

## Calendar of Events for "Adams County Board of Supervisors" Elevator Modernization Project

### 1.1 Schedule of Events

1. RFP available to prospective bidders Release Date ..... November 9, 2015
2. **Facility Tour** (with the Maintenance Supervisor)(Begin at 10:00 AM)  
Pre-Bid Conference (immediately after the Facility Tour)..... **November 18, 2015**
3. Deadline for receiving proposer inquiries (4:00 P.M. Central Time).....November 20, 2015
4. Last date to respond to proposer inquiries .....November 24, 2015
5. **Proposal submission deadline** (10:00 A.M. Central Time) ..... **December 6, 2015**
6. Proposal opening date.....December 7, 2015
7. Formal Announcement of selected proposer ..... December 8, 2015
8. Estimated Contract Execution ..... December 10, 2015

# **PROJECT MANUAL**

**FOR**

**MODERNIZATION and UPGRADE CONTRACT**

**FOR**

**(01) One Geared Traction Elevators - Upgrade and Modernize as Specified.**

**FOR**

## **Adams County Board of Supervisors**

**Attn: Mr. Joe Murray, Adams County Administrator  
Adams County – Board of Supervisors**

314 State Street

Natchez, MS 39120

Phone: (601) 442-2431 Fax: (601) 442-3329

E-mail: [jmurray@adamscountyms.gov](mailto:jmurray@adamscountyms.gov)

E-mail: [fbell@adamscountyms.gov](mailto:fbell@adamscountyms.gov)

**SECTION**

**TITLE**

- |     |   |
|-----|---|
| I   | ADVERTISEMENT FOR BIDS  |
| II  | INSTRUCTION TO BIDDERS  |
| III | FORM OF PROPOSAL, WITH ITEMIZED PRICE SHEET                                       |
| IV  | GENERAL INFORMATION   |
|     | A. General Conditions   |
| V   | MODERNIZATION AND UPGRADE OF (01) EXISTING<br>GEARED TRACTION PASSENGER ELEVATOR. |

**SECTION I**

**A. BIDS:**

Sealed proposals for the project listed below will be received at the office of the **PROJECT ADMINISTRATOR for the Adams County Board of Supervisors. Mr. Joe Murray, County Administrator, 314 State Street, Natchez, MS 39120** until the time of bid opening established by the Purchase Clerk. The right is reserved by the Adams County Board of Supervisors to accept or reject any and all bids without compensation to the Bidders and waive any informality or irregularity in any bid received. For additional information, address the Purchase Clerk, Frances Bell, of the Adams County Board of Supervisors, as listed.

**B. PROJECT:**

Elevator Modernization and Upgrade of ONE existing passenger traction geared elevators to meet or exceed NFPA/ASME A17.1 - 2013 Elevator Safety Code Standards and these guideline specifications as listed in this Project Manual. Maintenance, emergency call back services and repair of **this elevator** located in the Sheriff's Department – "Jail" elevator, shall be required for the (12) month warranty period that will start when the unit passes the Final Acceptance Test as specified in this Project Manual.

**C. CONTACT:**

For information on this project, contact Frances Bell, Purchase Clerk, and Adams County Board of Supervisors. Office Phone: (601) 445-7941, Fax: (601) 304-8083 or email: [fbell@adamscountymiss.gov](mailto:fbell@adamscountymiss.gov).

**D. DOCUMENTS:**

Bidding documents may be obtained from the Adams County Purchase Clerk.

**E. CALENDAR OF EVENTS:**

<b>Event</b>	<b>Date</b>
1. RFP available to prospective bidders Release Date .....	November 9, 2015
2. <b>Facility Tour</b> (with the Maintenance Supervisor)(Begin at 10:00 AM) Pre-Bid Conference (immediately after the Facility Tour).....	<b>November 18, 2015</b>
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8. Estimated Contract Execution .....	December 10, 2015

**- END OF SECTION I -**

**SECTION II**

**INSTRUCTIONS TO BIDDERS**

**A. PROJECT:**

Elevator Modernization and Upgrade of (01) ONE existing geared passenger traction elevator. Located in the Sheriff's Department (306 State Street) – "Jail Elevator" Adams County Board of Supervisors, Natchez, MS.

**B. PROPOSALS:**

Proposals must be in accordance with these instructions in order to receive consideration.

**C. DOCUMENTS:**

Documents include the Bidding Requirement; General, Supplementary Conditions, Technical Section, plus addends which may be issued by the Project Administrator during the bidding period. Bidding documents may be viewed and/or obtained under the terms set forth in the advertisement for bid of this Project Manual.

**D. EXAMINATION OF DOCUMENTS AND SITE:**

Bidders shall carefully examine the bidding Documents and the site locations to obtain first-hand knowledge of the scope and the conditions of the work. Each contractor, by submitting a proposal to perform any portion of the work, represents and warrants that he/she has examined the Specifications and Site of the Work, and from the scope, accessibility, nature and location of the work; character of the equipment and other facilities needed for the performance of the work; The character and extent of other work to be performed; the local conditions; labor availability, that may affect the performance of the work. No additional compensation will be allowed by the "Adams County Board of Supervisors" for failure of such Contractor to inform himself as to the conditions affecting the Work.

**E. INTERPRETATION OF DOCUMENT:**

If any person contemplating submitting a bid for the proposal contract is in doubt as to the meaning of any part of the Specifications (Project Manual), he/she may submit to the Project Administrator or Purchase Clerk, not later than ten (10) working days prior to the Date set for opening of bids, a written request for an interpretation or clarification. Bidders should act promptly and allow sufficient time for a reply to reach them before preparing their bids. Any interpretation or clarification will be in the form of an addendum duly issued. No alleged verbal interpretation or ruling will be held binding upon "Adams County Board of Supervisors."

**F. ADDENDA:**

Interpretations, clarifications, additions, deletions, and modifications to the documents during the Bidding period will be issued in the form of Addenda, and a copy of such Addenda will be mailed or delivered to each person who has been issued a set of the Bidding Documents and Contract Documents, and receipt of them shall be acknowledged in the Bid Form. Addendums will not be issued within seventy-two (72) hours of the established bid date.

**G. CONTRACT TIME: To commence upon receiving a "Notice to Proceed Letter" (12) Twelve MONTHS WARRANTY AND FULL MAINTENANCE TO BEGIN UPON FINAL ACCEPTANCE OF THE PROJECT.**

(12) Months Full Maintenance, Emergency Call Backs, Repairs and Warranty Service SHALL be included for this one elevator to commence upon FINAL ACCEPTANCE of this Project.

**H. LICENSE:**

Contractor licensing laws of the State of Mississippi and the City of Natchez must be complied with in order to be awarded a contract. Classification of the license shall be the specialty of Elevator installation, maintenance and repairs. All Elevator Technicians employed by the Elevator Contractor shall be licensed by the State of Mississippi.

**I. PREPARATION OF BIDS:**

Prices quoted shall include all items of cost, expense, cranes used for hoisting and lowering of materials, taxes, labor, travel cost, permits, fees and charges incurred or arising out of the performance of the work to be performed under the Contract. Bids shall be submitted in duplicate and shall be signed in ink. Any bid on other than the required form will be considered informal and may be rejected. Erasures or changes in the bid must be explained or noted over the initials of the bidder. Bids containing any conditions, omissions, unexplained erasures, alterations, or irregularities of any kind may be rejected as informal. In the case of discrepancy between the prices written in the bid and the figures, the price in writing will be considered the bid. Failure to submit all requested information will make the bid irregular and subject to rejection. Bids shall be signed with the name typed below the signature. Where bidder is a corporation, bids must be signed with the legal name of the corporation, followed by the name of the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract. Bidders shall submit prices for all items requested in Section III.

**J. SUBMITTAL OF BIDS:**

Sealed proposals must be received by **10:00 AM, December 6, 2015**. Proposals shall be made on unaltered proposal forms furnished by the Purchase Clerk. Fill in the blank spaces, and submit two copies. Proposals shall be signed with name typed below the signature, and if a partnership, give full name of all partners. Where bidder is a corporation, proposals must be signed with the legal name of the corporation, followed by the name of the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract. Submit proposal in a sealed envelope addressed to:

**Attn: Frances Bell, Purchase Clerk  
Adams County Board of Supervisors  
314 State Street  
Natchez, MS 39120**

and plainly mark on the outside of the envelope the project name and the name and address of the bidder and state contractor's license number. No bidder shall modify, withdraw, or cancel his bid or any part thereof for thirty (30) days after the time agreed upon for the receipt of bids. Submit bid by mail, or in person, prior to the time for receiving bids set forth in the Invitation to Bid issued by the **Purchasing Department, Adams County Board of Supervisors**; however, it is the responsibility of the Bidder to ensure bids are received prior to the bid opening time.

**K. ITEMS TO BE SUBMITTED WITH BID:**

1. TWO COPIES OF FORM OF PROPOSAL, SECTION III.
2. Verification of Qualifications Section IV; notarized.
3. Items required by the Project Administrator.

**L. QUALIFICATIONS OF BIDDERS:**

1. Bidders shall be familiar and experienced with, and regularly engaged in, installing, repairing and servicing of vertical transportation and other similar equipment covered under this contract.

**M. QUALIFICATIONS OF CONTRACTOR EMPLOYEES:**

1. The Contractor's supervisor or director of vertical transportation installation and maintenance shall have at least five (5) years of experience managing, supervising, or directing installation, maintenance and repairs on equipment of the approximate size and characteristics of those named in this contract. Company and employees shall be licensed by the State of Mississippi.

2. Vertical transportation installers, maintenance and repair mechanics shall be of journeyman status as recognized by the industry. Each one must have at least three (3) years of experience, obtained within the past (5) years, inspecting, installing, repairing, and maintaining Elevator equipment of the approximate size and characteristics of those named in this contract. State license is required.
3. Helpers may assist journeyman maintenance mechanics. Each helper must have at least (2) years of experience repairing and/or maintaining the equipment of the approximate size and characteristics of those named in this contract.
4. Temporary Elevator mechanics are considered as not obtaining journeyman status and may be used only to assist a journeyman maintenance mechanic.

**-END OF SECTION II-**

**SECTION III**

**FORM OF PROPOSAL**

- A. Two copies of this form which is the BIDDER'S PROPOSAL, are to be completed, signed, sealed, and delivered to the **PURCHASE CLERK for the Adams County Board of Supervisors – 314 State Street, Natchez, MS 39120**, prior to bid time specified. Attach all items required, as indicated.
- B. **PROJECT:** Elevator modernization and upgrade of (01) ONE existing geared traction elevator. Warranty, Full Maintenance and Repair of the Sheriff's Department Jail Elevator as listed in this Project Manual.
1. **PROPOSAL:**  
**PROJECT ADMINISTRATOR – Mr. Joe Murray, County Administrator, Adams County Board of Supervisors.**

Gentlemen:

I (we) do hereby declare that I (we) have carefully examined the Project Manual for "Adams County Board of Supervisors," which includes the Guideline specifications for the Modernization and Upgrade of (01) ONE existing geared traction passenger elevator and the warranty and full maintenance specifications with the requirements for the (01) ONE geared traction passenger elevator, our examination also includes the contract documents with all addenda, prepared by the Project Administrator of this proposal and I (we) have a clear understanding of said documents and premises and hereby propose to provide the necessary tools, parts, engineering, schematics, diagnostic tools, machinery and apparatus, along with other needs necessary to complete the work specified in the contract or called for in the contract documents, including all taxes, fees, cranes for hoisting and lowering of materials, travel costs, inspections and permits necessary for the completion of the project or work listed for the sum below.

I (We) also agree to follow the REQUIREMENTS, SEQUENCE AND FREQUENCY listed under "WARRANTY AND FULL MAINTENANCE PROCEDURES".

If I (we) fail to follow these specifications and document the "WARRANTY AND MAINTENANCE PROCEDURES" with the "Adams County Board of Supervisors", or if there is any evidence of fraudulent documentation, I (we) will be held in default of the contract and our performance bond will be forfeited and without reservation, I (we) freely forfeit the contract. All materials and work will be left intact, and I (we) will not seek any restitution.

I (we) have read the entire specifications and will not use oversight as an excuse for not fulfilling my (our) obligation.

Our price for the MODERNIZATION, UPGRADE, WARRANTY AND Full Maintenance Service for the Elevator under these specifications is as listed on the ITEMIZED PRICE SHEET at the end of this section.

Name of Bidder: \_\_\_\_\_

Address of Bidder: \_\_\_\_\_

Contact Info :( Phone, E-mail) \_\_\_\_\_

Mississippi License Number: \_\_\_\_\_

Federal Tax Identification Number: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

Print Name and Title: \_\_\_\_\_

Date: \_\_\_\_\_

**2. CONTRACT TIME:**

- a. Modernization and Upgrade Project contract time will commence with a "NOTICE TO PROCEED." Warranty and Full Maintenance, Emergency Call Back and Repair Service shall commence upon FINAL ACCEPTANCE of the Project.

**C. WE ACKNOWLEDGE THE FOLLOWING ADDENDA:**

(1) \_\_\_\_\_, (2) \_\_\_\_\_, (3) \_\_\_\_\_,

**D. DOCUMENTS:**

Each bidder, by submittal of his bid, represents and warrants that he has satisfied himself as to the requirements and provisions of the contract for this project and the documents indicated in the "INSTRUCTIONS TO BIDDERS".

**E. ITEMIZED PRICE LIST for the Modernization and Upgrade, One Year Warranty and Full Maintenance of the Elevator located in the Sheriff's Building (Jail Elevator).**

**PRICING SCHEDULES**

Adams County Board of Supervisors, Facility & Maintenance Services: The Proposer shall provide a firm, fixed annual price for each facility location and for each year of the original contract period, and a maximum annual price for each potential renewal period for the provision of facilities maintenance services in accordance with the provisions and requirements of this Request for Proposal (RFP). All costs associated with providing the required services shall be included in the stated prices.

**\*\*\*This portion should be evaluated and submitted by our county attorney Mr. Scott Slover**

**HOURLY RATE CHARGE FOR REPAIR ITEMS NOT COVERED UNDER THIS RFP.**

**Hourly Rate Charge:** The proposer shall state a firm hourly rate price for all services and repairs performed outside the specifications and requirements of this RFP. Repairs outside the scope of this RFP may include:

1. Code Deficiencies and Violations that Adams County may be required to meet in accordance with Code standards and  
Inspections of the State of Mississippi Bureau of Elevator Safety.
2. Damage to the elevators caused by vandalism.
3. Damage to the elevators caused by weather, such as storm, lightning, water, wind, etc.
4. Items Adams County may need installed to improve the performance and/or appearance of the elevators.

The Elevator Contractor shall submit the material cost invoice to the Purchasing Agent. The Elevator Contractor will be allowed to charge Adams County a maximum of 20% above the cost of parts that are not covered under this RFP as explained above.

Line Item #001:     \$\_\_\_\_\_ Firm, Fixed Hourly Rate Charge. (Shall not increase for the contract year and the four option years.

**PRICING FOR THE MODERNIZATION AND UPGRADE FOR SHERIFF'S DEPARTMENT – JAIL ELEVATOR.**

<b>MODERNIZATION AND UPGRADE PRICING:</b>	
Adams County Sheriff Department - Jail Elevator. Modernization and Upgrade of (01) ONE Geared Traction Passenger Elevator. Price includes, one year Warranty and Full Maintenance.	\$
<b>TOTAL PRICE for MODERNIZATION AND UPGRADES.</b>	<b>\$</b>

**-END OF SECTION III-**

## SECTION IV

### GENERAL INFORMATION - GENERAL CONDITIONS

#### **A. DESCRIPTION OF WORK:**

1. Modernization, Upgrades, INSTALLATION, Warranty and Full Maintenance Services: **Contractor's** price shall include all materials, labor, transportation, engineering, hoisting and lowering of materials, fees, and services, including State of Mississippi permits and final acceptance inspection fees, necessary for modernization and alternation projects. Contractor shall furnish (12) months warranty and full maintenance service and where conditions warrant, adjust, lubricate, repair or replace the mechanical and electrical parts, systems and tests required by the ASME A17.1 - 2013.

