SECTION 01 1000

SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplemental Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of a full renovation of the 6 (six) existing elevators and the addition of a new car to an existing hoist-way shaft dedication for future car expansion and associated Structural and MEP Work.
   1. Project Location: The Montgomery County Sidney Kramer Up County RSC 12900 Middlebrook Lane
      Germantown, MD
   2. Owner: Montgomery County, Maryland.

B. Design Team Identification:
   1. Elevator Consultant: Robert L. Seymour & Associates, Inc., 182 Thomas Johnson Drive Ste 200, Frederick, MD 21702; (301) 662-8112.

C. The Work includes, but is not limited to, the following:
   1. ARCHITECTURAL:
      a. Fire safing, sealants, finish paint.
   2. ELECTRICAL
      a. Perform selective demolition of existing electrical conduits, wiring and equipment.
      b. Provide new lighting and receptacles in elevator pits.
      c. Replace existing disconnect switches for elevators replacement and provide new switch for new elevator, provide new feeders from the distribution panels.
      d. Disconnect existing elevator electrical motors. Reconnect new motors.
      e. Remove all existing controllers and provide new solid state controllers. Provide power to new controllers.
      f. Provide new transformer and 120/208V panel to feed new elevator cabs power and
      lighting and new HVAC systems.
      g. Provide new lighting and receptacles in elevator machine room.
      h. Connect new HVAC units located in the elevator machine room and associated outdoor unit.
   3. MECHANICAL

a. Furnish and install new split system heat pump.

4. ELEVATORS
   a. Replace pump units and piping
   b. Replace controls
   c. Replace buffers
   d. Replace corridor control stations & signals
   e. Replace car enclosure
   f. Replace door operator & protection system
   g. Replace car control station & signals
   h. Replace jack assemblies
   i. Refurbish car frame & platform
   j. Refinish hoistway entrance frames
   l. Replace hoistway door panels and hardware

D. The Project has been designated as one requiring "Special Inspections" by the Montgomery County Department of Permitting Services. The Contractor is required to abide by all requirements of the Special Inspections program including but not limited to: Reading and signing the Statement of Special Inspections in order to get the Building Permit, performance of its responsibilities concerning special inspections, testing and certifications per the Statement, and preparation and submittal of required documentation in order to obtain the Use and Occupancy Permit.

E. The project shall comply with Complex Structures Requirements'. The Contractor is required to abide by all requirements including, but not limited to: Reading and signing the Agreement in order to get the Building Permit, performance of its responsibilities concerning special inspections, testing and certifications per the Statement, and preparation and submittal of required documentation in order to obtain the Use and Occupancy Permit.

F. The Contract Documents showing the existing construction of the facility were developed from historic documents and from limited field observations by the consultant. Actual conditions may vary from those shown. Hidden conditions may be discovered over the course of the work. Further investigations may uncover conditions which may require remedial attention prior to proceeding with demolition or construction. Contractor shall be aware of the need to proceed with diligence and care and shall notify Engineer of conditions which do not reflect those indicated or which require further testing and repair prior to proceeding. Contractor shall correct conditions that are detrimental to timely and proper execution of the Work. Contractor shall not proceed until unsatisfactory conditions have been corrected. Commencement or continuation of work constitutes acceptance of conditions and responsibility for satisfactory performance.

