Provide and install a car enclosure that is ASME A17.1 Code compliant. The enclosure shall have an inside clear cab height of ten (10) feet.

B) **Car Lighting Fixtures**: Provide and install car lighting fixtures shall be removed and replaced with new LED lighting fixtures. Suitable fluorescent fixtures shall be furnished in the car. An on off switch for controlling light shall be located in the car. The minimum illumination at the car threshold, with the door closed, shall be not less than 25 lx (2.5 fc) for passenger elevators.

C) **Car Top Exit Switch**: Car tops shall include emergency escape hatch safety switch and signage as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References.

Part 2.08 CONTROL AND LANDING SYSTEM

A) New G.A.L. Galaxy elevator controller or preapproved equal: The elevator controller shall use a microprocessor base logic system and shall comply with all applicable elevator and electrical safety codes to include the following:

1) All power feed lines to the brake shall be opened by an electro-mechanical switch. A single ground, short circuit or solid-state control failure shall not prevent application of the brake.

2) The automatic leveling zone shall not extend more than 6" (152.4 mm) above or below the landing level, nor shall the doors begin to open until the car is within 6" (152.4 mm) of the landing. In addition, the inner leveling zone shall not extend more than 3" (76.2 mm) above or below the landing. The car shall not move if it stops outside the inner leveling zone unless the doors are fully closed and locked.
the inner leveling zone unless the doors are fully closed and locked.

3) The system shall use an automatic two-way leveling device to control the leveling of the car to within 0.25" (6.35 mm) or better above or below the landing sill. Over travel, under travel or rope stretch must be compensated for and the car brought level to the landing sill.

4) The closed loop feedback power control shall be arranged to continuously monitor the actual elevator speed signal from the velocity transducer and compare it with the intended speed signal to verify proper and safe operation of the elevator.

5) During operation of the elevator with an overhauling load (empty car up or loaded car down), precision speed control shall be obtained by the regulation system used in the power control. The power control shall have the capability to maintain regulation under varying loads.

6) The controller shall provide steepless acceleration and deceleration and smooth operation at all speeds. The system shall provide the required electrical operation of the elevator control system including automatic application of the brake, which shall bring the car to rest in the event of a power failure.

7) The controller shall include absolute floor encoding which, upon power up, shall move the car to the closest floor to identify the position of the elevator. With absolute floor encoding it is not necessary to travel to a terminal to establish floor position.

8) The controller shall use a variable voltage, variable frequency drive to control three-phase AC induction and Permanent Magnet AC motors.

9) The drive shall use a three-phase, full-wave bridge rectifier and capacitor bank to provide a DC voltage bus for the solid-state inverter.

10) The drive shall use power semiconductor devices and pulse width modulation with a carrier frequency of not less than 8 kHz to synthesize the three-phase, variable voltage, and variable frequency output to operate the hoist motor in an essentially synchronous mode.

11) The drive shall have the capability of being adjusted or programmed to achieve the required motor voltage, current and frequency to properly match the characteristics of the AC elevator hoist motor.

12) The drive shall not create excessive audible noise in the elevator motor.

13) The drive shall be a heavy-duty type, capable of delivering sufficient current to accelerate the elevator to contract speed with rated load. The drive shall provide speed regulation appropriate to the motor type.

14) A means shall be provided for removing regenerated power from the drive DC power supply during dynamic braking. This power shall be dissipated in a resistor bank which is an integral part of the controller. Failure of the system to remove the regenerated power shall cause drive output to be removed from the hoist motor.

15) A contactor shall be used to disconnect the hoist motor from the output of the drive unit each time the elevator stops. This contactor shall be monitored. The elevator shall not start again if the contactor has not returned to the de-energized position when the elevator stops.

16) All power feed lines to the brake shall be opened by an electro-mechanical switch. A single ground, short circuit or solid-state control failure shall not prevent application of the brake.

17) The controller shall provide step-less acceleration and deceleration and smooth operation at all speeds.

18) The controls shall be arranged to continuously monitor the performance of the elevator so that, if car speed exceeds 150 fpm during access, inspection, or leveling, the car shall shut down immediately, requiring a reset operation.

19) The controller shall include absolute floor encoding which, upon power up, shall move the car to the closest floor to identify the position of the elevator. With absolute floor encoding it is not necessary to travel to a terminal to establish floor position.