#### **B. GENERAL:**

1. The Adams County Board of Supervisors, herein after denoted by the term **Owner**, will receive bids for the modernization, upgrading, servicing, maintaining and repairing the elevators for the Adams County Board of Supervisors as listed in Section III of these specifications. Use of the word **Contractor shall** be interpreted to be the firm or corporation who has been awarded a contract by the **Owner**. The successful bidder will be required to sign a contract with the **Owner** in accordance with the specifications for this Elevator Modernization and Upgrade Project stated herein.
2. It is required that this Project be performed by a contractor who has satisfactorily installed and maintained elevators of the grade and to the degree included in the specification herein after described. Bids will be considered only from bidders who are regularly established in the business called for and who, in the judgment of the **Owner** are financially responsible and able to show evidence of the reliability, ability, experience, facilities, and persons directly employed or supervised by them to render prompt and satisfactory service.
  - a. Compliance with the latest edition of ASME A17.1-2013, Safety Code for Elevators and Escalators, with and including supplemental adoptions, will be required.
  - b. During the term of the warranty and full maintenance period, the **Contractor** shall coordinate all activities with the **Owner**, as applicable. Call-backs, billings, site access, worksheet logs, etc. will be coordinated with the **Owner**.
  - c. The **Contractor** shall be responsible for damage to the **Owner's** property as a result of the **Contractor's** activities.

#### **C. RECORDS:**

1. The **Contractor** shall maintain a complete, orderly and chronological file, including complete wiring diagrams and schematics, original design drawings, complete parts lists, specifications and copies of all prepared reports. A record of all callbacks and repairs shall be kept by the **Contractor** indicating any difficulty experienced and the corrective measures taken to eliminate these difficulties. A copy of all routine maintenance reports, maintenance logs tests, and trouble calls must be forwarded to the Purchase Clerk, Adams County Board of Supervisors, (**monthly**), no later than the first day of each month. The reports, trouble calls or callback tickets, must be verified and signed by a designated representative of the Adams County Board of Supervisors.

**D. GUARANTEE:**

The **Contractor** agrees to accept full responsibility for the elevators as they exist on the effective date of this contract, and to leave them in first class condition on the termination date. Should the **Contractor** fail to render the services ordered under this contract the **Owner** reserves the right to cancel the contract. Termination of this contract shall not relieve or affect either party of any obligation or liability that may have occurred prior to such termination. The **Owner** reserves the right from time to time to employ others to make such inspections and tests as to the condition, speed and safety of the elevators as they may deem necessary or advisable and when it is found that the elevators are not up to proper standards, the **Owner** may immediately demand of the **Contractor** that the elevators be placed in proper condition. If the demand is not promptly complied with, within ten days, the **Owner** may cancel the contract and enter into an agreement with others to perform such work and deduct the total cost thereof, from the **Contractor's** monthly charges for maintenance service. If the contract has been terminated or has expired the **Owner** will demand payment from the **Contractor** or his bonding agent for the additional costs incurred. The **Owner** reserves the right to act as sole agent in determining if service is satisfactory, including a determination of whether parts need replacing. The **Contractor's** failure to comply with the **Owner's** demands in this regard, within ten days of such demands, will constitute a circumstance under which the **Owner** may immediately terminate the contract.

**E. SURETY BOND:**

1. The **Contractor** will be required to execute and deliver to the **Adams County Board of Supervisors**, Project Administrator within ten days after notification of the signing of the contract, a Payment and Performance bond in an amount equal to the contract sum.
2. Any surety bond written for the Adams County Board of Supervisors shall be written by a surety or insurance company currently on the U.S. Department of Treasury Financial Management Services list of approved bonding companies which is published annually in the Federal Register or by a Mississippi domiciled insurance company with at least an A-rating in the latest printing of the A.M. Best's Key Rating Guide to write individual bonds up to ten percent of policyholder's surplus as shown in the A.M. Best's Key Rating Guide.
3. No surety or insurance company shall write a bond which is in Excess of the amount indicated as approved by the U. S. Department of Treasury Financial Management Service list or by a Mississippi domiciled insurance company with an A-rating by A.M. Best up to a limit of ten percent of policyholder's surplus as shown by A.M. Best.
4. The surety bond submitted must be written by a surety or insurance company that is currently licensed to do business in the State of Mississippi.
5. The surety bond must be countersigned by a Mississippi licensed agent authorized to represent the surety or insurance company writing the bond and that agent's power of attorney must be attached to the bond submitted.

**F. INSURANCE:**

Elevator Contractor shall not be liable for loss or damage resulting from strikes or lockouts, fires, explosion, floods, riots, war, malicious mischief, storms, acts of Nature or other similar or dissimilar cases beyond its control. Elevator Contractor assumes liability for accidents to persons or property of those directly due to the negligent acts or omissions of the Contractor or his employees. Throughout the term of this contract and warranty period, Contractor shall at its cost maintain insurance and provide the Owner with current certificates of insurance for limits of liability as follows:

**INSURANCE REQUIREMENTS**

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Contractor, his agents, representatives, employees or subcontractors. The cost of such insurance shall be included in the Contractor's bid.

1. MINIMUM SCOPE OF INSURANCE

Coverage shall be at least as broad as:

- A. Commercial General Liability "occurrence" coverage form.
- B. The policy shall provide coverage for owned, hired, and non-owned coverage. If an automobile is to be utilized in the execution of this contract, and the vendor/Contractor does not own a vehicle, then proof of hired and non-owned coverage is sufficient.
- C. Workers' Compensation insurance as required by the Labor Code of the State of Mississippi, including Employers Liability insurance.

2. MINIMUM LIMITS OF INSURANCE

Contractor shall maintain limits no less than:

- a. Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage.
- b. Automobile Liability: \$1,000,000 combined single limit per accident, for bodily injury and property damage.
- c. Workers Compensation and Employers Liability: Workers' Compensation limits as required by the Labor Code of the State of Mississippi and Employers Liability coverage. Exception: Employers liability limit is to be \$1,000,000 when work is to be over water and involves maritime exposure.

3. OTHER INSURANCE PROVISIONS

The policies are to contain, or be endorsed to contain, the following provisions:

- A. General Liability and Automobile Liability Coverage.
  - 1. The Adams County Board of Supervisors, its officers, officials, employees, Boards and Commissions, consultants and volunteers are to be added as "additional insured" as respects liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor, premises owned, occupied or used by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the Adams County Board of Supervisors, its officers, officials, employees or volunteers.
  - 2. Any failure to comply with reporting provisions of the policy shall not affect coverage provided to the Adams County Board of Supervisors, its officers, officials, and employees, Boards and Commissions or volunteers.

3. The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

B. Workers' Compensation and Employers Liability Coverage

The insurer shall agree to waive all rights of subrogation against the Adams County Board of Supervisors, its officers, officials, employees and volunteers for losses arising from work performed by the Contractor for the Owner.

C. All Coverage.

Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, canceled by either party, or 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 Adams County Board of Supervisors

4. VERIFICATION OF COVERAGE

Contractor shall furnish to the Adams County Board of Supervisors with certificates of insurance affecting coverage required by this clause. The certificates for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates are to be received and approved by the Adams County Board of Supervisors Project Administrator before work commences. The Adams County Board of Supervisors reserves the right to require complete, certified copies of all required insurance policies, at any time.

5. SUBCONTRACTORS

Contractor shall include all subcontractors as insured under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated.

**G. HOLD HARMLESS:**

1. To the fullest extent permitted by law, the **Contractor** shall indemnify and hold harmless the **Owner** and the Elevator Consultant and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the **Contractor**, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. The **Contractor** further agrees that he shall, at his own expense, defend any and all actions, suits or claims arising out of the performance of the work as herein above defined and shall, at his own expense, pay all attorney's fees and all costs and other expenses arising therefrom or incurred in connection therewith; and, if any judgment shall be rendered against the **Owner**, and its agents, officials, or employees as a result of any such claim, **Contractor** shall at this own expense, satisfy and discharge the judgment.
2. In any Claims against the **Owner** or the Elevator Consultant or any of their agents or employees by any employee of the **Contractor**, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation, benefits payable by or for the **Contractor** or subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

**-END OF SECTION IV-**

**SECTION V**

**A. GUIDELINE SPECIFICATION FOR THE MODERNIZATION AND UPGRADE OF (01) ONE GEARED TRACTION PASSENGER ELEVATORS. Located in the Sheriff's Department, Jail Elevator.**

**ELEVATORS TO BE MODERNIZED AND UPGRADED:**

**Existing equipment as follows:**

**# 1 – Westinghouse Elevator - Mfg. No. – GO-14783**

**Capacity: 3,500**

**Landings: 4**

**System: Relay logic. M-G Set.**

**SECTION V - INDEX OF SPECIFICATIONS**

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## **SECTION V - ELECTRIC TRACTION GEARED MACHINE PASSENGER ELEVATORS**

### **1.1 GENERAL**

#### **1.1.1 SUMMARY:**

This specification guideline covers the complete furnishing and installing of equipment required to modernize and upgrade (01) electric geared traction passenger elevators located at the Adams County Sheriff's Department, Jail Elevator.

CONTRACTOR shall furnish NON-PROPRIETARY equipment, all labor, tools, materials, fixtures, accessories, AC drive motor and adapter plates, car enclosure upgrades, car door & hoistway door accessories, over-speed governor, transportation costs, crane for hoisting and lowering of materials, non-proprietary microprocessor controller, variable voltage variable frequency (VVVF) drive, hoistway wiring, encoders, selectors, door operator, hoisting and governor cables, all necessary auxiliaries, etc., to modernize and upgrade (01) electric geared traction passenger elevators with all necessary programming, equipment, accessories and installation that meets or exceeds the requirements of ASME A17.1-2013, NFPA 70, State of Mississippi, Adams County and City of Natchez Codes, and with the ADAAG (Americans with Disabilities Act Architectural Guidelines).

#### **1.1.2 ADDITIONAL EQUIPMENT:**

- a. Furnish and install any additional equipment required to operate specified equipment manufactured or contemplated for this installation.
- b. Special equipment not required by specification, but manufactured by elevator contractor, which would improve the operation as a whole, may be installed on or in conjunction with the specified equipment by the contractor at his option at no additional cost to the Adams County Board of Supervisors, provided prior approval is obtained from the Project Administrator.
- c. All engineering, equipment, labor, fees and permits required to satisfactorily complete elevator modernization and installation required by Contract Documents.
- d. Applicable conditions of General, Special, and Supplemental Conditions  
Car interior finishes  
Car finish flooring

#### **1.1.3 WORK INCLUDES:** Work includes modernization of (01) relay logic elevators with non-proprietary microprocessor controller and Variable Voltage Variable Frequency (VVVF) Drives equipped for single car dispatching.

- a. Elevator Contractor shall provide a **Non-Proprietary** vector controlled pulse-width modulated A.C. drive interfaced for geared traction elevator operation. All circuitry shall be of the digital microprocessor based type. A variable voltage variable frequency drive shall convert/invert rectifying the AC power supply using a two-step process to a variable voltage variable frequency power supply for use by the AC hoist motor. The speed control shall be by means of vector control providing independent excitation and torque current. A digital velocity encoder shall be provided on the motor giving feedback to the microprocessor control on the motor speed and position. Unit requires Single Car Group dispatching.

- b. Hoist-way ventilation to the outside as requires by building code. Elevator Contractor shall verify that the existing Ventilation complies with Elevator Contractor's heat release requirements and the Building Code as follows:

Elevator Contractor shall provide hoistway ventilation to the outside as requires by building code. This work includes hoistway ventilation to the outside with the installation of duct, wall louvers, moldings, flanges, strap anchors, screens, frames, grilles and vent covers as necessary. Ventilation shall comply with Elevator Contractor's heat release requirements and the Building Code.

Elevator Contractor shall verify proper Air Conditioning, Heating (HVAC) and ventilation is in the elevator equipment room as required by equipment manufacturer and the governing authority.

- c. Vertical iron ladder extending 42" minimum above sill of access door in the elevator pits. Elevator Contractor shall provide new in elevator pit.
- d. Hoistway walls are existing. Elevator Contractor shall meet (2) hour UL label fire rating where penetration by elevator fixtures and fixture boxes.
- e. Hoisting beam for a maximum net live load of 7,000 lbs. shall be supplied and installed by the Elevator Contractor. Existing opening into machine room has a hoist. Contractor shall verify that it is sufficient for the hoisting needs of this project. If the Contractor finds it necessary to use a hoist or crane to supply the new materials to the machine room, the Contractor shall include this cost in his bid proposal.
- f. All cutting, including cutouts to accommodate hall signal fixtures, patching, and painting of walls, floors, or partitions together with finish painting of entrance doors, car doors and frames shall be provided by the Elevator Contractor.
- g. Elevator Contractor shall provide electrical service to the elevator and elevator controller. The existing **man line disconnect switches in the control l room** may be re used.

Elevator Contractor shall provide all conduit, fittings, grounding and wiring for electrical service which shall meet or exceed the requirements of ASME A17.1 and NFPA 70 NEC. Size to suit Elevator Contractor.

Elevator Contractor shall provide a 120 volt, A.C., 15 amp, single phase power supply with fused SPST disconnect switch for the elevator lighting and in car ventilation fan.

Traveling Cables: Flame and moisture-resistant outer cover. Provide two (2) RG-6/U coaxial CCTV cables within traveling cable from car controller to car top, plus 5'-0" excess loop at both ends. Provide two (2) pair 14 gauge wire for CCTV power. The Elevator Contractor shall be required to provide all necessary wiring for security cameras to be mounted in the elevator cab. The Elevator Contractor shall provide electrical terminals clearly identified, outside of the elevator controller in the machine room for the security cameras, telephone lines, and smoke detectors for the Adams County Board of Supervisors. Security and alarm contractor will be required to run their wiring from the elevator machine room to the appropriate alarm and security system in the building.

- h. Elevator Contractor shall provide new AC drive motors and brake assemblies.
- i. Elevator Contractor shall provide installation to meet handicapped code in accordance with the ADAAG (Americans with Disabilities Act Architectural Guidelines) and Handicapped accessibility requirements.
- j. Provide new materials for modernization and upgrade of (01) one complete elevator installations which meet or exceed these guideline specifications and ASME A17.1 – 2013 code requirements.
- k. Elevator Contractor shall provide and install new, car doors hangers and rollers, car clutch assembly, and car door restrictive devices. The existing hoistway doors may be reused.
- l. Elevator Contractor shall provide and install LED corridor station push buttons and LED dot matrix position indicators at each landing.
- m. Elevator Contractor shall provide a TWO WAY INTERCOM SYSTEM from the car to the Security Control Room. This system is subject to approval by the Project Administrator.
- n. Elevator Contractor shall provide and install a new pit stop switch as per ASME A17.1 requirements 2.26.2.7 and 2.2.6.1 through 2.2.6.3.
- o. Elevator Contractor shall provide door protection system using a minimum of 40 microprocessor controlled infrared light beams.
- p. Elevator Contractor shall provide Phase I & II firefighters' service to meet latest edition of ASME A17.1 - 2.27.3.
- q. Elevator Contractor shall provide new heavy-duty door operator and accessories.
- r. Elevator Contractor shall provide the car station, position indicator and riding lantern. Car enclosure shall meet or exceed the requirements of ASME A17.1 and ADAAG.
- s. Smoke detectors and fire alarm system shall be provided by (the Building Owner).
- t. Elevator Contractor shall provide new governor, new governor ropes and hoist cables which the manufacturer uses on geared traction elevators.
- u. Elevator Contractor shall hook up at the controller, the telephone line for the in car emergency phone.
- v. Elevator Contractor shall provide and install on board diagnostics and an on board monitor located in the machine room.
- w. Elevator Contractor shall have a trained elevator technician available to assist in the testing of the smoke detectors, shunt trip, and any other test that may need to be performed in conjunction with the installed elevator system.
- x. Elevator Contractor shall provide and install firefighters' service to meet latest edition of ASME A17.1 - 2013. Elevator Contractor shall upgrade the Firefighter's Service panels for Phase I at the main floor. **DOES NOT INCLUDE SMOKE DETECTORS. OWNER SHALL FURNISH WIRING LEADS TO THE CONTROLLER. ELEVATOR CONTRACTOR shall be required to hook up the wiring leads to the appropriate terminals located on the elevator controllers.**
- y. **Security Station at the 1<sup>st</sup> floor shall** have a car call station that will return the car to the first floor. This call station shall also contain the Phase I Firefighters' Service recall switch. This call stations shall also contain a switch that will activate automatic service or manual key switch requirement for the car call station. (All floor calls on the car station will have a keyed switch and an automatic push button for the car calls.