1.3 CONTRACT

A. Work will be performed under a general construction contract.

1.4 CONTRACTOR SECURITY PROTOCOL

A. The following security protocols are to be observed at existing Building at all times upon substantial completion:

1. Contractor's Designated Escort: Designate foreman/supervisor personnel to function as the Contractor's Designated Escort. Designated Escort must be on the work site in the designated work area at all times when workers are present on site. Work will not be allowed to commence until he/she is present at the work site. Designated Escort must submit to and receive background clearance from Security Office at least three weeks prior to start of Work. Assign two back-up Designated Escorts to be permitted as substitutes only if the primary Designated Escort is unable to be on site due to absence. Back-up Designated Escorts must also submit to and receive background clearance from the Security Office at least three weeks prior to start of Work. Designated Escort must check in at Security Office every work day. Designated Escort is responsible for security and confidentiality of the Work Areas.
2. The Designated Escort will be the only member of the Contractor's team with access to keys within the building. The key will be checked out from the building manager's office on a daily basis. The Contractor must create a key check out form the includes the following: Name, Date, Company, Rooms where work will occur on that date, time room is opened, time room is locked, cell phone # and a certification that all rooms have been secured at the end of the work day. A copy of this form must be submitted and approved by the Security Office prior to beginning work. The form must be submitted every day the keys are checked out. The form must be logged throughout the day and signed by the Designated Escort when the keys are returned at the end of the work day. If the Contractor/Designated Escort fails to keep the proper logs or there are security issues or problems, key privileges will be revoked.
3. Employee Check-In: Each Contractor employee to be present on the work site must be checked in with Security Office each work day with government-issued identification to receive contractor security badge. The photo identification will be retained by the Security Office until the contractor security badge is returned. Submit name and date of birth of each employee to be working on the work site at least three weeks prior to start of Work. All contractor personnel working on a particular day must check in at the same time that day as the Designated Escort.

B. Pre-Construction Meeting: Approved primary and back-up Designated Escorts must attend pre- construction meeting at the Security Office to review security protocol and protections. Security Office will determine meeting time and location.

C. Employee Screening: Comply with Owner's requirements regarding drug and background screening of Contractor personnel working on the Project site.

1. Background screening to be performed for all Contractor personnel as required by Security Office. Provide a list of employees 2 weeks prior to the commencement of Work.
2. Maintain list of approved screened personnel with Owner's Representative.

1.5 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated on the Contract Documents and as permitted by law, ordinances and permits. Do not disturb portions of site beyond areas in which the Work is indicated.
   1. Limits: Confine construction operations to designated areas indicated on Drawings.
   2. Owner Occupancy: Allow for Owner occupancy of the existing building and use by the public.
   3. Access: At all times, provide Architect/Engineer and Owner easy and safe access to the Work.
   4. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
   5. Construction Parking: Contractor permitted to park in any legal location.

B. Site Access and Staging Area: Contractor may access site from public streets and may only use areas for temporary staging construction activities, as approved by the Owner. The Contractor will be required to coordinate its activities with the Owner. If needed, Contractor shall obtain and pay for additional storage or work areas needed for operations.

C. Interior Crane Use and Storage: If required, the Contractor will be allowed space to house the crane operations as designed by the Owner.

D. Contractor shall provide barriers, protections, warning lines, signs, lighting and personnel to segregate work areas from pedestrian or vehicular traffic and to prevent damage to the building, adjacent buildings, paved areas and surrounding landscaping. Contractor shall repair any damage incurred to existing facility elements resulting from construction activities as soon as possible after occurrence of damage. Contractor shall observe all applicable O.S.H.A., M.O.S.H. and Montgomery County Government (MCG) requirements, as well as, requirements for any additional Authorities Having Jurisdiction.
   1. Standard Working Hours: The standard permitted Working Hours shall be as indicated within the General Conditions for additional information.
      a. Working Hours for Noise Restrictive Work: Perform all noisy and disruptive Work on weekends only. Weekend work hours are Saturday and Sunday from 9:00 am to 3:00 pm only.
      b. The following requirements must be met for Work within the existing Building:
         1) The Building must be fully operation for each workday.
         2) Contractor shall cover and protect all equipment and furniture within work areas.
         3) Contractor shall secure and enclose the work area with floor-to-ceiling plywood partition in an effort to keep the public from entering

unsecured elevator shafts and shall provide dust containment at each enclosure.