20) The controller shall have an RFI Filter to reduce EMI and RFI noise.

21) Failure of the brake to lift as detected by a mechanical switch (if provided) shall cause the control system to take the elevator out of service at the next stop where it shall remain out of service until the condition is corrected.

B) Hoistway Equipment Minimization

1) The control system shall allow slowdown, emergency terminal, and hoistway access limit switches to be eliminated. These switches shall exist as virtual switches in system software.

2) The control system shall allow leveling magnets and/or vanes to be eliminated.

C) Programmable Logic

1) All available programming options or parameters shall be field programmable, without need for any external device or knowledge of any programming languages. Programmable options and parameters shall be stored in nonvolatile memory. At a minimum, there shall be a 32-character alphanumeric display used for programming and diagnostics. Programmable parameters and options shall include, but are not limited to, the following:

a. Single Automatic Pushbutton / Selective Collective/Single Button Collective
b. Programmable Fire Code Options/Fire Floors (Main, Alternates)
c. Floor Encoding (Absolute PI)
d. Digital Position Indicators/Single
e. Programmable CE Microcom floor labels
f. Programmable Door Times
g. Programmable Motor Limit Timer
h. Programmable Car Fan and Light Timer
i. Door Nudging, Automatic and Fire Operation
j. Emergency Power
k. Parking Floors
l. Lobby Floor
m. Door Pre-opening
n. Hall or Car Gong Selection
o. Retiring Cam Option for Freight Doors
p. Standard Security
q. Attendant Service
r. Load Weighing for Light, Heavy and Overload Car
s. High Speed Inspection Enable
t. Door behavior selections
u. Door type selection
v. Fault Bypass – Inspection Operation
w. Fault Bypass – Automatic Operation

D) ADA Requirements

1) The elevator shall comply with ICC/ANSI A117.1, the American National Standard for Accessible and Usable Buildings and Facilities and the International Building Code.

2) Leveling Accuracy: The controller shall have a self-leveling feature that shall automatically bring the car to floor landings within a tolerance of 0.25" (6.35 mm) or better under all loading conditions up to the rated load.

3) Hall Lanterns: The controller shall have outputs to drive the visible and audible signals that are required at each hoistway entrance to indicate which elevator car is answering a call. Audible signals shall sound once for up, twice for down. (In-car lanterns located in cars, visible from the vicinity of hall call buttons, and conforming to the above requirements, shall be acceptable.)

4) Car Position Indicators: The controller shall have a position indicator output to drive the required position indicator which shall indicate the corresponding floor numbers as the car passes or stops at a floor. An audible signal shall sound as the position indicator changes floors.

E) Environmental Considerations

1) The elevator control shall be capable of operating within the following environmental conditions:

a. Ambient temperature: 32°F to 104°F (0°C degrees to 40°C degrees).
b. Humidity: Non-condensing up to 95%
c. Altitude: Up to 7500 feet (2286 m)

F) Building and System Configuration

1) The elevator controller shall be microprocessor based and designed specifically for elevator applications. Elevator and drive logic shall be implemented independently of safety functions.

2) Elevator logic shall be implemented to facilitate tight coordination between subsystems and enhance reliability. The implementation shall utilize a real-time, multi-tasking operating system to allow the processors to simultaneously execute elevator control logic, drive control logic, operator interface logic, and communication support.

3) The elevator controller shall have an independent safety system in order to implement safety features required by ASME A17.1 code. The safety system shall incorporate check redundant, multi-processor, multi-path, solid-state, ASME compliant implementation that meets CSA and CE standards.

4) The elevator controller shall be configured and packaged in such a way that external “jumpers” cannot be used (intentionally or unintentionally) while the

elevator is running in any passenger mode of operation. Non-passenger modes of operation shall be provided, along with means to bypass safety functionality, to allow inspection testing and other setup and/or troubleshooting operations.

5) The elevator control logic configuration shall be fully field programmable. Changes in number of floors, I/O configuration, starter setup, eligibility etc. shall not require the replacement/reprogramming of EEPROMs or other storage devices. Further, changes in the controller configuration shall be user adjustable in the field.

G) Diagnostics – Must be supplied

1) The control system shall provide comprehensive means of accessing the computer memory for elevator diagnostic purposes. It shall have permanent indicators for important elevator status conditions as an integral part of the controller.