## 1.2 DEFINITIONS AND ABBREVIATIONS:

- a. **ELEVATOR** are hereby defined to include systems in which cars are hoisted and lowered by energy applied by means of an electric driving motor; with other components of the work including hoisting cables, sheaves, over-speed governor and operating, dispatching, safety, security, leveling, alarm, maintenance, and similar required performances and capabilities.
- b. **CODE** when referred to in these specifications is ASME A17.1-2013, Safety Code for Elevators and Escalators and the State of Mississippi Elevator Safety Act.
- c. **CONTRACTOR** is defined as the Elevator Contractor.
- d. **PROJECT ADMINISTRATOR** is defined as the Project Consultant, Project Engineer or Project Architect.
- e. **PROVIDE** as used in these specifications and on Drawings shall be termed to mean "furnish and install".
- f. **OWNER** when referred to in these specifications shall mean "Adams County Board of Supervisors."
- g. **ADAAG** is herein defined as the (Americans with Disabilities Act Architectural Guidelines).
- h. **SINGULAR NUMBER:** In all cases where a device or part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation.
- i. CCTV is the abbreviation for Closed Circuit TV.
- j. **Defective Elevator Work:** Operation or control system failures; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; the need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
- k. **Shall** – The term "shall" denotes mandatory requirements.
- l. **Must** – The term "must" denotes mandatory requirements
- m. **May** – The term "may" denotes an advisory or permissible action
- n. **Should** – The term "should" denotes desirable
- o. **Agency** – Any department, commission, council, board, office, bureau, committee, institution, agency, government, corporation, or other establishment of the executive branch of Adams County authorized to participate in any contract resulting from this solicitation
- p. **County** – Adams County
- q. **Discussions** – For the purpose of this RFP presentation, a formal, structured means of conducting written or oral communications/preparations with responsible Proposers who submit proposals in response to the RFP.
- r. **EMP**- Elevator Maintenance Provider

## 1.3 SYSTEM PERFORMANCE REQUIREMENTS: The CONTRACTOR shall submit a Progress-Schedule-Phasing Plan to the Project Administrator for approval.

- a. The elevator shall be capable of meeting the highest standards of the industry. Elevator schedules indicate required performances, controls, capacities, features, and finishes for the elevator and are included in these specifications.  
Vertical vibration (maximum) 25mg.  
Horizontal vibration (maximum) 25 mg.  
In Car Noise: = 55 dB(A).  
Leveling Accuracy: + or - 0.2 inches.
- b. Hoist motor shall provide continuous service of not less than 90 floor starts per hour, and with this service, motor windings shall not exceed 50 degrees C. ambient temperature rise. Speed regulation, when car is carrying rated load, shall not exceed plus or minus 5% of average round trip speed. Acceleration control shall be adjustable.
- c. Starting, stopping and leveling shall be smooth and comfortable without appreciable steps of acceleration or deceleration. Stopping shall be without bumps or jars. Jerk rate (maximum) 1.3 ft/sec<sup>3</sup>. Acceleration (maximum) 1.3 ft/sec<sup>2</sup>.

- d. Full speed running shall be quiet and free from vibration and swaying. When doors open, they shall remain firmly stopped and shall not "teeter".
- e. Cars shall not move side to side during process of opening and closing doors.
- f. Elevator control system shall be capable of starting the car without noticeable "rollback" of hoistway machine sheave, regardless of load condition in car, location of car, or direction of travel.
- g. Car Speed:  $\pm 3\%$  of contract speed under any loading condition.
- h. Car Capacity: Safely lower, stop and hold 125% of rated load.
- i. Car Stopping Zone:  $\pm 1/4$ " under any loading condition.
- j. Door Opening Time: Seconds from start of opening to fully open: 2.8 seconds.
- k. Door Closing Time: Seconds from start of closing to fully closed: 4.00 seconds.
- l. Car Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are 3/4 open (1/2 open for side opening doors) and car level and stopped at next successive floor under any loading condition or travel direction (14' typical floor height): 12.2 seconds.
  
- m. Car Ride Quality:
  - 1. Horizontal and vertical acceleration within car during all riding and door operating conditions. Not more than 15 mg peak to peak (adjacent peaks) in the 1 - 10 Hz range.
  - 2. Acceleration and Deceleration: Smooth constant and not less than and not more than 3 feet/second<sup>2</sup> with an initial ramp between 0.5 and 0.75 second.
  - 3. Sustained Jerk: Not more than 6 feet/second<sup>3</sup>.
  - 4. Measurement Standards: Measure and evaluate ride quality consistent with ISO 18738, using low pass cutoff frequency of 10 Hz and A95 peak-to-peak average calculations.
  
- n. Noise and Vibration Control
  - 1. Airborne Noise: Measured noise level of elevator equipment and its operation shall not exceed 55 dBA inside car under any condition including door operation and car ventilation exhaust blower on its highest speed. Limit noise level in the machine room relating to elevator equipment and its operation to no more than 80 dBA. All dBA readings to be taken 3'-0" off the floor and 3'-0" from the equipment using the "A" weighted scale.
  - 2. Vibration Control: All elevator equipment provided under this contract, including power unit, controller, and their support shall be mechanically isolated from the building structure and electrically isolated from the building power supply and to each other to minimize the possibility of objectionable noise and vibrations being transmitted to occupied areas of the building machine sheave, regardless of load condition in car, location of car, or direction of travel.

#### 1.4 INTENDED ENVIRONMENTAL CONDITIONS:

For informational purposes, the environmental conditions expected to occur within the Controller and the Elevator Shaft shall be as indicated herein. Assure that the equipment furnished will operate satisfactorily within the prescribed conditions. If any modifications are required, it will be the responsibility of the Elevator Contractor to make any necessary changes. If any equipment is furnished that will not properly function within established parameters, pay any additional costs attributable to providing proper equipment.

- a. ELEVATOR CONTROLLER ROOM: The mechanical systems for this Area are intended to have 50 degree F. air leaving the registers. The maximum temperature that should be considered for the rooms should be considered at 100 degree F. Relative humidity is intended to not exceed 90% non-condensing.
- b. HEAT OUTPUT OF ELEVATOR EQUIPMENT: Upon selection of the elevator equipment, furnish the maximum BTU/HR output of the proposed equipment to the Project Administrator for possible adjustment of the entering air temperature into the room, if necessary.

## 1.5 REFERENCES:

The publications listed below form a part of the specification to the extent referenced. The publications are referred to in the text by basic designation only. All work shall be performed in accordance with the latest revised edition of the below referenced codes (as of the date the bids are taken).

AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)

APPLICABLE FEDERAL STATE AND MUNICIPAL CODE AND REQUIREMENTS

AMERICAN DISABILITY ACT (ADA) LATEST EDITION

AMERICAN STANDARDS INSTITUTE (ANSI)

ANSI A117.1 Providing Accessibility and Usability for Physically Handicapped People

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 366 Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality ASTM E 152 Fire Tests of Door Assemblies

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)

ASME A17.1 (2013 and addenda) Safety Code for Elevator and Escalators

ASME A17.2 (2012 Inspector's Manual)

ELECTRICAL TESTING LABORATORIES (ETL)

ENVIRONMENTAL PROTECTION AGENCY (EPA)

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IES)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA LD 3 High Pressure Decorative Laminates

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70 (2013) National Electrical Code

OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

SHEET METAL & AIR CONDITIONING CONTRACTORS= NATIONAL ASSOCIATION (SMACNA)

INTERNATIONAL BUILDING CODE (2010)

UNDERWRITER'S LABORATORIES (UL)

**1.6 DESCRIPTION AND SCOPE OF WORK:**

This specification guideline is intended to cover the modernization and upgrading of (01) ONE ELECTRIC TRACTION PASSENGER ELEVATORS at the Adams County Board of Supervisors, Sheriff's Department Jail Elevator.

Perform all work under this heading, including the furnishing of labor, materials, equipment, and service necessary for and reasonably incidental to the proper completion of all mechanical and electrical work as shown on any drawings and herein specified. Elevator Contractor shall include the following items as part of the installation and work to be provided by the Elevator Contractor.

- a. Location of supports in overhead or on the roof of the building for Contractor to hoist and lower materials and equipment shall be supplied by the Elevator Contractor.
- b. Adequate supports and foundations to carry the load of all equipment to and from the machine room area, where required, shall be the Elevator Contractor's responsibility.

Provide manufacturers' standard non-proprietary pre-engineered elevator systems that will comply with or fulfill the requirements of elevator schedule sheets in these specifications. The manufacturer's option, provide custom-manufactured elevator systems that will fulfill all requirements. Where components are not otherwise indicated, provide standard components published by the manufacturer as included in standard pre-engineered elevator systems and as required for a complete system.

Visit and examine the job and confer with all authorities concerned in order to become familiar with all existing conditions pertinent to the work to be performed. No additional compensation will be allowed for failure to be so informed.

Materials and equipment shall be new of the best quality, with same brand or manufacturer for all similar material.

All work shall be performed in a neat and workmanlike manner and is to include all work and material in accordance with the drawings and as specified herein.

In all cases where a device or part of the equipment is herein referred to in the singular number, it is intended that such reference shall apply to as many such devices as are required to complete the installation

**1.7 Specification Explanation:**

These specifications are of the abbreviated, simplified or streamlined type and include incomplete sentences. Omission of words or phrases such as "The CONTRACTOR shall", "in conformity therewith", "shall be", "as noted on any drawings", "according to the plans", "a", "the", "all", etc., are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a note occurs on any drawings.

Regardless of titles and subdivisions herein employed, consider these specifications as one complete document with General Sections applying to all other sections. All bidders are cautioned to read entire specifications and to thoroughly familiarize themselves with all requirements thereto.

Check all specifications and any drawings and bring to attention any conflicts or variations to the Project Administrator as soon as noted.

Protect the Owner of "Adams County Board of Supervisors" and his agents, including the Project Administrator and Elevator Consultant from any and all damages and expense arising from the fulfillment of any contract and at the completion of the work and repair of all damages done.

For any points which are not clear, or for items and/or details which the ELEVATOR CONTRACTOR feels are in need of clarification, consult the Project Administrator before submission of a proposal. The drawings and specifications are complementary and what is shown and/or called for on one shall be furnished and installed the same as if shown and/or called for in the other.

In case of discrepancies and/or ambiguities in the drawings and/or in the specifications, consult with the Project Administrator prior to submission of a proposal. Failure to do so on the part of the successful bidder shall be construed as explicit agreement on his part to abide by the Project Administrator's decision in such matters.

### **1.8 Quality Assurance:**

Installer Qualifications: Engage an Elevator Contractor who has completed elevator installations similar in material, design with a minimum of ten (10) years documented experience.

The ELEVATOR CONTRACTOR bidding on this portion of the work must be fully experienced in installations of equal size, complexity, and quality, and must be licensed to perform such work as required by the State of Mississippi Bureau of Elevator Safety.

In bidding he acknowledges that he fully understands the scope of the work and design, and has the ability for the contract price to assemble and install the equipment, piping, electrical service, duct work, etc., shown or specified, so as to mold same into a satisfactory workable system and arrangement.

CONTRACTOR shall recognize that a fault or error in his work remains his responsibility regardless of whether such difficulty was discovered after the work had progressed, and shall make corrections at no cost to Adams County Board of Supervisors."

CONTRACTOR shall establish in-process inspections, and ensure compliance with quality requirements that are not readily detectable, or measurable by inspection and test of finished elements. Testing of construction materials shall be accomplished by the CONTRACTOR utilizing the services of an acceptable independent testing laboratory.

CONTRACTOR shall obtain all Permits and Inspections, furnish all licenses and permits, mechanical and electrical, required by applicable laws and codes. CONTRACTOR shall arrange and pay for all Tests and Inspections. ELEVATOR CONTRACTOR shall have an elevator technician at the job site for testing of the smoke detectors, heat detectors, emergency power and final acceptance testing of the elevator and elevator system.

### **1.9 Bidder's Qualifications**

In the interest of unified responsibility, the ELEVATOR CONTRACTOR shall be one regularly engaged in the business of manufacturing, installing and servicing elevators of the type and character required by these specifications and he shall manufacture all components (signal fixtures and controller) and all other parts of the equipment as required by these specifications and he shall so state in his request for approval, listing the items he manufactures. The successful ELEVATOR CONTRACTOR must be registered to do business in the State of Mississippi and its primary business is installing, maintaining, repairing and selling elevators of the type requested in these specification.

The ELEVATOR CONTRACTOR must maintain a service representative to ensure a (03) hour on site response time for entrapments and emergency call - backs.

All work shall be performed in accordance with the latest revised edition (as of the date bids are taken) of the Safety Code for Elevators and Escalators (ASME A17.1-2013), the National Electrical Code (NFPA 70-2013), and the State of Mississippi Elevator Safety Act.

Secure all State of Mississippi elevator installation and alteration permits, plan review, fees, and inspections and pay all legal fees and taxes and provide the "Adams County Board of Supervisors" with a certificate of approval from agencies having jurisdiction over all phases of the work.

Additionally the project is to adhere to the current requirements of the "Adams County Board of Supervisors" and the Elevator Inspection Agency on contract with the Owner.

**1.10 Qualification of Elevator Mechanics**

Qualification certificates of experience of Elevator mechanics employed to install, supervise, test and maintain the elevator(s) shall certify mechanics to have not less than five (05) years of experience installing, supervising and testing elevators of the type and rating specified. Certificates of experience shall be furnished to the PROJECT ADMINISTRATOR prior to installation of the elevator(s). Helpers or apprentices with less than five (05) years' experience will be permitted to work under the direct supervision of an elevator mechanic.

**1.11 Job Conditions:**

Structural and other conditions may require certain installation, modifications and adjustments from conditions shown. Such deviations are permissible; however specific sizes, capacities and requirements affecting the satisfactory performance and operation of the installation shall remain unchanged. Make allowance for normal job conditions and interference.

All piping, clean outs and covers, and other mechanical items in way of construction, shall be rerouted, relocated or otherwise adjusted to work out with such construction or changes shown or specified in any or all of various sections of specifications.

Refer unknown site of job conditions that are encountered immediately to the PROJECT ADMINISTRATOR for method of disposition before continuation of work.

**1.11.2 Verification of Dimensions:**

ELEVATOR CONTRACTOR shall become familiar with all details of the work, prior to commencing elevator installation, examine hoistways, hoistway openings, pits, machine rooms, support structure and services as constructed; verify all critical dimensions in the field; examine supporting structure and all other conditions under which elevator work is to be installed. Advise the PROJECT ADMINISTRATOR in writing of any dimensional discrepancies or other conditions detrimental to the proper installation or performance of elevator work. Do not proceed with elevator installation until unsatisfactory dimensions and conditions have been corrected in a manner acceptable to the CONTRACTOR.

**1.11.3 Use of Asbestos Products**

Products which contain asbestos are prohibited. This prohibition includes items such as packing, gaskets, or linings for car guide shoes even though the item is encapsulated or the asbestos fibers are impregnated with binder material.

**1.12 Fire & Safety:**

- a. Exits for this Modernization Projects having occupied areas of the building including rooms, suites, corridors and floors shall not be blocked by the construction or by construction materials. Exits may be blocked temporarily if it is unavoidable and adequate alternate measures are provided such as signage, instructions to occupants and a heat detection system and with approval from the PROJECT ADMINISTRATOR.
- b. Existing fire protection systems including fire alarms systems, smoke detection systems, and sprinkler systems shall not be impaired during construction except for devices in the immediate construction area.
- c. At the end of each workday, combustible packaging and crating materials for building products and equipment to be installed shall be removed from the building.
- d. The necessary number and appropriate type of portable fire extinguishers per National Fire Protection Association (NFPA) Standard Nos. 10 and 241 shall be provided for all construction areas.
- e. All flammable liquids shall be handled, stored and used in accordance with NFPA Standard No. 30.
- f. All temporary electrical wiring and equipment used for construction shall be installed and used in accordance with pertinent provisions of NFPA Standard No. 70.
- g. Installation of sprinkler systems, standpipe systems, fire hydrants and fire alarm systems, shall be given priority and placed into service as soon as practical.
- h. Maintain construction site to permit access of fire department vehicles as necessary. Clear building construction areas of unnecessary obstructions so that all portions are accessible for fire department apparatus and permit emergency egress of construction and other personnel.
- i. All precautions necessary shall be taken by the contractor to prevent accidental operation of any existing smoke detectors by minimizing the amount of dust generated in the vicinity of any smoke detectors.
- j. All construction activities not already covered above shall be in accordance with the latest edition of NFPA No. 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations, in effect at time of contract award.
- k. At no time will protected openings in vertical shafts be left unprotected without equivalent fire - rated construction. Openings which are a part of the construction project shall not be left unprotected when the CONTRACTOR is not actively working in the area or after normal working hours.
- l. **STORM PROTECTION:** Should warnings of wind of gale force or stronger be issued, CONTRACTOR shall take every practicable precaution to minimize danger to persons, to the work, and to adjacent property. These precautions shall include closing all openings, removing all loose materials, tools and equipment from exposed locations, and removing or securing scaffolding and other temporary work.