4) Cleanup to be completed each day before the scheduled start of work for Building personnel.
5) Working hours including Noise Restrictions: Limit work in the existing building from 7:00 am to 4:00 pm Monday through Friday, exclusive of County holidays. See Division 00 Section "General Conditions" for additional information.
6) In addition to standard work hour restrictions, the Contractor shall comply with the Montgomery County Department of Environmental Protection's permissible noise levels for construction activities during the hours of 7:00 am to 9:00 pm, Monday through Friday, and 9:00 am to 3:00 pm on Saturday. Noise generated by construction activities beyond these hours is strictly prohibited.
7) Montgomery County holidays are as follows: Contractor shall assume that County holidays for subsequent years shall be similar:
    a) New Years Day
    b) Martin Luther King, Jr. Day
    c) President's Day
    d) Memorial Day
    e) Independence Day
    f) Labor Day
    g) Columbus Day
    h) Election Day
    i) Veterans Day
    j) Thanksgiving Day
    k) Day After Thanksgiving
    l) Christmas Day
    m) New Years Eve
8) Working hours outside of those listed above are not permitted without prior approval by the County.
9) Work may occur during normal business hours provided it down not cause disruption to the operations of the Headquarters. Work is not permitted in any occupied space during normal business hours. Hours are 6:00 a.m. to 5:00 p.m., Monday, Tuesday, Wednesday and Friday, 6:00 am to 8:00 pm., Thursdays, excluding Holidays. These times vary daily. The building manager will notify the Contractor daily when events at the building may result in an unscheduled shutdown of construction operations. Determination of disruptive work will be at the sole discretion of the County and includes any noticeable odors or any audible noise in any occupied space.
10) Noise generated by construction activities during normal business hours is strictly prohibited. This includes, but is not limited to, hammering, drilling, use of power tools, vibrations, powder actuators, fasteners, etc.

11) Welding, hot work, and core drilling are prohibited during normal working hours. Contractor shall conform with all COR and NFPA requirements for welding inside occupied building.

E. Phasing: Refer to Section 01 1150 Construction Phasing Requirements and drawings for requirements.

F. Safety: Refer to Section 01 3523 for Contractor's Safety Requirements.

G. Utility Shutdowns: Obtain written approval from the Owner for any required shutdown or outage of any utility. Schedule any outages to minimize impact on existing operations. Comply with all applicable codes and ordinances.

H. Keep project site clean. Remove trash daily.

I. Nonsmoking site and building: Smoking is not permitted within the project site boundaries, within the existing building or within 25 feet of site/building entrances, existing operable windows, or existing outdoor air intakes.

J. Controlled Substances: Use of tobacco products and other controlled substances within the existing building and on the Project site is not permitted.

1.6 PERMITS

A. Refer to General Conditions for Owner-obtained and for Contractor-obtained permits.

1.7 TAXES

A. Refer to General Conditions PART 2 - PRODUCTS (Not Used) PART 3 -

EXECUTION (Not Used)END OF SECTION

SECTION 01 1150

CONSTRUCTION PHASING REQUIREMENTS

PART 1 - GENERAL

A. Perform associated work as defined on drawings Building will remain occupied throughout construction.

B. Vehicular access to building parking areas to be maintained at all times throughout construction.

1.2 CONSTRUCTION PHASES

A. Required phasing will be one elevator at a time. Contractor to submit detailed phasing plan outlining means deemed most efficient by Contractor for completing Work. Deviations from the phasing described herein shall be submitted to the Owner and Engineer for approval.

B. Contractor shall submit preliminary phasing plan during bidding process.

1.3 BASE BID PHASING ANALYSIS

A. The following phasing (work sequence) is for the base bid.

B. Work Sequence One: Refurbish passenger elevator in Car 1 location. Perform associated work as defined on drawings

C. Work Sequence Two: Refurbish passenger elevator in Car 2 location. Perform associated work as defined on drawings.

1.4 SUBMITTALS

A. Submit a Phasing Plan within 15 calendar days after the date established for the commencement of the Contract.

1. Include all required work items, including installation, reconfiguration, and removal of temporary facilities.
2. Identify all out-of-phase work items, and procedures for protecting building occupants and maintaining unimpeded pedestrian and vehicular access.

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION (Not applicable)

END OF SECTION

SECTION 01 3523
CONTRACTOR'S SAFETY REQUIREMENTS

PART 1 - GENERAL

1.1 INTRODUCTION AND OBJECTIVES

A. The Contractor must ensure the safety of all persons at and adjacent to the Project Site, the Work, and other property at or adjacent to the Site. The Contractor also must ensure that all persons working on the Project Site are aware of the Contractor's responsibility in ensuring safe working conditions.