2) The microprocessor boards shall be equipped with on-board diagnostics for ease of troubleshooting and field programmability of specific control variables. Field changes shall be stored permanently, using nonvolatile memory. The microprocessor board shall provide the features listed below:

a. On-board diagnostic switches and an alphanumeric display to provide user friendly interaction between the mechanic and the controller.

b. An on-board event log shall store and display time-stamped events for diagnostic purposes. (Viewable only with monitoring software.)

c. An on-board real time clock shall display the time and date and be adjustable by means of on-board switches.

d. Field programmability of specific timer values (i.e., door times, etc.) may be viewed and/or altered through on-board switches and pushbuttons.

e. The elevator controller shall have extensive diagnostic capability. A built-in LCD display or equivalent shall allow access to major user functions and diagnostic features. The display shall be a multi-character, multi-line type with associated keypad to allow users to enter information. The display shall show data and menus in readily understood character format. No numeric, hexadecimal, or binary codes are acceptable.

f. Dedicated indicators shall be provided in a conspicuous location on the elevator controller to indicate important system statuses, such as when the safety string is made, when the door locks are made, when the elevator is on Inspection/Access, etc. In addition, other special or error conditions detected by the main processor or safety subsystem shall be displayed.

H) CAN Bus Connectivity

1) Circuit boards within the controller shall communicate through CAN Bus connections for reliable performance and simplified board replacement. Power for individual circuit boards shall also be distributed through the CAN Bus connection. Communication and power connection shall radiate from a central, multi-connection point such that single-point board failure shall not affect operation of other boards.

I) Universal I/O

1) Field I/O boards shall be universal in that 24V to 120V AC or DC connections shall be accepted without requirement for unique circuit boards for each. I/O boards shall provide built-in current limiting protection.

J) Intended Operation of Critical Components

1) Failure of any single magnetically operated switch, contactor, or relay to release in the intended manner; the failure of any static control device, speed measuring circuit, or speed pattern generating circuit to operate as intended; the occurrence of a single accidental ground or short circuit shall not permit the car to start or run if any hoistway door or gate interlock is unlocked or if any hoistway door or car door or gate contact is not in the made position. Furthermore, while on car top inspection or hoistway access operation, failure of any single magnetically operated switch, contactor or relay to release in the intended manner, failure of any static control device to operate as intended or the occurrence of a single accidental ground, shall not permit the car to move even with the hoistway door locks and car door contacts in the closed or made position.

K) Status Indicators

1) Dedicated permanent status indicators shall be provided on the controller to indicate when the safety string is made, when the door locks are made, when the elevator is operating at high speed, when the elevator is on independent service, when the elevator is on Inspection or Access, when the elevator is on fire service, when the elevator out of service timer has elapsed, and when the elevator has failed to successfully complete its intended movement. A means shall be provided to display other special or error conditions detected by the microprocessor.

2) Every field connection input or output shall have a dedicated LED such that no volt meter or other test equipment is required to see when and input or output is active.

L) Out of Service Timer 1) An out of service timer (T. O. S.) shall be provided to take the car out of service if the car is delayed in leaving the landing while calls exist in the system.

M) High or Low Speed Inspection 1) A selection shall be provided on the controller to select high or low speed during access or inspection operation as long as contract speed does not exceed 150 feet per minute.

N) Door Operation

1) Door protection timers shall be provided for both opening and closing directions to protect the door motor and help prevent the car from getting stuck at a landing. The door open protection timer shall cease attempting to open the door after a predetermined time if the doors are prevented from reaching the open position. In the event that the door closing attempt fails to make up the door locks after a predetermined time, the door close protection timer shall reopen the doors for a short time. If, after a predetermined number of attempts, the doors cannot successfully be closed, the doors shall be opened and the car removed from service.

2) A minimum of four different door standing open times shall be provided. A car call time value shall predominate when only a car call is canceled. A hall call time value shall predominate whenever a hall call is canceled. In the event of a door reopen caused by the safety edge, photo eye, etc., a separate short door time value shall predominate. A separate door standing open time shall be available for lobby return.

O) Door Pre-opening

1) When selected, this option shall start to open the doors when the car is in final leveling, 3" (76.2 mm) from the floor. If pre-opening is not selected, the doors shall remain closed until the car is at the floor, at which time the doors shall commence opening.