**1.13 Operations and Storage Area for the Elevator Contractor:**

- a. A dry and protected area, conveniently located to the elevator shaft, will be assigned to the Elevator Contractor without cost, for storage of his material and tools.
- b. Workmen are subject to the rules of the "Adams County Board of Supervisors" applicable to their conduct.
- c. Execute work so as to interfere as little as possible with normal functioning of the "Adams County Sheriff's Department" as a whole, including operations of utility services, fire protection systems and any existing equipment, and with work being done by others.
- d. CONTRACTOR shall take all measures and provide all material necessary for protection existing equipment and property in affected areas of construction against dust and debris, so that equipment and affected areas to be used by the "Adams County Sheriff's Department" building operations will not be hindered.
- e. In corridor areas, CONTRACTOR shall not store any materials and shall remove dust and debris continuously so as not to create any hazard or track dust into other areas.

- f. No utility service such as water, gas, steam, sewers, electricity, fire protection systems and communication systems may be interrupted without prior approval of PROJECT ADMINISTRATOR.
- g. Protection of interior of existing structures at all times, from damage, dust and weather inclemency. Wherever work is performed, floor surfaces that are to remain in place shall be adequately protected prior to starting work, and this protection shall be maintained intact until all work in the area is completed.
- h. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure of environmental pollution. Notify the PROJECT ADMINISTRATOR immediately when hazardous materials are encountered.

#### **1.14 Warranty and Maintenance Service:**

Warranty, emergency call back and preventative maintenance services shall be provided for the elevator for a period of 12 months after date of final acceptance by the PROJECT ADMINISTRATOR. The elevator contractor shall furnish maintenance, repair and emergency call back service in accordance with the Adams County Board of Supervisors Elevator Maintenance Specifications and special conditions which are attached to this Project Manual. Warranty service shall be performed only by trained elevator technicians/mechanics and shall include manufacturer's warranty requirements including but not limited to troubleshooting, adjusting, lubricating, testing, repairing and cleaning of equipment and furnishing supplies and parts to keep the elevator in operation, except parts made necessary by misuse, accident, or negligence not caused by Elevator Contractor. Testing and adjustments shall be in accordance with applicable provisions of ASME A 17.1- 2013 and ASME A17.2 - 2013. Emergency call back service shall be included and available 24 hours a day, 7 days per week, with response time of two hours or less for a maintenance mechanic to be on site. Inspection and service for fire service and testing, and certification of successful operation shall be provided with this unit. In addition to any warranties that may be available under applicable law. The Elevator Contractor warrants to the "Adams County Board of Supervisors" that:

- a. All of the Contractor's Work shall be completed in accordance with this Project Manual and these Guideline Specifications.
- b. Any and all machinery, equipment, controls, devices, materials, products and other items incorporated in or otherwise made a part of the Elevator Contractor's Work and/or delivered to the Adams County Board of Supervisors as part of Contractor's Work will be safe, meet all applicable safety and ASME A17.1 -2013 code standards, and will be free of any defects in design, construction, composition, workmanship, and any other defects.
- c. Following Final Completion of all of the Elevator Contractor's Work, the Elevators will perform and continue to perform in accordance with this Project Manual and these Guideline Specifications, ordinary wear and tear accepted.
- d. Repairs and Maintenance. Elevator Contractor agrees that for a period of one (1) year following Final Completion of all of the Contractor's Work, Contractor shall, at no cost and expense to Owner, provide and supply any and all repairs, maintenance, service, labor (including overtime callbacks), equipment, parts, and supplies necessary or appropriate, as requested by Owner, to keep and maintain the Elevator and the controls, monitors, and accessory devices for the Elevators in good repair and working order and performing in accordance with these Specifications, regardless of the cause for the need for such repair or maintenance, except that Contractor will not be responsible for any repairs or maintenance resulting from abuse or vandalism to the Elevators or resulting from acts of God, such as lightning, earthquakes, fires, floods or weather of unusual severity such as hurricanes or tornadoes. Contractor's agreement to provide repair, adjustments, test and maintenance to the Elevators as set forth in this Specification shall not be deemed or considered to be, to any extent, a limitation on Contractor's warranty obligations.
- e. Sub-standard Performance and materials. If it becomes evident during the Warranty Period that any device or system is not functioning properly or in accordance with the specification requirements, or if in the opinion of the Project Administrator, excessive maintenance and attention must be employed to keep device operational,

the device(s) shall be removed and a new device meeting all requirements shall be installed as part of the work until satisfactory operation for this installation is obtained. Warranty Period shall start anew for such parts from date of completion of each new installation performed, in accordance with foregoing requirements.

**1.15 SUBMITTALS:**

1.15.1 Submittals: Submit to PROJECT ADMINISTRATOR for review, immediately after awards of contract, two (02) copies of complete descriptive information and dimensional data on all items of equipment, materials and accessories. Submit all shop drawings at one time. Piece submissions shall be acceptable.

1.15.2 DATA:

Equipment and Performance Data including adequate descriptive literature and shop drawings shall be submitted for the following items consisting of load ratings, sizes, car and platform dimensions, design performance, operating characteristics, finishes, features of control system, speeds, car door opening and closing speeds, and similar information.

Car door operator	Terminal stopping devices	Operating Devices
Operation and Control systems	Electrical protective devices	Car safety devices
Operating systems	Drive machine and break assembly	Over-speed governor
Emergency operating and signaling	Electrical protective devices	

1.15.3 MANUFACTURER'S CATALOG DATA: The Manufacturer's Catalog Data shall be submitted for the following items:

Non-Proprietary Microprocessor Units	Emergency operating devices
Telephone/Intercom	Electrical protective devices
Cabs and interior design	Operation and control systems
AC Drive motor	Overspeed Governor
H.P. and R.P.M. of drive motor.	Door operator
Electronic door detectors	Cab lighting & ballast rating
Selector	

1.15.4 DRAWINGS: The Elevator Contractor shall prepare drawings showing the general arrangements of the elevator equipment. These drawings shall be reviewed before proceeding with fabrication and installation of elevator. The connection diagrams and wiring diagrams shall be submitted for the Electric Traction Passenger Elevator Systems indicating the relations and connections of devices and apparatus by showing the general physical layout of all controls, the interconnection of one system (or portion of system) with another and internal tubing, wiring, and other devices. It is the Elevator Contractor's responsibility to determine and verify field measurements, materials, field construction criteria, review each submittal and; check and coordinate each submittal with requirements of the work and Contract documents. The following shall be submitted in sufficient detail to show full compliance with the specifications:

1.15.5 WIRING DIAGRAMS:

a. Provide 3 complete sets of field wiring and straight-line wiring diagrams showings all electronic circuits of all elevator equipment, in the hoistway, as well as the controller room. The diagrams shall be supplied on 8-1/2" x 11" sheets and shall be prepared using elevator industry standard wiring diagram symbols and drafting techniques. They shall be framed on Plexiglas or on pivoted hardboard coated with an approved plastic sealer and mounted in elevator controller room as directed by PROJECT ADMINISTRATOR. In the event modifications are found necessary during installation, diagrams shall be revised to include all

corrections made prior to and during the final inspection. Diagrams shall be delivered to the PROJECT ADMINISTRATOR within 30 days of final acceptance ON DISK IN THE AUTO-CAD FORMAT.

- b. The following information relating to the specific type of microprocessor controls is provided on this project shall be provided:
  - 1. Owner information manual, containing general data on major components; maintenance and adjustment.
  - 2. Operational Manual
  - 3. Sequential Operations Manual
  - 4. In-put/Out-put Sheets
  - 5. Passwords or Code for Access to Control Equipment
  - 6. Complete wiring diagrams needed for field trouble shooting, adjustment, fault code interpretation, repair and/or replacement of components. Diagrams shall be base diagrams, containing all changes and additions made to the equipment during the design and construction period.
  - 7. Changes made during the warranty period shall be noted on the drawings in adequate time to have the finalized drawings reproduced for mounting in the machine room no later than six months prior to expiration of the warranty.

#### 1.15.6 SCHEMATICS and MANUALS

- a. CONTRACTOR shall provide schematics of all major assemblies, sub-assemblies and modules. If such schematics are considered to be proprietary, the contractor shall not be allowed to bid on this project.
- b. MANUALS: After completion of project, turn over to PROJECT ADMINISTRATOR two (2) bound sets of complete indexed operating and maintenance instructions. The manuals shall give complete instructions for operation, inspection, testing, adjusting, repair and maintenance of each system, including equipment malfunction check lists, set up of floor tables and code fault interpretations. Documentation supplied with each item shall include general owner's manuals, detailed service manuals and all schematics of all major assemblies, sub-assemblies and modules

#### 1.16 SUBSTITUTIONS:

Whenever a material or article of equipment is specified by use of proprietary name, or by naming the manufacturer or vendor, any material or article which will perform adequately the duties imposed by the design will be considered for substitution, providing it is of equal substance, function, and meets specifications, and is aesthetically acceptable to PROJECT ADMINISTRATOR, and that request for approval along with all literature and technical data on proposed substitution is submitted in writing so as to be received in the Office of the PROJECT ADMINISTRATOR prior to or at the time of the mandatory pre-bid conference.

#### 1.17 RELATED WORK AND PREPARATION WORK:

Preparatory work not included as part of the work of this section but are included as part of the project:

- a. A properly framed and enclosed legal hoistway, including divider beams, ventilation, and pit with ladder, sump pump, lights and waterproofing as required by the governing code or authority. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.
- b. All electric power for light, tools, hoists, welding, etc., during erection, shall be available.
- c. A suitable controller room with legal access and ventilation which complies with the Elevator Contractor's requirements. Elevator Contractor shall provide a template indicating block outs and

penetrations in the controller room slab or wall, all of which must be precisely followed. All concrete work shall be coordinated to accommodate elevator equipment supplied. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.

- d. The controller room shall be maintained at a temperature between 50 degrees F and 100 degrees F to be measured 6' above the floor and 1' out from any part of the car controllers, drives and motors. Areas near the heat exhaust of the controllers and drives may be exempted from this temperature requirement. Relative humidity shall not exceed 95% non-condensing. Ventilation shall comply with Elevator Contractor's release requirements and Building Code. Controller room door shall be self-locking and self-closing. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.
- e. Floor Finish at Landings: A level finished floor, continuous for full width of the hoistway landing openings. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.
- f. Vertical surfaces of entrance sill supports must be plumb, one above the other, and square with the hoistway. Finished floor and grout, if required between doorframes to sill line. For non-flush hoistways, adequate support for sill angles across full width of hoistway at each landing. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.
- g. All cutting, including cutouts to accommodate hall signal fixtures, patching, and painting of walls, floors, or partitions together with finish painting of entrance doors and frames. Setting of anchors and sleeves. .
- h. Provide recesses, cutouts, slots, holes, patching, and refinishing, to accommodate removal of existing equipment and installation of new equipment. All new holes in concrete shall be core drilled. Where concrete beams, floor slabs, or other building construction protrude more than 4" into hoistway, all top surfaces of projections shall be beveled with 20 gauge steel to an angle of at least 75 degrees with the horizontal.
- i. Elevator Contractor shall replace the existing machine room disconnect switch with a fused lockable disconnect switch sized to meet manufacturer's requirements. may be re used.
- j. Contractor may re use the 120 volt, 20amp, single phase power supply with SPST fused disconnect switch in the machine room.
- k. Suitable lights and convenience outlets in the control room with light switches located within 18" of lock jamb side of the controller room door. Existing conditions are to be verified to be satisfactory by the Elevator Contractor.
- l. A smoke and heat detector system, located as required, with wiring from smoke and heat detectors to machine room for the elevator. Elevator requires a set of contacts NORMALLY OPEN- COMMON-NORMALLY CLOSED from the smoke detector at the designated firemen service landing, and one set of contacts NORMALLY OPEN-COMMON-NORMALLY CLOSED representing all other smoke detectors in the system. Smoke detectors at each elevator lobby are required to send the elevator to the first floor when activated. The smoke detector at the first floor when activated shall send the elevator to the Basement landing.
- m. Elevator Contractor shall provide Emergency communication connection to the existing elevator and to the First floor Security Control Room. The Elevator Contractor shall wire into the new controller the Emergency communication connections and smoke detector wiring into the new controllers.
- n. Guarding and protecting the hoistway during construction (new and existing). The protection if the hoistway shall include removable solid panels surrounding each hoistway opening at each floor, a minimum of 60" high. Hoistway guards shall be erected, maintained and removed by the Elevator Contractor.
- o. Elevator Contractor shall supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports, and bracing including templates and diagrams for placement.
- p. During Installation, the elevator platform(s) must not be used to hoist material or men other than required for elevator installation.

- q. **NEII STANDARDS FOR HANDICAPPED:** Except as otherwise indicated, comply with NEII "Suggested Minimum Passenger Elevator Requirements for the Handicapped" including clearances, handrails, locations for signal equipment and similar provisions.\
- r. Temporary use of Elevators: Should any elevator be required for use before final completion, others shall provide without expense to Elevator Contractor, if required, temporary car enclosures, requisite guards or other protection for elevator hoistway openings, main line switch with wiring, necessary power, signaling devices, lights on the car and elevator operators together with any other special labor or equipment needed permit this temporary usage. The Elevator Contractor's temporary acceptance form shall be executed before any elevator is placed in temporary service, and the cost of power and operation, maintenance of the equipment, and rehabilitation of equipment shall be paid for by others.

## **1.18 EXECUTION**

- 1.18.1 **PREPARATION:** Take field dimensions and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.
- 1.18.2 **SPACE CONDITIONS:** Attention is called to overhead clearance, pit clearances, overall space in controller room and construction conditions. Addition or revision of space requirements or construction changes that may be required for complete installation of the elevators must be arranged for the obtained by CONTRACTOR, subject to approval of PROJECT ADMINISTRATOR. Cost of such changes shall be included in bid and form a part of contract.

Clearance around elevator, mechanical and electrical equipment shall comply with applicable provisions of NEC (NFPA 70). Arrange equipment in controller room so that major equipment components can be removed for repair or replacement without dismantling or removing other equipment in same controller room.

- 1.18.3 **INSERTS:** Elevator Contractor shall furnish required concrete inserts and similar anchorage devices for the installation of guide rails, machinery, and other components of elevator work where installation of devices is indicated.
- 1.18.4 **COORDINATION:** CONTRACTOR shall coordinate all mechanical work with other phases of the work, including ceilings systems and tiles, electrical work, other mechanical work, etc.
- 1.18.5 **CLEANING AND ESCUTCHEONS:** The Elevator Contractor shall, after all work has been finally tested, clean all equipment and exposed work. All plated and other finished products shall be thoroughly cleaned and polished.
- 1.18.6 **SLEEVES AND THIMBLES:** Caulk around and seal all piping and duct penetrations through building members, hoist way enclosure, machine room enclosure, and ceilings with non-hardening sealant. Where slabs and walls are fire - rated, sealants shall have the same fire - rating.
- 1.18.7 **BUCKS, GROUNDS AND CHASES:** ELEVATOR CONTRACTOR shall be responsible for the proper location and size of bucks, grounds and chases.
- 1.18.8 **TOOLS AND CABINET:** A metal cabinet, having two shelves and a hinged door shall be provided in the controller room. Cabinet shall measure not less than 48 inches high, 18 inches wide and 15 inches deep. Cabinet door shall contain a cylinder lock. Locate the tool cabinet in the elevator controller room as directed by the PROJECT ADMINISTRATOR.