B. The Contractor is responsible for complying with all construction safety laws, regulations, codes and standards or any other laws governing safety matters including, but not limited to, Occupational Safety & Health Administration (OSHA), Maryland Occupational Safety and Health (MOSH), ANSI/ASSE, NFPA, NEC, AWS, and IEC regulations, and Manufacturer's Safety Instructions or Recommendations. The Contractor must take all prudent steps to ensure that the Contractor, and every Subcontractor or Sub-subcontractor, does not allow or require any worker employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health or safety.

C. The Contractor must be familiar with all current safety and health laws, regulations, codes and standards or any other laws pertaining to the Work and must follow and enforce such legal requirements. The Contractor must take all prudent steps to ensure that every Subcontractor or Sub-subcontractor is familiar with all current safety and health laws, regulations, codes and standards or any other laws pertaining to its portion of the Work and follows and enforces such legal requirements. The Contractor must keep at the Site at all times, and have available, copies of all relevant construction safety and health laws, regulations, codes and standards.

D. The Contractor must provide the safety training and direction required to handle the specific safety requirements particular to the Work. The Contractor must instruct its site personnel, and must ensure that every Subcontractor or Sub-subcontractor instructs its site personnel in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

1.2 SCOPE, RELATED DOCUMENTS, AND SAFETY LAWS

A. The Contractor's safety requirements include those requirements set forth in this section, and in the Contract Documents, as well as those requirements imposed by OSHA, MOSH, and all other applicable safety laws, regulations, codes and standards (collectively referred to as the "Contractor's Safety Requirements").

B. In the event of any conflict between this section and any safety laws, regulations, codes and standards including, but not limited to, OSHA and MOSH requirements, the stricter requirement shall apply. However, in all cases, the Contractor's full compliance with all applicable safety laws, regulations, codes and standards including, but not limited to, ANSI, OSHA and MOSH requirements is required.

C. The Contractor is responsible for initiating, maintaining, and supervising all safety precautions in connection with the performance of the Contract. Neither the Owner nor the Engineer have control over, or charge of, or are responsible for construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility as provided in the Contract Documents.

1.3 SPECIFIC CONTRACTOR SAFETY RESPONSIBILITIES

A. The Contractor must plan for the overall safety and health on the Project. As part of the planning process, the Contractor must develop a Project-specific Safety Plan to include Job Safety Analyses (JSAs) for all hazardous tasks. The Contractor must establish regular safety and health planning meetings with all Subcontractors and Sub-subcontractors for the purpose of coordinating Project activities. The Contractor must ensure that all persons at the Project Site are adequately trained and competent to carry out the work assigned to them. The Contractor must ensure that all persons at the Project Site are aware of any known hazards likely to occur in the course of the Work and to ensure that they are instructed in the safety procedures to be followed to avoid these hazards. All workers must receive a safety orientation (Reference ANSI/ASSE A10.1).

B. General Safety and Health Provisions (CFR 29 OSHA 1926.20)
   1. The Contractor must designate a Safety Supervisor (also known as a Safety Officer) with minimum 30 hours of OSHA construction outreach certified safety training. The Safety Supervisor must control and ensure safety on the project site, and maintain documentation of the safety program including all record keeping and reporting. The Safety Supervisor must also be trained on how to manage safety on the construction site including how to give a toolbox talk and how to respond to, investigate, and report an accident.
   2. The Project Site must be secured and protected. Only authorized personnel must be allowed on Site. The Contractor must ensure that the Site is kept clean and safe daily. All adjacent properties to the Project Site must be protected. All visitors to the Project Site must wear appropriate protective clothing including work boots, safety vests and hard hats.
   3. The Contractor must ensure that each employee of the Contractor or any Subcontractor or Sub-subcontractor at the Project Site is trained: in the recognition and avoidance of unsafe conditions, and regarding the regulations applicable to his/her work environment to control or eliminate any hazards or other exposure to illness or injury.
   4. The Contractor must post the name, telephone number, and address of the Safety Supervisor for the Site at prominent and visible locations.
   5. The Contractor must ensure that each employee of the Contractor or any

Subcontractor or Sub-subcontractor at the Project Site is trained to immediately notify the Safety Supervisor in the event of an emergency or unsafe site condition. In case of a critical injury or a fatality, the Safety Supervisor must immediately call 911 and then notify MOSH, the Owner's On-site Representative, and County Project Manager within one hour of the incident.