P) Car and Hall Call Registration

1) Car and hall call registration and lamp acknowledgment shall be by means of a single wire per call, in addition to the ground and the power bus. Systems that register the call with one wire, and light the call acknowledgment lamp with a separate wire can be accommodated.

2) The user shall be able to register car calls via the on-board LCD display and keypad.

Q) Emergency Power Operation 1) Emergency power in the building is sized to power all elevator cars in the building at any time.

R) Fire Service Operation

1) Fire Phase I emergency recall operation, alternate level Phase I emergency recall operation and Phase II emergency in-car operation shall be provided according to latest applicable edition of ASME A17.1.

S) Independent Service

1) Independent service operation shall be provided in such a way that actuation of a key switch in the car operating panel will cancel any existing car calls, and hold the doors open at the landing. The car will then respond only to car calls. Car and hoistway doors will only close with constant pressure on a car call pushbutton or door close button. While on independent service, hall arrival lanterns or jamb mounted arrival lanterns shall be inoperative.

T) Simplex Selective Collective Operation

1) Simplex selective collective automatic operation shall be provided for all single car installations. Operation of one or more car or hall call pushbuttons shall cause the car to start and run automatically, provided the hoistway door interlocks and car door contacts are closed.

2) An "UP" and "DOWN" button shall be provided at each landing. Multiple calls may be registered and the elevator shall respond to them as follows:

a) When the car arrives at its destination, a period shall be provided to allow time for opening the gate and door. If this time passes without the gate or door being opened, the car may be called to another landing. If the door or gate is opened within this period, it will not be possible to call the car away from the landing until the gate and door are closed. An operator entering the parked car may initiate travel in the appropriate direction of travel by pressing a car button.

b) If no car call is entered and the door and gate have been closed, the car will become available to respond to hall calls. If there is one or more hall calls registered in the car's current direction of travel, it shall respond to the nearest hall call registered in the same direction. If no calls are registered, the car shall remain at the last landing served until a hall call is registered.

U) Leveling

1) The car shall be equipped with two-way leveling to automatically bring the car level at any landing, within the required range of leveling accuracy, with any load up to full load.

V) Test Switch

1) A controller test switch shall be provided. In the test position, this switch shall allow independent operation of the elevator with the door open function deactivated for purposes of adjusting or testing the elevator. The elevator shall not respond to hall calls and shall not interfere with any other car in a duplex or group installation.
Inspection 1) To enhance safety, an inspection switch, enable switch, and an up/down toggle switch shall be provided in the controller and on the car top to place the elevator on inspection operation and allow the user to move the car. Activation of the car top inspection switch shall render the controller inspection switch inoperative.

W) Inspection

1) To enhance safety, an inspection switch, enable switch, and an up/down toggle switch shall be provided in the controller and on the car top to place the elevator on inspection operation and allow the user to move the car. Activation of the car top inspection switch shall render the controller inspection switch inoperative.

X) Uncanceled Call Bypass

1) A timer shall be provided to limit the amount of time a car is held at a floor due to a defective hall call or car call, including stuck pushbuttons. Call demand at another floor shall cause the car, after a predetermined time, to ignore the defective call and continue to provide service in the building.

Y) Load Weighers

1) Load weighing devices shall be installed to provide signals to the controller for various load monitoring and dispatching operations.

2) By identifying the load (light, heavy or overload), the system can activate anti-nuisance car call cancellation, loaded car hall call bypass, or overload.

Z) Absolute Floor Encoding

1) The controller shall include absolute floor encoding, which upon power up, shall move the car to the closest floor to identify the position of the elevator.

AA) Landing/Positioning System Information

1) The landing/positioning system shall use a Gray code, magnetically permanent encoded tape and two, independent sensor heads in a single housing for absolute position control under all powered conditions. The tape shall provide a unique code for every 1mm of travel. A third, independent system shall provide speed feedback directly from the hoist motor. The system shall continuously compare inputs from the three independent systems to assure accuracy and safety.

BB) Service Enhancements

1) The manufacturer shall make software updates for controller and/or group control available via Internet download, email attachment, or physical EEPROM shipment. Internet download and email attachment deliveries require an optional, hand-held user interface to facilitate software transfer from the user's PC to the elevator or group.