## **1.19 PAINTING:**

- a. Elevator Contractor shall paint equipment, hangers, controller room floor, pit floor and accessories in the overhead of the hoistway, with two (2) coats of approved paint after thoroughly cleaning. Equipment

- having factory finish, if damaged or scratched, shall be touched up and given one additional coat of machinery enamel.
- b. Upon completion of installation and prior to final inspection, all equipment shall be thoroughly cleaned of grease, oil, cement, plaster, and other debris. All equipment, INCLUDING DOORS AND DOOR FRAMES except that otherwise specified to architectural finish, shall then be given two coats of paint of color approved by PROJECT ADMINISTRATOR.
  - c. Paint floor designation numbers not less than four-inch high, on hoist way doors, fascias and/or walls as required by CODE. The color of the paint used shall contrast with the color of the surfaces to which it is applied.
  - d. Fascia plates, toe guards, dust covers, hanger covers, and other metal shall be thoroughly cleaned and given one field coat of paint of color approved by PROJECT ADMINISTRATOR.
  - e. Interior and exterior steel surfaces of Elevator Cabs shall be parkerized or given equivalent rust resistant treatment before finish is applied.
  - f. Interior surfaces of Elevator Cabs shall be factory finished with one coat of baked on enamel or proxylin lacquer.
  - g. Exterior faces of Elevator Car doors shall be given one finish coat of oil base paint approved by PROJECT ADMINISTRATOR.
  - h. Elevator drive machine, controller, disconnect switch, governor and crosshead of car shall be identified by 4 inch high numerals and letters located as directed by PROJECT ADMINISTRATOR. Color of numbers shall contrast with color surfaces to which they are applied.

## **PART 2. PRODUCTS:**

### **2.1 PRODUCT, DELIVERY, STORAGE AND HANDLING:**

Take necessary precautions to protect all material, equipment, apparatus and work from damage. Failure to do so to the satisfaction of the PROJECT ADMINISTRATOR will be sufficient cause for **rejection of material, equipment or work in question. CONTRACTOR is responsible for the safety** and good condition of the materials installed until final acceptance by PROJECT ADMINISTRATOR.

### **2.2 MATERIALS:**

- a. Where stainless steel is specified, it shall be corrosive resisting steel, AISI Type 302/304 with a No. 4 (150 grit) satin finish on exposed surfaces. Stainless steel shall have the grain of belting in the direction of the longest dimension and surfaces shall be smooth and without waves. During erection, all stainless steel surfaces shall be protected by suitable material.
- b. Where cold rolled steel is specified, it shall be low carbon steel rolled to stretcher leveled standard flatness, Complying with ASTM A109.
- c. Where aluminum is specified, it shall be extruded per ASTM B2221; sheet and plate per ASTM B209.
- d. Where plastic laminate is specified, it shall be the high pressure type complying with NEMA LD3, Type GP-50 (0.50inch nominal thickness); color, texture, and pattern as selected by PROJECT ADMINISTRATOR from standard products available in the industry. Where fire retardant particle board panels are specified, it shall be minimum 3/8 inch thick back up for plastic laminate panels, edged and faced, provided with suitable anti-warp backing; meet ASTM E84 Class "I" with flame spread rating of 25 or less.
- e. Where resilient rubber tile is specified; FS SS-T-312, Type III, homogeneous (solid) vinyl tile, Class 1, 12 inch by 1/8 inch thick; color and pattern selected by PROJECT ADMINISTRATOR from manufacturer's standard ranges.

- f. Clean all exposed metal of oil, grease, scale and other foreign matter and factory paint on shop coat of manufacturer's standard rust resistant primer. After erection, provide one finish coat of industrial enamel paint. Galvanized metal need not be painted.

**2.3 STANDARD MANUFACTURED PRODUCTS:**

- a. Material and equipment shall be the standard products of manufacturers regularly engaged in the fabrication of elevators and/or elevator parts, and shall essentially duplicate items which have been in satisfactory use for at least 3 years prior to bid opening.
- b. When two or more units of same class of materials, devices, or equipment are required, these units shall be products of one manufacturer.
- c. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit.
  - 1. All components of an assembled unit shall be products of same manufacturer.
  - 2. Constituent parts which are alike shall be the product of a single manufacturer.
  - 3. Components shall be compatible with each other and with the total assembly for the intended service.
- d. Welding at the project sits shall be made by welders and welding operators who have previously qualified by test, as prescribed in American Welding Society Publication AWS D1.1 to perform the type of work required.

**2.4 NAMEPLATES:**

Each major item of equipment shall have the manufacturer's name, address, type, or style, model or serial number, catalog number, and electrical and mechanical characteristics on a plate secured to the item of equipment.

**2.5 DRIVE MACHINES AND BRAKE ASSEMBLIES:** Provide the following manufacturer's standard elevator systems for Geared Traction Passenger Elevators.

2.5.1 Provide existing traction drive machine with AC motor and Variable Voltage Variable Frequency drives with microprocessor control systems and equipment as required. The existing drive machines have oil leakage present. All leaking gaskets shall be replaced and correct oil level maintained in the gear boxes.

2.5.2 **BRAKE AND BRAKE ASSEMBLIES:** The existing brake assembly shall meet the following requirements. The existing brake linings are oil soaked and shall be replaced with new linings. The brake shall stop and hold the car under all conditions of loading or operation with the rated load and contract speed. The wearing surface and the edge of the flange shall be turned smooth and balanced. The wearing surface shall run true and be adjusted to run within a maximum variation of 0.005 inch. The brake shoes shall be of non-asbestos components and shall be lined with a suitable fireproof friction material so shaped to the shoe that the drum will run free with a normal clearance. The brake application shall be automatically controlled to obtain noiseless, smooth, and gradual stops with either light or loaded car in either direction of travel. The circuit of the brake magnet shall be opened:

- a. by the normal stopping of the car.
- b. upon failure of any of the several units of equipment to function properly for safe operation of the car by various safety devices.
- c. when safety switch (es) open.
- d. power failure.

**2.6 HOIST MOTOR:** Provide a new AC motor for the elevator that is designed and built expressly for elevator service with a high starting torque and low starting current and that shall be totally enclosed and non-ventilated with Class F insulation. The motor armature shall be dynamically balanced and supported by ball bearings of ample capacity. It shall be rated in accordance with the standards of I.E.E.E.

**2.7 SPECIAL TOOLS:** All microprocessor control equipment and hand tools shall have non-proprietary diagnostics. All necessary tools for programming the microprocessor control and drive equipment shall be provided to the Owner at the completion of the job. One set of special tools, calibration devices, diagnostic devices, removable Simms cards, and tools, and instruments required for operation, calibration, repair, dismantling, assembly, adjustment and maintenance of the equipment shall be provided and become the property OF "Adams County Board of Supervisors." The diagnostic devices shall be equipment to be maintained by the CONTRACTOR in accordance with the Elevator Maintenance Contract upon expiration of the warranty period. The Elevator Contractor shall update and repair the diagnostic device as required. The successful Elevator Contractor agrees to reprogram the diagnostic tool during the life of the equipment at no additional cost to the Owner.

**2.8 DESCRIPTION OF EQUIPMENT:**

- a. Control: Non-Proprietary Microprocessor based, integrated solid state circuitry with Variable Voltage Variable Frequency drive as specified.
- b. Capacity: 3,500 lbs. capacity.
- c. Speed: 200 fpm.
- d. Operation: One Car Simplex Dispatching - Automatic Operation.
- e. Stops: (04) Landings.
- f. Power Supply: Power Supply 208 Volt 60 Hz, 3 phase. (Contractors must verify what is available in the building).
- g. Machine Location: Overhead Machine Room.
- h. Openings: One Car opening (Front)
- i. Door Opening Operation: 42" Center Opening. Re Use Existing Car & Hoistway Doors.
- j. Car Enclosure: Refurbish Project Administrator to Approve Submittal.  
Car fixtures: Satin stainless steel.
- k. Car platform, car frame and car sling: Re use existing...
- l. Signal Equipment: As specified.  
Illuminated vandal resistant car and hall push buttons  
Discrete car position indicator  
Car riding lantern and audible gong.  
Car fixture: # 4 stainless steel and as specified.  
Hall fixtures: # 4 stainless steel and as specified.
- m. Additional Features  
Handicapped features as per ADAAG  
Vandal resistant speaker telephone meeting  
ADAAG requirements  
Braille markings and signage  
Car and Counterweight Roller Guides  
Car Top Inspection Station  
Firefighters' Service, Phase I and II, including Alternate Floor  
Return Upgrade Fire Control Room Firefighters Service.  
Hoistway Access Switches Top and Bottom Floors  
Hoistway Door Unlocking Device All Floors  
Firefighters' Control Panel and Remote Wiring Upgrade  
Tamper Resistant Fasteners for All Fastenings Exposed to the Public  
Standby Power Transfer (Automatic To Main Floor) with  
Manual Override in Firefighters' Control Panel

	Swing Car Return Panels Arranged for Integral Car Operating Independent Service Feature
	One Year Warranty Maintenance with 24-Hour Call-Back Service
	Signage Engraving Filled with Black Paint or Approved Etching Process
	Wiring Diagrams, Operating Instructions, and Parts Ordering Information
	Monitoring System
	System Diagnostic Means and Instructions
n. Buffers:	Re use existing.
o. Finishes:	As specified by PROJECT ADMINISTRATOR
p. Over-speed Governor	Provide new
q. Handrails	Re use existing...
r. <b>Ceiling</b>	<b>Re use existing...</b>
s. Hoistway entrances:	Re use existing... Contractor may re use the hoistway doors, hoistway door sills, strut angles and door tracks. All existing equipment that will be re used must be clean of rust.
t. Hall fixtures:	Provide New.
u. Governor Cable	Provide new.
v. Main Hoist Cables	Provide new.
w. Car Safety Devices	Re use existing..
x. Counterweights	Re use existing..
y. Drive Machines	Re use existing..
z. Brake Assembly	Re use existing..
aa. Guide Rails and Brackets	Re use existing..
bb. Machine Beams	Re use existing..
cc. Deflector Sheaves	Re use existing..
ee. Pit Depth	60"
ff. Hoistway dimensions	Elevator Contractor to verify all dimensions. Hoistway Wall to edge of divider beam: Sill to back wall: Top landing sill to top of hoistway: Divider Beams:
ff. Counterweight rails	DBG: Elevator Contractor to provide in submittals.
gg. Main Guide Rails	DBG: Elevator Contractor to provide in submittals. Existing DBG
hh. Main Line Disconnect Switch:	Provide NEW fused and lockable disconnect switch in machine room. Elevator Contractor is required to provide and sized for Manufacturer's equipment.
ii. Emergency power system.	Emergency power system available.

**2.9 PASSENGER ELEVATOR PLATFORM, SAFETY DEVICE, FRAME AND ENCLOSURE:**

- 2.9.1 CAR FRAME AND CAR SLING: Rigid and braced, rolled or formed steel sections, mounted on resilient isolators. **Re use existing..**
- 2.9.2 CAR PLATFORM: Steel frame, with fire retardant treated plywood sub-flooring assembly, ready to receive floor finish. Provide balanced weights and frame properly located under the car platform to achieve the required true balance of the car. Re use existing..
- 2.9.3 CAR SAFETY DEVICE AND OVERSPEED GOVERNOR: ASME A17.1 – 2.17 and 2.18. **Provide new over-speed governor and re use the car safety devices.** The car safety mechanism, when tripped,

shall engage the rails with sufficient force to stop and hold the car from governor tripping speed with full load in the car. Do not field paint the car safety or governor. Re use existing..

- 2.9.4 CAR ENCLOSURE: ASME A17.1 - 2.14. **Re use existing door panels**, ventilation fan, car top, side panels, and lighting fixtures. The front-return panels and columns shall be provided with new. Exposed hardware shall be stainless steel with satin finish. Coat exterior of car enclosure with a sound isolating material.

Access panel from above: Provide secure lock on access panel from above with additional lock and kill-switch and alarm.

- 2.9.5 CAR DOORS: Re use existing.
- 2.9.6 LIGHTING FIXTURES: ASME A17.1 – 2.14.7: Re use existing.
- 2.9.7 CAR EMERGENCY LIGHTING POWER PACK: **Provide new**. ASME A17.1 – 2.14.7.1: The emergency signal and emergency car lighting system shall consist of an emergency power pack mounted on top of the elevator with incandescent lamp and fixtures, a remote lighting fixture inside the elevator car, located in the car operation panel.

This package shall contain a rechargeable battery of the sealed gelatin electrolyte type, with solid state control and an integral regulating charger connected to normal power supply. This unit shall contain the following:

- a. Minimum six inch diameter alarm bell connected to elevator alarm button.
  - b. TOP - OF - CAR light fixture with ON - OFF switch and protective wire guard.  
Plastic guards are not acceptable.
  - c. Testing circuit and pilot light.
  - d. Low wattage pilot light indication.
- 2.9.8 EMERGENCY LIGHT FIXTURE: Emergency light fixture shall be located inside the elevator car in the car station, with flush mounted lens and shall consist of the following:
- a. A minimum of two lamps capable of providing a minimum level of illumination of 0.2 foot candle at a point four (4) feet above the floor, 1-foot in front of the car station.
  - b. Fixture frame or stainless steel.
  - c. REMOTE LIGHT FIXTURE: Upon interruption of normal power, remote light fixture shall automatically illuminate within 10 seconds and permit operation of the alarm bell, subject to the activation of the alarm button.
  - d. The power pack shall be capable of providing a minimum of 1 hour emergency bell operation and 4 hours of continuous illumination.
- 2.9.9 CAR VENTILATION: **Re use existing.**
- 2.9.10 EMERGENCY EXIT: ASME A17.1 – 2.14.1.5. Re use the emergency exit in the top of the car and equip as follows: Arrange the car top exit to open only from outside of the car, without the use of tools. Equip the exit with a non-self-resetting contact which shall prevent operation of the car unless the exit panel is fully closed. Cause alarm system to sound when the exit door opens.
- 2.9.11 PROTECTION PADS AND HOOKS: **Delete.**

**2.10 DOOR OPERATOR, DOOR PROTECTIVE DEVICES, AND DOOR OPERATIONS:**

2.10.1 DOOR OPERATOR: **Provide new.** A direct current motor driven heavy duty master-type door operator shall be furnished and installed, designed to automatically operate the car and hoist way doors simultaneously when the car is leveling and automatically close the doors simultaneously at the expiration of the door-open timing. Direct-current motor shall be of the high-internal resistance type, capable of withstanding high currents resulting from stall without damage to the motor. The door operator shall be capable of opening a car door and hoistway door simultaneously at a maximum speed of not less than 2.0 feet per second. A reversal of direction of the doors from the closing to opening operation, whether initiated by the infra-red reopening device, or the door "OPEN" button shall be accomplished within no more than 1-1/2 inches maximum of door movement.

- a. Particular emphasis is to be placed on obtaining quiet interlock and door operation, smooth, fast dynamic braking for door reversals and stopping of the door reversals, and stopping the door extremes of travel. All levers operating the doors shall be constructed of heavy steel members, and all pivot points shall have ball or roller bearings. Electric power shall be used to open and close the doors. Auxiliary automatic door closers required under A17.1 - 2.11.3 of the Code shall be torsion spring type or spring loaded sill mounted type.
- b. Door operator shall open and close both car and hoistway doors simultaneously. Inherent design and installation of door operating devices shall be such as to preclude possibility of any hoistway door panel being disengaged from operating devices under any condition of operation of cars. Doors shall open automatically when car has stopped at landing or when car is stopping at landing within the door zone. Car and hoistway doors shall close automatically after an adjustable predetermined time sufficient to allow passengers to enter and leave car. Before interlock circuit is established, hoistway door for landing shall lock and remain in closed position until car makes another stop at the landing.
- c. Doors shall operate smoothly and without slam in opening and closing directions and shall be cushioned in final movement in each direction of travel by regulated and adjustable electric power or other equally effective means. Hoistway doors shall be provided with door closers arranged to close open doors automatically if car for any reason leaves the door zone. In case of interruption or failure of electric power, mechanism shall permit manual opening from within car only when the car is within the door zone, as per Code. Door operator shall operate in conjunction with, incorporate in its design, or be equipped with interlocks or safety switches. It shall not be possible for the doors to open by power unless the elevator is within the leveling zone. The operating mechanism shall be arranged so that the car and hoistway doors can only be opened by hand within the car when the elevator is within the door zone, as per Code.
- d. Door restrictive devices shall be provided which meet all requirements of A17.1 – 2.13. If and only if the car is within the landing zone, when the electric power fails or is interrupted, the door operator shall permit the doors to be opened readily by hand from within the car.
- e. The door operation shall be integrated with car leveling system to prevent elevator movement before the doors close. The elevator shall maintain a self-leveling feature that will automatically bring the car to the floor landing. This self-leveling shall, within its zone, be entirely automatic and independent of the operating devices and shall correct for over travel or under travel. The car shall also be maintained approximately level (within + or - 1/8") with the landing irrespective of the load.