6. The Contractor must provide adequate containers for the collection and separation of waste, trash, oily rage, used rags, and other refuse. Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids, harmful dusts, etc. must be equipped with covers. Garbage and other waste must be disposed of at frequent and regular intervals.
7. The Contractor must be responsible for the removal of all waste from the Project Site.Waste must be collected in suitable containers. The Contractor must notify the Owner of any unanticipated hazardous wastes encountered at the Project Site; all hazardous wastes must be appropriately disposed of by the Contractor in accordance with all governing regulations including but not limited to Maryland Department of Environment (MDE) and Montgomery County Department of Environmental Protection (DEP) regulations.

C. Occupational Health and Environmental Controls (CFR 29 OSHA 1926.51)
1. The Contractor must ensure that plans are codified in the Project-specific Safety Plan, prior to commencement of the Project, for prompt medical attention in case of serious injury. If an infirmary, clinic, hospital, or physician is not reasonably accessible in terms of time and distance to the Site for the treatment of injured employees, the Contractor must ensure the Site presence of a person with a valid certificate in first-aid training from the American Red Cross, or equivalent training that can be verified by documentary evidence, to render first aid. First aid supplies must be easily accessible when required.
2. The Contractor must ensure that protection against excessive noise exposure is provided when the Site sound levels (continuous, intermittent and impulse) exceed 85 dBA and above. Where possible, noise must be controlled at the source through the use of engineering and administrative controls to minimize the need for personal protective equipment (Reference: ANSI/ASSE A10.46 Appendix 1).
3. The Contractor must ensure that site personnel are not exposed to inhalation, ingestion, skin absorption, or contact with any material or substance at a concentration above those specified in the current edition of "Threshold Limit Values of Airborne Contaminants" of the American Conference of Governmental Industrial Hygienists.
4. The Contractor must ensure that construction areas, ramps, runways, corridors, offices, shops, and storage areas are lighted to not less than the minimum illumination intensities listed in Table D-3 of Part D, CFR 29 OSHA 1926 for Construction while any work is InProgress.
5. The Contractor must ensure that, whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist or are produced in the course of the Work, their concentrations do not exceed the limits specified in the latest edition of ACGIH "Threshold Limit Values of Airborne Contaminants".
6. For compliance with the airborne toxin limits as described above; the Contractor must implement administrative or engineering controls first

whenever possible. (Part D, CFR 29 OSHA 1926.55(b)). If administrative or engineering controls cannot adequately reduce exposures, the Contractor must use respirators in compliance with a full respiratory protection program. The respiratory protection program administrator must be designated and is responsible for the implementation of the program. (29 CFR 1926.55(b) and .103 (referencing 1910.134)).

7. When ventilation is used as an engineering control method, the Contractor must install and operate the system according to the requirements of CFR 29 OSHA 1926 for Construction, mechanical codes, and any other applicable law, regulation, code or standard.
8. When local exhaust ventilation is used, the Contractor must design the ventilation to prevent dispersion into the air of dusts, fumes, mists, vapors, and gases in concentrations causing harmful exposure. Such exhaust systems must be so designed that dusts, fumes,

mists, vapors, or gases are not drawn through the work area of persons at the Project Site.

D. Personal Protective & Life Safety Equipment (CFR 29 OSHA 1926.95)
1. The Contractor must ensure that all persons at the Project Site wear appropriate clothing and personal protective equipment (PPE) for the type of work being performed. The Contractor must ensure all persons at the Project Site are trained in the appropriate wear, use and maintenance of their PPE. The Contractor must ensure that no alcoholic beverages, narcotics or other dangerous drugs are used or allowed on the Project Site and must ensure that no smoking is permitted in any building(s), including the building(s) under construction. The Contractor must post NO SMOKING signs at appropriate locations to enforce this requirement.
2. The Contractor must be provide, use, and maintain in a sanitary and reliable condition protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.
3. Where employees provide their own protective equipment, the Contractor must ensure its adequacy including proper maintenance, and sanitation of such equipment.