CC) Conduits and raceways in as new condition may be utilized by the contractor providing no open holes or covers. If contractor is to utilize existing wire ways or conduit, the contractor is responsible for assuring proper support and full code compliance

Part 2.09 HALL STATIONS

A) Hall and car operating stations must be approved prior to ordering fixtures by contractor. **ALL HALL STATIONS SHALL BE FLUSH MOUNTED**; surface mounted hall stations are not acceptable. Any patching of openings from installation and/or removal of hall stations will be by the Elevator Contractor. (as in 2.10.B)

B) **New Hall Stations**: Buttons shall illuminate to indicate call has been registered at that floor for the indicated direction. Faceplates shall be stainless steel no. 4 finish. Provide one set of risers.

1) All hall stations shall be one piece construction and flush mounted. If drilling, cutting or removal of existing lobby appurtenances is required, the elevator contractor must clarify in writing. All hall stations must be installed in accordance with requirements of Americans with Disabilities Act (ADA) and International Building Code requirements.

2) All hall and car push button lamps shall include long life LED type lamps.

3) A momentary pressure switch or button shall be provided at each landing, that, when operated, shall cause the car door or gate and the hoistway door at the landing to stop or to stop and reopen.

4) Each terminal station shall contain one illuminating push button, access key switch and other applicable accessories.

5) Each intermediate station shall consist of two illuminating push buttons, one for the up direction and one for the down position.

6) Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level. Fire Service instructions as per ASME A17.1-2010, shall be engraved in the main floor hall station panel. The same hall station shall include Emergency Power signal and door access switches (as required) for each car including labels.

7) Hoistway Access Switch: A hoistway access key switch shall be provided for the elevator at the top landing if the distance from the top of the car to the landing sill exceeds 900 mm (35 in.) when the car platform is level with the landing immediately below the top landing. a) The movement of the car initiated and maintained by the upper access switch shall be limited in the down direction to a travel not greater than the height of the car crosshead above the car platform, and limited in the up direction to the distance the platform guard extends below the car platform as permitted by latest applicable edition of ASME A17.1.

8) In case of fire use stair signs shall be engraved into each hall station panel with exact signage as per International Building Code 2012 including.

9) Floor Identification Plates: Install all door jamb plates at each floor. Stainless Steel jamb plates shall comply with Americans with Disabilities Act (ADA) and International Building Code requirements.

Part 2.10 HALL POSITION INDICATOR

A) Hall Position Indicator: Each floor shall contain one 2” electronic segmented digital position indicator. They shall be provided and mounted in the existing position indicator location for optimum viewing. As the car travels, its' position in the hoistway shall be indicated by the illumination of the alpha/numeric character corresponding to the landing which the elevator is stopped or passing.

B) Any patching of openings from installation and/or removal of hall position indicator(s) and/or hall stations will be completed by elevator contractor in accordance with Part 1.03 Work by Elevator Contractor.

C) Hall and car operating stations must be approved prior to ordering fixtures by contractor

PART 3 EXECUTION.

Part 3.01 PREPARATION

A) Examination:

1) Before starting elevator modernization, inspect hoistway, hoistway openings, pit and machine room, as constructed, verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator modernization until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

2) Modernization constitutes acceptance of existing conditions and responsibility for satisfactory performance.

B) Scheduling: Only one (1) elevator at a time will be turned over to the elevator contractor for modernization work. Upon completion of all modernization work on this elevator, including successful completion of all required inspections and tests, the elevator will be turned over to the building for use.

1) Elevator contractor shall be responsible for screening and protection of hoistway door openings when necessitated by work execution.

C) Signage:

1) Town of Lexington, in accordance with the General Materials section of this specification, will approve all signage in order to maintain consistent appearance for entire elevator installation.

2) All signage as required by International Building Code including amendments, and as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, NFPA 70 National Electrical Code 2008 and NFPA 72 Fire Alarm

Code 2010 to be posted in elevator lobbies, fire alarm panels, disconnects, machine rooms and machine room doors.

3) Provide and install signage shall be in conformance to International Building Code, ASME A17.1-2010, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010 requirements. If acceptable, it will be reutilized. If required signage is not in conformance with requirements of ASME A17.1-2010, NFPA 70 National Electrical Code 2011 and NFPA 72 Fire Alarm Code 2010, it shall be replaced as a part of this specification.

Part 3.02 INSTALLATION

A) Install elevator systems components and coordinate repairs of hoistway wall construction.