2.10.2 DOOR SAFETY DEVICES: **Install new** door protection system using 40 microprocessor controlled infra-red light beams, calibrated or adjusted to meet the following requirements. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed the doors shall immediately reopen. The door shall automatically open when the car arrives at the landing and shall automatically close after an adjustable time interval or when the car is dispatched to another landing. Closing may be initiated instantaneously by registration of a car call, operation of load weighing device or signal from the service demand integrator.

If the electronic detector is activated when the doors are closing and the doors are more than one-third closed, they shall reverse direction and open only partially. The doors shall begin to reclose when the electronic detector is deactivated. The doors shall re open fully if the electronic detector is activated longer than a fixed interval.

If a passenger or object is detected during normal closing operation, the doors will immediately stop and reopen. Closing will be initiated one-half second after the passenger or object has been removed from the opening.

The doors will remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door movement is obstructed longer than a field programmable time value, a buzzer will sound and the doors will close at a reduced speed (go into nudging speed). If the infra-red door protection system detects a person or object when closing, the doors will stop and resume closing when the obstruction has been removed.

The current door "HOLD OPEN" time shall be changed to a shorter field programmable time when the door protection system is activated. The microprocessor control system shall provide separate timers for car call door "DOOR OPEN" time and hall call "DOOR OPEN" time. The door hold open times shall be field programmable.

2.10.3 DOOR CLUTCH, LINKAGE ARMS, and DRIVE BLOCKS AND CAMS: Elevator Contractor shall furnish and install heavy duty clutches, linkage arms, drive blocks, pickup rollers and cams to provide positive, smooth, quiet door operation. Design clutches so car doors can be closed for maintenance purposes while hoistway doors remain open.

2.10.4 DOOR TIMING DEVICE: Provide a timing arrangement for door operation which is adjustable to conform with various types of traffic in and out of the elevator. Include the following requirements.

- a. NORMAL OPERATION: When an elevator stops in response to a landing call, the door open time shall be lengthened sufficiently to give the first waiting passenger time to reach the opening before the door closes. Door open time shall then be reduced to accommodate all subsequent passengers. When an elevator stops in response to a car call, the doors shall start to close immediately after the first passenger or a stream of passengers has left the car. The device shall distinguish between a heavily loaded and a lightly loaded car by keeping doors open longer for heavy loads, to allow passengers in rear of the car time to leave.
- b. NUDGING OPERATION: Provide nudging operation so that if, for any reason, the doors are held open longer than a predetermined period, either by someone standing in the opening, holding the electronic door detector, or the door open button, the doors shall close at slow speed with the electronic detection system cut out and a buzzer shall operate. Should the door detector encounter a passenger during nudging, the doors shall stall and remain in the stalled position until released. When the obstruction is removed, the doors shall resume normal speed.

## 2.11 HOISTWAY DOORS, ENTRANCES, AND HOISTWAY DOOR ACCESSORIES:

2.11.1 HOISTWAY ENTRANCE DOORS: **Re use existing doors. The following items shall be provided for the hoistway doors.**

- a. Install two door jamb Braille plates per entrance.
- b. Guide the bottom of each panel with at least two nonmetallic gibs, sliding in a machined groove in the landing sill. Gibs shall be replaceable without removing doors from hanger rails. Provide door panels with stainless steel mop strips.
- c. Door restrictive devices shall be provided and installed which meet or exceed the requirements of ASME A17.1.

2.11.2 HOISTWAY DOOR HANGER SUPPORTS: ASME A17.1 – 2.11.11.2. **Existing may be re used.** Provide hangers for the car doors and hoistway doors which shall be suitably fastened to the door sections, which shall be provided with reinforcements at the point of attachment. The hanger shall have provisions for vertical and lateral adjustment.

- 2.11.3 HOISTWAY DOOR CLOSERS: ASME A17.1 – 2.11.3. **Provide New.** Provide spring or spirator closers to ensure positive closing of the hoistway doors
- 2.11.4 HOISTWAY DOOR INTERLOCKS: ASME A17.1 – 2.12: **Provide new interlocks and new wiring to the new interlocks.**
- 2.11.5 CAR DOOR ELECTRIC CONTACT: **Provide New.** Equip car doors with electric contact which prevents operation of the car until doors are closed as defined by ASME A17.1 unless the car is operating in the leveling zone or a hoistway access switch is used. Locate car door electric contact to prevent its being tampered with from inside of the car. Car door electric contact shall not be accepted unless it has successfully met the requirements of ASME A17.1 – 2.12.
- 2.11.6 HOISTWAY ENTRANCE SILLS: ASME A17.1 – 2.11.11.1, **Re Use Existing.** One piece cast or extruded aluminum, with grooved, non-slip surface, mill finish, extending from strut or strut. Securely fasten the entrance sill to floor or sill supports. No fastening screws shall be visible. Grout the sill solidly its full length after installation. Set sills flush an level wit finished floor surface at landings. Coordinate with other trades to facilitate and ensure proper grouting of sills.
- 2.11.7 HOISTWAY DOOR UNLOCKING DEVICE: ASME A17.1 – 2.12.6: **Provide at all landings.** Hoistway door unlocking devices as specified by ASME A17.1 Code shall be provided to permit authorized persons to gain access to the hoistway when the elevator car is away from the landing.

HOISTWAY ACCESS SWITCHES. Shall conform to ASME A17.1 - 2.12.7 Hoistway Access Switches shall be provided at the lowest landing for access to the pit, when a separate pit access door is not provided; and the top landing for access to the top of the car. Elevator Contractor shall provide the hoistway access switches at the top and lower landings.

- 2.11.8 HOISTWAY ENTRANCE FRAMES: ASME A17.1 – 2.11.11.3. **Existing may be re used.**
- a. ALIGNMENT: Elevator Contractor shall check the installation of elevator guide rails for accurate alignment of entrances with cars.
  - b. HOISTWAY ENTRANCE DESIGNATIONS: Elevator Contractor shall provide and install new Identification Plates as follows: Each hoistway entrance shall have a raised and Braille floor designation provided on both jambs. Mount such that center lines of characters, shall be 60 inches above the finished floor. Characters shall be 2 inches high and shall comply fully with Section 4.30.4 of the Americans With Disabilities Act legislation.
- 2.11.9 STRUT ANGLES: **Existing may be re used:**
- 2.11.10 COVERS: **Existing may be re used as follows:** Elevator Contractor shall provide hanger covers, dust covers, toe guards, and fascia plates shall be a minimum of 16 gauge reinforced galvanized steel, and finished with one prime coat and one field coat of approved paint.
1. Hoistway Entrance Support Hanger Covers: Provide full length entrance door hanger covers constructed to permit ready access for servicing the door hangers. The cover shall be removable in three or more sections. Fasten the dust cover to the door hanger housing and building construction.
  2. Hoistway Entrance Fascia: ASME A17.1 – 2.11.11.3. Fascias shall be provided between each door hanger housing and the sill above.
  3. Toe Guards: Toe guards shall be securely fastened to the sills.

**2.12 OPERATING AND CONTROL SYSTEMS:**

2.12.1 **NON-PROPRIETARY CONTROL:** The system shall be a vector controlled pulse-width modulated A.C. drive interfaced for geared traction elevator operation. All circuitry shall be of the digital microprocessor based type. The variable voltage variable frequency drive shall convert/invert rectifying the AC power supply using a two-step process to a variable voltage variable frequency power supply for use by the hoist motor. The speed control shall be by means of vector control providing independent excitation and torque current. A digital velocity encoder shall be provided on the motor giving feedback to the controller on motor speed and position.

2.12.2 **OPERATION – SIMPLEX SINGLE CAR GROUP CONTROL:** Simplex Car Group Automatic Operation. A microprocessor-based controller shall be used to perform all functions of safe elevator motion and elevator door control, including hardware required to connect, transfer and interrupt power, and protect the motor against overloading. The system shall also perform car operational control. Operation shall be automatic by means of the car and hall buttons. Each controller cabinet containing memory equipment shall be shielded from line pollution.

- a. The Group Operating System shall analyze building traffic conditioning including, but not limited to, hall call demand, number of assigned hall calls, number of cars in operations, number of car calls, number of car stops, car position, car directions, anticipated direction of car travel, car loading, car status, car motion status, car door status, call waiting time, door opening time, door closing time, coincidence calls and estimated time of car arrival.
- b. The Group Operating System shall evaluate real-time data and select the best car to serve any given hall call demand. The assignment of car calls, by the Group Operating System, shall provide for efficient handling of varying traffic demands in terms of passenger waiting time and passenger transit time.
- c. The brake supply shall be capable of providing at least four independently adjustable values of output voltage in order to provide smooth lifting, holding and re-leveling. These values shall be adjusted via computer parameters which control a solid-state brake supply. Adjustment of resistors values is not acceptable.
- d. All power feed to the brakes shall be opened by an electromechanical switch. A single ground, short circuit or solid-state control failure shall not prevent the application of the brake. The control system shall include circuitry to detect insufficient brake current. This failure shall cause the elevator to be removed from service at the next stop and remain out of service until the condition is corrected.
- e. Protection: The motor control unit shall have the following features:
  - 1. Protection of the power semiconductors (SCR) from failure under short circuit or current surges conditions.
  - 2. Protection against ground faults.
  - 3. Electronic protection of the hoist motor against sustained overload.
  - 4. Electronic protection against over-speed.
  - 5. Protection against transients.
  - 6. Provide fans to dissipate the heat generated by the SCR's.
  - 7. Provide an appropriate resistive braking module to absorb the regenerative power during overhaul.
- f. Filter: Provide a 3-phase capacitive filter to reduce Electro Magnetic Interference (EMI).
- g. A drive isolation transformer shall be provided as part of the control system to further reduce power line distortion and line notching. This transformer shall be matched to the characteristics of the VVVF drive and to the elevator hoist motor.

2.12.3 **NON-PROPRIETARY MICROPROCESSOR CONTROL SYSTEM:**

- a. Provide solid state components and printed circuit boards to control the hoisting machine and signal functions in accordance with these specification. Complete details of the components and printed circuit boards, together with a complete operational description, shall be submitted for approval.
- b. All controller assemblies shall provide efficient, smooth, step-less acceleration and deceleration of the elevator hoisting machine, automatically and irrespective of the load in the car. All

control equipment shall be enclosed in a metal cabinet with lockable, hinged, door(s) and shall be provided with a means of ventilation. All non-conducting metal parts in the machine room shall be grounded in accordance with the NEC. Cabinet shall be securely attached to the building structure.

- c. Field wiring changes required during construction shall be made only to the mounting rack connection points and not to the individual module circuitry or components. If it becomes necessary to alter individual modules, they shall be returned to the factory where such design changes shall be made and module design records changes so that correct replacement units shall be made available.
- d. Solid state components shall be designed to operate within a temperature range of 0 degrees and 110 degrees F. No temperature controller or air-conditioned rooms shall be required for proper operation of solid state components.
- e. Microprocessor Related Hardware:
  - 1. Include built-in noise suppression devices which provide a high level of noise immunity on all solid state hardware and devices.
  - 2. Provide power supplies with noise suppression devices.
  - 3. Isolate inputs and outputs from external devices (such as pushbuttons with opto-isolation modules). All control Opto-isolation modules and fuses shall be plug-ins.
  - 4. Provide separate regulated power supply for each computer chassis.
  - 5. Design control circuits so one side of power supply is grounded to provide for testing.
  - 6. Under no circumstances, shall the safety circuits be affected by accidental grounding of any part of the system.
  - 7. Design system so that it will start properly when power is restored in the event of a power failure interruption.
  - 8. Provide non-volatile system memory so that data is retained in the event of power failure or disturbance.
- p. Provide UL or CSA recognized power supplies with short circuit protection.
- q. Use stable capacitor or crystals as the time basis for electronic time delay devices.
- r. Permanently mark components (relay, DC boards, etc.) with symbols shown on Drawings.
- s. The following information relating to the specific type or microprocessor controls installed on this project shall be provided at the time of submittal:
  - 1. Owner's information manual, containing general data on major components, maintenance and adjustments.
  - 2. System logic description.
  - 3. Complete wiring diagrams needed for field trouble shooting, adjustments, repair and/or replacement of components. Diagrams shall be base diagrams.
  - 4. Provide on board diagnostics with total elevator diagnostic system in the controller panel.
  - 5. One keyboard shall be provided or built in with the diagnostic.
  - 6. Password or Code to access control equipment.

2.12.4 SUPERVISORY OPERATION: The elevator control system shall be microprocessor based and software oriented. The system shall operate in real time, continuously analyzing the car's changing position, condition, and workload. The microprocessor shall constantly scan the system for hall calls. When hall calls are registered, the control system shall instantly calculate the estimated time of arrival for the car to each assigned hall call. The following factors shall be used in calculating the estimated time of arrival: number of floors to travel from the current position, the time it takes to travel one floor at top speed, calls assigned to the car, and car reversal time to respond to a call in the opposite direction of travel.

An internal constant shall be set, requiring a maximum time for a car to respond to a call. When a car's status changes or additional hall calls are registered, the estimated time of arrival shall be recalculated and calls reassigned if necessary.

- 2.12.5 **TRAFFIC PATTERN:** The microprocessor shall provide flexibility to meet well defined patterns of traffic such as up peak, down peak, and heavy inter-floor demands and still adjust for the many indeterminate variations in these patterns which occur in buildings.
- 2.12.6 **POSITION SELECTOR:** The position selector shall be part of the microprocessor system. The composition in the hoistway shall be digitized through a primary position encoder. The microprocessor control system shall store the floor position and slowdown points in memory.
- 2.12.7 **MOTION CONTROL:** The drive control system shall be a dual-loop feedback system based primarily on car position. The velocity profile shall be calculated by the microprocessor control system producing extremely smooth and accurate stops. The velocity encoder shall permit continuous comparison of machine speed to velocity profile and to actual car speed. This accurate position/velocity feedback shall permit a fast and accurate control of acceleration and retardation.
- 2.12.8 **MICROPROCESSOR CONTROL SYSTEM REPAIR REQUIREMENTS:**  
For repair of microprocessor control system, provide maintenance tools, supporting computer software, and software documentation for complete maintenance of elevator system including diagnostics, fault interpretations, and adjustments. Tools may be hand held or built into control system. Do not use tools which require recharging. Do not use software which requires reprogramming. Tools and software may be factory programmed to operate only with this project's identification serial number.
- 2.12.9 **ASCENDING CAR OVER-SPEED AND UN-CONTROLLED MOVEMENT AND PROTECTION:** Shall be provided to prevent to prevent the car from striking the hoist-way overhead structure in accordance to ASME A17.1 -2013, Section 2.19.

**2.13 CAR STATION PANELS: Provide New.** The car station shall contain the following required devices.

- a. Single car operating panel with faceplates, consisting of a metal box containing vandal resistant operating fixtures, mounted behind the car swing front return panels. Faceplate shall be hinged and constructed of stainless steel, satin finish.
- b. Suitably identify floor buttons, alarm button, door open button, door close button and emergency push-to-call button with SCS, Vision mark, or Entrada cast tactile symbols recessed flush mounted. Configure plates per local building code accessibility standards including Braille. Locate operating controls no higher than 48" above the car floor; no lower than 35" for emergency push-to-call button and alarm button.
- c. Provide minimum 3/4" diameter raised or flush floor pushbuttons which illuminate to indicate call registration. Include 5/8" high floor designation on face of pushbutton. A key switch shall be provide for each car call button. An Automatic operation switch shall be installed at the first landing security Control Room that may be keyed for the car to automatically use the car station call buttons or a manual key over ride switch that will allow the car station call buttons to be activated by the key switch only.
- d. Provide alarm button to ring bell located on car, and sound distress signal at control panel. Illuminate button when actuated.
- e. Provide keyed stop switch at bottom of car operating panel faceplate in locked car service compartment. Arrange switch to sound main control panel distress signal when actuated. Mark device to indicate "run" and "stop" positions.
- f. Provide "door open" button to stop and reopen doors or hold doors in open position.
- g. Provide "door close" button to activate door close cycle. Cycle shall not begin until normal door dwell time for a car or hall call has expired, except firefighters' operation.
- h. Provide firefighters' Phase II key switch with engraved instructions filled red. Include light jewel,

audible signal, and call cancel button.