B) Only competent elevator installation personnel shall perform work.

C) Perform work with competent, skilled workmen under the direct control and supervision of the elevator manufacturer's experienced foreman.

D) Comply with the National Electrical Code for electrical work required during installation.

E) Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports, and bracing including all setting templates and diagrams for placement.

F) Welded construction: Provide welded connections for installation of elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn Parts. Comply with AWS B2.1 Standard Welding Procedure and Performance Qualification.

G) Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.

H) Install machinery, guides, controls, car and all equipment and accessories to provide a quiet, smoothly operating installation, free from side sway, oscillation or vibration.

I) Sound isolation: Mount rotating and vibrating elevator equipment and components on vibration-absorption mounts, designed to effectively prevent the transmission of vibrations to the structure, and eliminate sources of structure-borne noise from the elevator system.

J) Lubricate operating parts of system, including ropes, as recommended by the manufacturer.

K) Elevator contractor shall be required to install all data plates as required by latest applicable edition of ASME A17.1 as identified in Part 1.04 Code and Standard References, on complete elevator system including alteration and original equipment.

All data plates shall be manufactured and printed with proper data for each elevator by CodeDataPlate.com or approved equal.

Part 3.03 FIELD QUALITY CONTROL

A) Acceptance testing: Upon completion of the elevator modernization and before permitting use of elevator, perform acceptance tests as required by the Authority Having Jurisdiction and recommended by Code and governing regulations or agencies. Perform other tests, if any, as required by governing regulations or agencies.

B) Advise Owner, Elevator Consultant, and governing authorities in advance as required of dates and times tests are to be performed on the elevator.

B) Town of Lexington has designated the Wagner Consulting Group Inc. as their consultant on this project. The elevator contractor shall be responsible, in accordance with ASME A17.1-2010, for all acceptance inspections for this elevator. Elevator Installer in accordance with ASME A17.1-2010, Inspection and Test Requirements will perform all acceptance tests for this elevator. Elevator contractor must notify building owner and elevator consultant 7 days prior to inspection advising of the date and time of all inspections and tests. Elevator inspector other than Elevator and Amusement Device Bureau must be approved prior to inspection date by consultant.

Part 3.04 ADJUSTING

A) Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

B) The elevator contractor shall be required to perform and pass all required testing of all equipment as per ASME A17.1-2010.

C) Elevator contractor is to return at 30 days, 90 days and 180 days after final installation to examine and readjust rope tension and hoist machine as may be required for optimum performance.

Part 3.05 CLEANING:

A) Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided.

B) For duration and/or completion of elevator work, remove tools, equipment, and surplus materials from site daily.

C) Clean equipment rooms and hoistway.

D) Remove trash and debris daily from premises.

Part 3.06 PROTECTION:

A) During all elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Protect all areas of work from public access or dangers including tripping or fall hazards. Maintain protective measures throughout remainder of construction period.

Part 3.07 DEMONSTRATION:

A) The elevator contractor shall make a final check of each elevator operation with the Owner or Owner's representative present prior to turning the elevator over for use. The elevator contractor shall demonstrate that control systems and operating devices are functioning properly.

B) Instruct Owner's personnel in proper use, operations, and daily care or operation of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies.

C) Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

D) Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion.

E) Demonstrate that control systems and operating devices are functioning properly.

F) Complete all consultants' and Owners' punch list items as may be required.

Part 3.08 ADDITIONAL REQUIREMENTS:

A) Elevator Contractor shall provide the following additional requirements in accordance to the referenced sections of ASME A17.1-2010:

1) Final Electrical Schematics and Drawings as required by Requirement 8.6.

2) Maintenance Requirements as required by Requirement 8.6.

3) Emergency Evacuation Procedures for Elevators: The Elevator Contractor shall supply and post a written emergency evacuation procedure for the elevator(s) by Requirement 8.6.11.4. The written procedure shall be kept on the premises where the elevator(s) are located. The procedure shall incorporate the ASME A17.4 Guide for Emergency Personnel as part of the emergency evacuation procedures plan. The plan shall be available to authorized elevator and emergency personnel and shall detail the safety precautions to be utilized in evacuation of passengers from a stalled elevator.

4) Elevator shall provide a Maintenance Control Program (MCP) for each elevator being modernized per the ASME A17.1 Safety Code for Elevators 2010 edition. This shall become the property of the owner.