- i. Provide lockable service compartment with recessed flush door. Door material and finish shall match car return panel or car operating panel faceplate. Inside surface of door shall contain an integral flush window for displaying the elevator operating permit.
- j. Include the following controls in lockable service cabinet with function and operating positions identified by permanent signage or engraved legend:
  1. Inspection switch.
  2. Light switch.
  3. Three-position exhaust blower switch.
  4. Independent service switch.
  5. Constant pressure test button for battery pack emergency lighting.
  6. 120-volt, AC, GFCI protected electrical convenience outlet.
  7. Stop switch
  8. Provide black paint filled (except as noted), engraved, or approved etched signage as follows with approved size and font:
  9. Phase II firefighters' operating instructions on main operating panel above corresponding key-switch filled red.
  10. Car number on main car operating panel.
  11. "Certificate of Inspection on File in Building Office" on main car operating panel
  12. "No Smoking" on main car operating panel.
  13. Car capacity in pounds on main car operating panel.

**2.14 CAR POSITION INDICATOR:** Provide an electronic Dot Matrix car position indicator. As the car travels, its position in the hoistway shall be indicated by the illumination of the Alpha/Numeric characters corresponding to the landing which the elevator is stopped or passing. The new position indicator shall permit reading of numerals without glare from any point in the car during normal operations. Numerals shall be a minimum of 25.4 mm high. The position indicator shall be mounted in a module matching the control panels for optimum viewing.

**2.15 CAR RIDING DIRECTIONAL LANTERN AND AUDIBLE SIGNALS:** Lanterns shall be designed in accordance with ADA requirements and be provided in each car entrance column and shall be the manufacturer's standard vandal resistant design.

- a. Lanterns shall signal the approach of a stopping car when the car is a predetermined distance from the landing.
- b. Direction lanterns in car entrance column shall include an audible signal which shall sound coincident with lantern illumination indicator.
- c. Audible Signals incorporated into the elevator control annunciation system shall "Gong" once for the up direction and twice for the down direction of travel of each elevator car.
- d. A second audible signal, having a sound of other than the "Gong" type, shall also be incorporated, and shall sound once each time the car passes or stops at any landing.

**2.16 DESIGNATIONS FOR ENTRANCES: Re Use Existing.** Raised stainless steel symbols as required by ADA and CODE, of color selected by ARCHITECT, shall be provided at each floor to indicate the floor location. Symbols shall be attached with concealed fasteners. Symbols shall be located so as to be seen from the open elevator door.

**2.17 FACE PLATES: Provide new.** Face plates for all elevator operating and signal devices shall be fabricated from not less than 1/8 inch thick flat stainless steel No. 4 satin finish, with all edges beveled at least 15 degrees.

- a. All face plates shall be installed flush with surface upon which they are mounted.
- b. Corridor push-button face plates shall be at least 2-1/2 inches wide by 8 inches high. The

- center line of the corridor push button fixture shall be 42 inches above the corridor floor
- c. Fasten all car and corridor operating device and signal device face plates with non-corrosive white metal spanner head or Bristol head tamper proof screws.
  - d. Car and corridor push-button face plates shall be designed so that pressure on push buttons shall be independent of pressure on push button contacts.
  - e. Engraved legends or raised numerals in face plates shall have lettering 1/4 inch high filled with black paint.
  - f. Engrave safety message "IN CASE OF FIRE USE STAIRWAY FOR EXIT. DO NOT USE ELEVATOR" or provide similar message on plaque.
  - g. Each face plate shall include raised or cast tactile letters or symbols per ADA Handicapped requirements, including Grade 2 Braille.
  - h. Engraving's shall be "Black" filled, with the exception of firefighters' service identification, which shall be "Red" filled.

**2.18 OPERATING DEVICES AT HOISTWAY LANDINGS: Provide new.**

Locate landing call buttons so that the horizontal center line between the buttons is 42 inches above the floor. The landing call register buttons shall be metal encased, stainless steel, vandal resistant type, and embossed to permit illumination when a call is registered and shall extinguish when that call is answered. Buttons shall be 3/4 - inch in the smallest dimension, designed to seat on the face plate in lieu of the button mechanism, and with 1/32-inch operating clearance. Buttons shall have maximum protrusion of 3/16 - inch beyond the face plate, with beveled edges to prevent damage from side blows. Provide mechanically fastened Braille symbols directly to the left of call buttons. Objects mounted beneath landing call buttons shall not project in the elevator landing more than 4 inches. The buttons shall be illuminated to indicate that a call has been registered at that floor for the indicated direction.

Security Control Room at the first floor shall have a call button that will call the car to the first floor. In addition the Elevator Contractor shall install an automatic operation switch for the car station panel car calls or to place the car on MANUAL KEYED car call button operation. Switch shall be located in the first floor Security Office Control Room.

**2.19 CAR TOP INSPECTION STATION: Provide new.**

- a. The device shall conform to the CODE and the following:
- b. The device shall be activated by a toggle switch mounted in the device. The switch shall have the "Automatic" and "Inspection" positions permanently marked on the face plate with 1/4 inch letters.
- c. Movement of the elevator shall be accomplished by the continuous pressure on a direction button and a safety button.
- d. Provide an emergency stop toggle type switch as per CODE.
- e. Provide permanent identifications for the operation of all components in the device.
- f. The device shall be permanently attached to the elevator cross head on the side of the elevator which is nearest to the hoistway doors.

**2.20 ELECTRICAL PROTECTIVE DEVICES:** Equip Elevators with electrical protective devices as required by ASME A17.1, - 2.26.2. A buzzer shall activate, and protective timing circuitry shall be bypassed, in event of failure of the infra-red light beams, or if beams are interrupted by smoke or other means. Provide system by pass to permit normal operation of unaffected systems. Provide individual cut out switches located in the car station. Timing functions shall be programmable or shall be controlled by adjustable timing devices.

**2.20.1 TERMINAL STOP:**

- a. Mount normal terminal stopping switch on car or in hoistway as required by ASME A17.1 – 2.25.2. Switches shall bring car to a stop within 2 inches of the terminal floor with any load up to and including the rated load in the car.
- b. Switch, when opened, shall permit operation of car in reverse direction.
- c. No normal stopping device other than one mounted on car and activated by cams in hoistway, or mounted in hoistway and activated by movement of the car, shall be permitted.
- d. ASME A17.1 – 2.25.3: Final stopping switches shall be independent of other stopping devices and shall, when opened, remove electric power automatically from the elevator driving-machine motor and brake after the car has passed the terminal landing. The operation of the final terminal stopping devices shall be designed to prevent operation of car by normal operating devices in either direction of travel.

**2.20.2 OVER LOAD CURRENT PROTECTION:** Provide equipment with overload current protective devices, one for each pole. Phase protection relay shall also be provided. Provide three phase **VOLTAGE MONITOR** to protect against Phase Loss, Phase Reversal, Unbalanced Voltages, Short Cycling, Low Voltages and High Voltages.

**2.21 CAR AND COUNTERWEIGHT GUIDE RAILS: Re use existing.**

**2.22 CAR AND COUNTERWEIGHT ROLLER GUIDES: Provide new roller guides as follows:** Spring or rubber backed roller guides with manufacturer's standard sizes for car and counterweight. Each guide shall consist of rollers on a metal case. The rollers shall run on the three finished guide rail surfaces. Tires shall be neoprene or polyurethane.

**2.23 WORKMAN'S LIGHT AND OUTLETS:** Provide duplex 3-wire grounded type receptacles, light switch and lamp with wire guards on top of elevator car, beneath platform and the elevator pit area. Switches in car operating panel shall separately control light fixtures in car and lights on top and bottom of car. Pit light switch and receptacle shall be provided in accordance with CODE - 2.2.5. Receptacles shall be 2-pole, 3-wire grounded type rated for 15 amperes and 125 volt.

**2.24 TRAVELING, HOISTING & GOVERNOR CABLES, AND CABLE EQUALIZERS:**

**2.24.1 TRAVELING CABLES:** Provide new travel cables that shall be capable of bending 360 degrees with an inside radius of one foot without any permanent set and without cracking of the outer covering. The open loop shall show no tendency to twist upon itself. Abrupt bending or twisting producing distortion of cable shall not be allowed. Outer covering must remain intact between junction boxes or to controller. Suspend traveling cables with nonmetallic fillers by looping cables around supports. Traveling cables shall include telephone cabling. Cables shall be free from any possible contact with hoistway structure, car, or other equipment. Install shields and pads necessary to prevent chafing and to protect the cables. The loop in the traveling cables shall be not less than 2 feet unless otherwise approved. Each traveling cable conductor shall have a distinctive color-coded outer covering for identification. Traveling Cables: Flame and moisture-resistant outer cover. Provide two (2) RG-6/U coaxial CCTV cables within traveling cable from car controller to car top, plus 5'-0" excess loop at both ends. Provide two (2) pair 14 gauge wire for CCTV power.

- a. Traveling cables from junction box on car to junction box in hoistway or directly to controller shall consist of flexible traveling cables conforming with requirements of NEC (NFPA 70). Junction boxes in hoistway and on car shall be equipped with terminal blocks. All connections to terminal blocks shall be made with either terminal eyelet connections or pressure wire connectors of the clamp type that meet UL 486A requirements for stranded wire. Terminal blocks shall have permanent indelible identifying numbers for each connection.
- b. Provide 10 percent, but not less than 2, spare conductors in each traveling cable. Tag spares so they can be identified.
- c. Provide separate traveling cables for car lighting and control circuits.
- d. Provide two sets of shielded coaxial conductors in the traveling cable in addition to those wires specified for the two way communication device in the elevator car or supply a separate cable for the two way communication device. Cable shall extend from junction box in hoist way or controller to two way communication device in the car.
- e. Conductors for alarm and emergency stop shall not be in the same traveling cable.
- f. Provide two sets of conductors for car lighting and ventilation in separate traveling cables.

2.24.2 **HOIST ROPES AND GOVERNOR ROPES:** ASME A17.1 – 2.20 and 2.18.5 respectively. **Provide new.** Construct ropes of flexible traction steel with lubricated fiber core. Ropes shall be free of kinks and displaced or broken wires. Strand construction as per manufacturer's recommendations. In lieu of governor ropes and hoist ropes manufacturer may use devices designed for elevators.

## **2.25 EMERGENCY OPERATION AND SIGNALING:**

2.25.1 **TWO-WAY COMMUNICATIONS:** Provide vandal resistant speaker INTERCOM meeting requirements of "Adams County Board of Supervisors" SECURITY system. Install in the car station behind a perforated grille and connected to the INTERCOM SYSTEM IN THE FIRST FLOOR SECURITY CONTROL ROOM. Provide "Push to Call," two-way communication INTERCOM SYSTEM approved by the Project Administrator.

2.25.2 **FIRE SERVICE FOR ALL ELEVATORS: PHASE I & II OPERATION:** Provide elevator controls that shall meet all requirements of the latest edition of A17.1 – 2.27.3 for firefighters' service. Emergency operation to return the elevator to the designated primary landing at the 1st floor by means of a key operated switch in the Security Control Room at the first floor. The designated alternate floor shall be the Basement floor. Fixtures for the key switches to initiate Special Emergency Service shall be furnished.

### **2.25.4 EXTERNAL WIRING TERMINAL JUNCTION BOX WITH WIRING TERMINAL STRIPS**

The Elevator Contractor shall provide a junction box with internal wiring strips for other Contractors to bring their wiring and hook up to the clearly identified terminals for the intercom system, smoke detectors to activate Phase I, Closed Circuit TV, emergency power pre-warn leads, telephone wiring, 110 volt input for the exhaust fan and car lighting, Security Scanner and Reader wiring terminals and any other required systems. The Elevator Contractor shall furnish the Junction box (es) and clearly identified terminal strips and the wiring from the elevator controller to the external terminal strips for the other Contractors to hook up their systems and/or devices to the elevator controls without entering into the Elevator Contractor's Controller Unit.

**2.26 KEYS:** Elevator Contractor shall provide to Project Administrator (05) five sets of all keys pertaining to the operation of the elevators. The keys shall include firefighter service, independent service, stop switch, inspection, hoistway access, fan, lighting, and any other key for the elevators and control panels. \

- 2.27 BUFFERS:** ASME A17.1 – 2.22.4. Car and counterweight buffers may be re used.
- 2.28 PIT STOP SWITCH:** ASME A17.1 – 2.2.6 Provide an enclosed stop toggle switch in pit of each elevator that is readily accessible from access door to pit. Locate adjacent to pit access ladder at top rung. Toggle switch shall be manually opened and closed with red operating handle conspicuously and permanently marked "STOP" and "RUN". Switch shall be positively opened mechanically, and opening shall not be solely dependent on springs.
- 2.29 PIT LADDER:** ASME A17.1 – 2.2.6. Provide a safe and convenient access to each elevator pit that shall conform to the following:
- Provide a fixed vertical ladder of noncombustible material, located within reach of the access door. Ladder shall extend not less than 42 inches above the sill of access door.
  - The rungs shall be at least 12 inches wide.
  - Provide a clear distance of not less than 4-1/2 inches from the centerline of the rungs to the nearest permanent object in back of the ladder.

**PART 3. ELECTRICAL: ELEVATOR WIRING, JUNCTION BOXES, CONDUIT, COUPLINGS, FLEXIBL CONDUIT AND ELECTRICAL INSTALLATION.**

- 3.1.1 ELEVATOR WIRING:** Wiring shall be provided for all electrically operated items of elevator equipment and shall comply with the requirements of NFPA 70. The size wire permitted shall be No. 18 AWG for control and signal circuits and No. 12 AWG for power and lighting circuits. Work light fixtures and grounded duplex receptacles shall be provided on top and bottom of each car for 150 watt incandescent lamps. Fixtures shall have wire lamp guards and toggle switches. Work light fixtures and traveling cable junction boxes shall be so located that the work lights will provide illumination at the junction boxes.
- 3.1.2 NEW WIRING:** Except for short sections, wiring, excluding traveling cables, shall be in rigid conduit, EMT or duct. Short sections of wire which may require shifting to connect to switches and equipment may be installed in flexible conduit. Conduit or EMT shall terminate in junction boxes. Wires shall be identified and match symbols shown on the wiring diagrams. Control and signal wires shall be brought to accessible numbered terminal blocks on the controller. Intra - panel wiring shall be flame - resistant type.
- 3.1.3 ELECTRICAL INSTALLATION TO BE PROVIDED BY GENERAL CONTRACTOR:** Work described in this Section includes providing all labor, materials and equipment indicated, specified and necessary for a complete and operating electrical system and related systems.\
- Install systems in accordance with the manufacturer's recommendations, A17.1, A17.2, and NFPA **70**.
  - Provide from electrical source suitable connections from the power mains to the controller, signal equipment feeders as required, including necessary circuit breakers, shunt trip and fused main line disconnect switches.
  - Provide 110 volt wiring to the controller for car lighting and ventilation.
  - Heat and smoke sensing devices at elevator lobbies on each floor with electrical conductors terminating at a properly marked panel in the elevator control panel.
  - Telephone connection to the elevator controller.
  - Conduit and Flexible Conduit Installation as follows:
    - Install conduit concealed in all areas wherever possible. Surface metal raceway shall be run where impossible to conceal conduit. Run exposed raceway parallel or perpendicular to building lines.
    - For exposed runs, attach surface mounted conduit with clamps.
    - Coordinate installation of conduit in masonry work.
    - Install conduit free from dents and bruises. Plug ends to prevent entry of dirt or moisture.

5. Clean out conduit before installation of conductors.
6. Alter conduit routing to avoid structural obstructions minimizing crossovers.
7. Install UL approved expansion fittings complete with grounding jumpers where conduits cross building expansion joints. Provide bends or offsets in conduit adjacent to building expansion joints where conduit is installed above suspended ceilings.
8. Route all exposed conduits parallel or perpendicular to building lines.
9. Allow minimum of 6 inch clearance at steam and/or hot water pipes and other heat sources.

- 3.1.4 **CONTROLLER ROOM DISCONNECTS SWITCHES AND ELECTRICAL INSTALLATION:** General Contractor shall provide. The new controller equipment to be installed in the controller machine room shall be supplied through 600 -Volt, 60-Hertz, 3 phase feeder conductors that originate at the circuit breakers or switch gear of the building. These conductors shall terminate at the new fused disconnect switches in the elevator controller room. The new disconnect switches shall be located in elevator controller room in sight of the affected elevator controller. The disconnect switches shall be grounded in accordance with NFPA 70.

New feeder conductors shall be provided for each unit which will extend in overhead conduit between the secondary terminals of the fused disconnect switch and input terminals of the isolation transformers, (if needed), and the input terminals of the new integrated microprocessor controller shown for the elevator. Type and rating of fuses to be installed in the disconnect switch shall be as recommended by the elevator manufacturer. Type of insulation and the ampacity of the new feeder conductors, and size of the overhead conduit, between the fused disconnect switch and the isolation transformers, (if needed), shall be selected to meet the requirements of NFPA 70. The IMP units shall include equipment required for developing and protecting new power supplies that are required for the motors, and for the control, alarm, indication, and the operation of the elevator system.

3.1.5 **FUSES**

- a. Provide one (01) complete set of time delay fuses, Fusetron Type "FRN", Shawmut "Amp-trap" or equal, for all fuse holders.
- b. Size fuses at 125% of motor rating, and as shown on the Drawings.
- c. Furnish one complete spare set of fuses.

- 3.1.6 **EQUIPMENT SUPPORTS:** Rigidly support on Unistrut P-1000, Power strut PS-200, or equal, all electrical switches, panels, appurtenances, etc.

- 3.1.7 **METHOD OF WIRING:** Provide continuous conductors from outlet to outlet with no splices made except in outlet or junction boxes.

Color code all wiring as per National Electric Code.

Use solder-less connectors, Buchanan, Scotchlok, or equal for branch circuit wiring. Make splices for all Class II wiring in panel with terminal blocks.

- 3.1.8 **GROUNDING:** Ground in accordance with Article 250 of N.E.C. and as hereinafter specified. Provide grounding conductors of the sizes indicated on the drawings or as per N.E.C. Article 250.

3.1.9 **CONTROL, COMMUNICATION AND SIGNAL SYSTEM IDENTIFICATION:**

- a. Install a permanent wire marker on each wire at each termination.
- b. Identifying numbers and letters on the wire markers shall correspond to those on the wiring diagrams used for installing the systems.
- c. Wire markers shall retain their markings after cleaning

**PART 4. INSTRUCTIONS**

- 4.1.1 **INSTRUCTIONS: CONTRACTOR** shall furnish Maintenance and Operating manuals, verbal instructions, Preventive Maintenance and Inspection Schedules, Special Tools, Safety

Considerations, Repair Requirements, Parts List, Spare Parts Data, and As - Built Drawings for each piece of equipment furnished to the PROJECT ADMINISTRATOR.

- 4.1.2 **MANUALS:** Maintenance and operating manuals, three (3) copies each, for each separate piece of equipment shall be delivered to the PROJECT ADMINISTRATOR not less than 20 days prior to final inspection. Manuals shall be complete detailed guides for the maintenance and operation of the equipment. They shall include complete information necessary for check-out, starting, repair and replace components of the systems, adjusting, trouble shooting, diagnostic techniques, maintaining in continuous operation for long periods of time, dismantling and reassembling of the complete unit and sub-assembly components. Manuals shall include an index covering all component parts clearly cross - referenced to diagrams and illustrations. Illustrations shall include "exploded" views showing and identifying each separate item. Emphasis shall be placed on the use of special tools and instruments. The function of each piece of equipment and the reason for each precaution shall be clearly set forth. Manuals must reference the exact model, style and size of the piece of equipment and system being furnished. Manuals referencing equipment similar to but of different model, style, and size than that furnished will not be accepted.
- 4.1.3 **PREVENTATIVE MAINTENANCE AND INSPECTION SCHEDULE:** Procedures and instructions pertaining to frequency of preventive maintenance, inspection, adjustment, lubrication, and cleaning necessary to minimize corrective maintenance and repair shall be turned over to the PROJECT ADMINISTRATOR before final acceptance as follows:
- a. **PREVENTATIVE Maintenance Plan and Schedule:** Include manufacturer's schedule for routine preventive maintenance, inspections, tests and adjustments required to ensure proper and economical operation and to minimize corrective maintenance and repair. Provide manufacturer's projection of preventive maintenance man-hours on a daily, weekly, monthly, and annual basis.
  - b. **SPECIAL TOOLS:** List of special tools and test equipment required for maintenance, repair, installation, dismantling, and testing of the products supplied by the CONTRACTOR.
  - c. **LUBRICATION DATA:**
    1. Include lubrication data table showing recommended lubricants for specific temperature ranges and applications;
    2. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities; and
    3. A lubrication schedule showing service interval frequency.
  - d. **CORRECTIVE MAINTENANCE:** Include manufacturer's recommendations on procedures and instructions for correcting problems and making repairs.
  - e. **TROUBLE SHOOTING GUIDE AND DIAGNOSTIC TECHNIQUES:** Include step-by-step procedures to promptly isolate cause of typical malfunctions. Describe clearly why check-out is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be re used or requires replacement.
  - f. **WIRING DIAGRAMS AND CONTROL DIAGRAMS** shall be point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams number electrical and electronic wiring and the terminals for each type, identically to actual installation numbering.
  - g. **MAINTENANCE AND REPAIR PROCEDURES:** Include instruction and list tools required to restore product or equipment to proper condition or operating standards.
  - h. **REMOVAL OR REPLACEMENT INSTRUCTIONS:** Include step-by-step procedures and list required tools and supplies for removal, replacement, disassembly of components, assemblies,

sub-assemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Instructions shall include a combination of text and illustrations.

- i. **PARTS IDENTIFICATION:** Provide identification and coverage for all parts of each component, assembly, sub-assembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing shall show the index, reference, or key number which will cross-reference the illustrated part to the listed part. Parts shown in the listings shall be grouped by components, assemblies, and sub-assemblies.
- j. **SAFETY CONSIDERATIONS:** Information relating to load limits, speeds of operation, environmental criteria (temperature and pressure limitations), and personnel hazards and equipment safety precautions.
- k. **REPAIR REQUIREMENTS:** Instructions necessary to check-out, trouble shoot, repair, and replace components of the systems, including integrated electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting after acceptance of the system.
- l. **AS-BUILT DRAWINGS** that provide current factual information including deviations from, and amendments to the drawings and changes in the work, concealed and visible shall be submitted to the PROJECT ADMINISTRATOR.

## **PART 5 INSTALLATION AND FIELD QUALITY CONTROL:**

### **5.1.1 INSTALLATION**

- a. Install all equipment in accordance with Provider's instructions, referenced codes, specification, and approved submittals.
- b. Install control room equipment with clearances in accordance with referenced codes and specification.
- c. Install all equipment so it may be easily removed for maintenance and repair.
- d. Install all equipment for ease of maintenance.
- e. Install all equipment to afford maximum accessibility, safety, and continuity of operation.
- f. Remove oil, grease, scale, and other foreign matter from the following equipment and apply one coat of field-applied machinery enamel.
- g. All exposed equipment and metal work installed as part of this work which does not have architectural finish.
- h. Control room equipment, hoistway equipment including guide rails, guide rail brackets, and pit equipment.
- i. Neatly touch up damaged factory-painted surfaces with original paint color. Protect machine-finish surfaces against corrosion.

### **5.1.2 FIELD QUALITY CONTROL**

- a. Work at jobsite will be checked during course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.
- b. Have acceptance inspection performed and complete corrective work.

### **5.1.3 ADJUSTMENTS**

- a. Install rails plumb and aligns vertically with tolerance of 1/16" in 100'-0". Secure joints without gaps and file any irregularities to a smooth surface.

- b. Static balance car to equalize pressure of guide shoes on guide rails.
- c. Lubricate all equipment in accordance with Provider's instructions.
- d. Adjust motors, power conversion units, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks, and safety devices to achieve required performance levels.

5.1.4 CLEANUP

- a. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis.
- b. Remove all loose materials and filings resulting from work.
- c. Clean control room equipment and floor.
- d. Clean hoistways, car, car enclosure, entrances, operating, and signal fixtures.

**PART 6. FINAL INSPECTIONS AND TESTS**

**6.1 FINAL INSPECTION & TESTS:** Final inspections and tests shall be performed as follows:

6.1.1. TEST NOTIFICATION:

When the elevator work included in the contract is fully complete. Prior to scheduling final inspections and tests, a minimum 72 hours written notification, shall be given by CONTRACTOR to the PROJECT ADMINISTRATOR, that elevators are ready for final inspection and tests. The PROJECT ADMINISTRATOR shall notify **Elevator Technical Services, Mr. Bobby Jones, phone number (800) 755-8475, fax number (800) 735-3083, email address: ets023@aol.com** to schedule an Elevator Inspector under contract with the Adams County Board of Supervisors to coordinate the ACCEPTANCE inspections and tests with the CONTRACTOR. The CONTRACTOR shall be fully responsible to perform all tests and demonstrate the proper operation of all parts and provisions of the equipment.

CONTRACTOR shall prove to the satisfaction of PROJECT ADMINISTRATOR and the Elevator inspector that the elevator, as installed, complies with the requirements of this contract and all applicable requirements of ASME A17.1 - 2013.

6.1.2. INSPECTION PROCEDURE:

Perform acceptance inspections and tests in accordance with ASME A17.1 – 8.10.2. The inspection procedure outlined in ASME A17.2 - 2013 shall form a part of the final inspection.

6.1.3. DEMONSTRATION:

CONTRACTOR shall demonstrate that the performance of the elevator as specified has been provided.

6.1.4. TESTING MATERIALS AND INSTRUMENTS:

The CONTRACTOR shall furnish all test instruments, gauges and material required for final inspection. Include standard 50-pound test weights, an insulation "Megger" 600 volt, alternating current volt meter and ammeter, three (03) Celsius calibrated thermometers, spirit level, stop watch, and a direct reading tachometer.

6.1.5 DIAGNOSTIC TESTING DEVICE:

Diagnostic testing device or maintenance terminal suitable for all trouble shooting procedures related to the specific type microprocessor controls and drives installed on this project shall be provided. This diagnostic testing devices and/or maintenance terminals shall be demonstrated and tested during final testing of the elevator installation. A series of not less than ten simulated malfunctions shall be diagnosed properly by the device. A period of at least 2 hours shall be dedicated to the instruction of its use to the PROJECT ADMINISTRATOR.

1. After successful testing of the diagnostic device in conjunction with the microprocessor controls, the testing device(s) shall become the property of the "Adams County Board of Supervisors".
2. The diagnostic testing device(s) shall be equipment to be FULLY maintained by the ELEVATOR CONTRACTOR under contract with the "Adams County Board of Supervisors."
3. CONTRACTOR shall provide Password or Code to access control equipment and drives to the PROJECT ADMINISTRATOR.
4. The Elevator Contractor of this modernization project shall agree to reprogram, refresh, and upgrade any handheld diagnostic tool during the life of the elevator equipment as needed at no additional cost to the Owner, regardless of the Elevator Maintenance Contractor. The Adams County Board of Supervisors prefers built in diagnostic tools that do not expire or need periodic r refreshing.
5. The elevator control system can incorporate a built-in remote diagnostic module to relay the constant status of the elevator and control system to a 24 hours 7 days a week central monitoring facility. The remote monitoring device is capable of transmitting information on the current status of the elevator, including any malfunction, system error or shutdown.

6.1.6 FINAL INSPECTION:

In addition to any other tests, make the following tests at the time of the final inspection, as follows:

1. TEST PERIOD: Subject elevator to a test for a period of one hour continuous run, with specified rated load in the car. During the test run, the car shall be stopped at all floors in both directions of travel for a standing period of 5 seconds per floor. Provide a manual test of the final limits (up and down over travel). No component will be permitted to fail.
2. SPEED LOAD TEST: Determine the actual speed of the elevator car, in both directions of travel with the rated load and with no load in the elevator car. Make speed tests before the rated - load test run and also after the rated load test run. Determine speed by applying a tachometer. The actual measured speed of the elevator car with the rated load in the up and down direction shall be within 5 percent of the rated contract speed. The maximum difference in actual measured speeds obtained under the various conditions outlined shall not exceed 5 percent of the total difference between the "UP" and "DOWN" directions.

4. **CAR LEVELING TESTS:** Test elevator car leveling devices for accuracy of landing at all floors with no load in the car, symmetrical load in the car, and with the rated load in the car in both directions of travel. Determine accuracy of floor landing both before and after the rated full-load run test. Measure leveling tolerances, using a 1800 mm straightedge laid flat on higher of two surfaces, shall be plus or minus 1/8 inch under ever rated loading condition.
5. **INSULATION RESISTANCE TESTS:** Complete wiring systems of the elevator shall be free from short circuits and grounds. The insulation resistance shall be determined by use of a "Megger". Conductors shall have an insulation resistance of not less than one meg-ohm between each conductor and all other conductors.
6. **TEMPERATURE RISE TESTS:** Determine temperature rise of drive machine, drive motor and controller, during the full-load test run for a minimum of one hour. Under these conditions the temperature rise of the equipment shall not exceed 55 degrees C. above ambient temperature. Start the test only when all parts of the equipment are within 5 degrees C of the ambient temperature, at the time of starting the tests.
8. **RECORDS:** The CONTRACTOR shall provide on-site records of each inspection and test performed throughout the life of the contract.

6.1.7 **ACCEPTANCE REVIEW AND TESTS**

- a. Review procedure shall apply for the three car group of elevators completed, accepted, and placed into operation.
- b. Provider shall perform review and evaluation of all aspects of its work prior to requesting Consultant's final review. Work shall be considered ready for Consultant's final contract compliance review when all Provider's tests are complete and all elements of work or a designated portion thereof are in place and elevator or groups of elevators are deemed ready for service as intended.
- c. Furnish labor, materials, and equipment necessary for Consultant's review. Notify Consultant a minimum of five (5) working days in advance when ready for final review of elevators.
- d. Consultants' written list of observed deficiencies of materials, equipment, and operating systems will be submitted to Provider for corrective action. Consultant's review shall include as a minimum:
  1. Workmanship and equipment compliance with Contract Documents.
  2. Contract speed, capacity, floor-to-floor, and door performance comply with Contract Documents
  3. Performance of following is satisfactory:
    - a. Starting, accelerating, running
    - b. Decelerating, stopping accuracy
    - c. Door operation and closing force
    - d. Equipment noise levels
    - e. Signal fixture utility
    - f. Overall ride quality
    - g. Performance of door control devices
    - h. Operations of emergency two-way communication device
    - i. Operations of firefighters' service
4. Test Results:
  - a. In all test conditions obtain specified contract speed, performance times, and stopping accuracy without re-leveling, and ride quality to satisfaction of the Project Administrator and Consultant. Tests shall be conducted under both no load and full load condition.
  - b. Temperature rise in motor windings limited to 50° Celsius above ambient. A full- capacity one (1) hour running test, stopping at each floor for ten (10) seconds in up and down directions, may be required.

6.1.8 DEFECTIVE ELEVATOR WORK:

Operation or control system failures; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; the need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.

6.1.9 RE INSPECTION:

If any equipment is found to be damaged or defective, or if the performance of the elevator does not conform with the requirements of the contract specifications or the Elevator Safety Code, no certificate of approval shall be issued, until all defects have been corrected. When non-conforming items, parts, test failures, defects, repairs and adjustments have been completed and the discrepancies corrected, the PROJECT ADMINISTRATOR shall be notified and the elevator will be re inspected at the ELEVATOR CONTRACTOR'S expense. Do not use a rejected elevator until it has been re inspected and approved.

**-END of Modernization and Repair Specifications**

**THIS PROPOSAL WITH ALL ITS CONTENTS, INCLUDING  
THE FEE AND COST PROPOSAL IS HEREBY SIGNED BY AN  
AUTHORIZED REPRESENTATIVE OF**

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(Insert Name of Elevator Contractor)

---

(Address, City, State, Zip Code)

---

(Area Code & Phone Number, Fax Number, E-mail address)

---

(Mississippi Elevator Contractor's License Number)

---

(Federal Tax Identification Number)

**SIGNATUR OF PRPOSOR'S AUTHORIZED  
REPRESENTATIVE.**

---

(Signature of Elevator Contractor Officer)

**Date**

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(Print Name of Elevator Contractor Officer)