E. Fire Protection and Prevention (CFR 29 OSHA 1926.150)
1. The Contractor must develop a fire protection program to be followed throughout all phases of the Work. The Contractor must provide for firefighting equipment as required by any work hazard and, as any fire hazard occurs, there must be no delay in providing the necessary equipment. Access to all available firefighting equipment must be maintained at all times.
2. The Contractor must install electrical wiring and equipment for light, heat, or power purposes in compliance with the requirements of the Contract.
3. Internal combustion engine powered equipment must be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches

must be maintained between such piping and combustible material

4. The Contractor must ensure that appropriate fire prevention measures are taken while working at the Project Site. The Contractor must take all necessary precautions to prevent accidental activation of fire alarms. Combustible material must not be placed near heaters. Welding and cutting are only permitted within easy reach of a suitably rated and charged fire extinguisher. Care must be taken to prevent sparks from falling on combustible material, workers or others near the site. Smoking is prohibited in all buildings, including buildings under construction and portable site offices. The Contractor must ensure that matches and smoking materials are properly extinguished when smoking in designated areas.
5. Smoking must be prohibited at or in the vicinity of operations which constitute a fire hazard and must be conspicuously posted: "No Smoking or Open Flame."

F. Signs, Signals and Barricades (CFR 29 OSHA 1926.200)
1. Signs and symbols required by applicable safety laws, regulations, codes and standards must be visible at all times when work is being performed, and must be removed or covered promptly when the hazards no longer exist.
2. The Contractor must provide traffic control on the Site and its vicinity according to OSHA/MOSH requirements and the Contract Documents. All traffic control signs or devices used for protection of construction workers must conform to Part VI of the Manual of Uniform Traffic Control Devices (AMUTCD). For traffic control, Class 2 high visibility clothing must be worn on the Site, particularly for road work, Class 3 clothing must be worn at night. The Contractor must designate a safe parking location on or off the Site.

G. Materials Handling and Storage, Use and Disposal (CFR 29 OSHA 1926.250)

1. All materials stored in tiers must be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling or collapse. Maximum safe load limits of floors within buildings and structures, in pounds per square foot, must be conspicuously posted in all storage areas, except for floor or slab on grade. Maximum safe loads must not be exceeded. Aisles and passageways must be kept clear to provide for the free and safe movement of material handling equipment or employees. Such areas must be kept in good repair. Reference ANSI/ASSE A10.46
2. All materials, whether temporary or permanent, must be suitable for its intended use and must be stored and installed in strict conformance with the manufacturer's instructions. Material Safety Data Sheets (MSDS) must be available on site.
3. The Contractor must ensure that all equipment is in good working condition, properly maintained and certified if required by regulations. Only trained and certified personnel must be allowed to operate equipment.

H. Tools – Hand and Power (CFR 29 OSHA 1926.300)
1. The Contractor must ensure that all hand and power tools and similar equipment, whether furnished by the employer or the employee, are maintained in a safe condition.
2. When power operated tools are designed to accommodate guards, they must be

equipped with such guards when in use. Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating or moving parts of equipment must be guarded if such parts are exposed to contact by employees or otherwise create a hazard. Guarding must meet the requirements as set forth in American National Standards Institute B15.1-1953 (R1958), Safety Code for Mechanical Power-Transmission Apparatus.

I. Welding and Cutting (CFR 29 OSHA 1926.352)
   1. All welding, cutting activities, materials and equipment must conform to ANSI Z 49.1 Standard and MOSH and OSHA requirements
   2. The Contractor must ensure that their workers and employees use the required specialized personal protective equipment required when working with welding or cutting equipment. The Contractor must also ensure that welding curtains are used where possible to protect other persons and property near the Project Site from welding arcs and flash. Hot work permit(s) must be used and enforced.
   3. When practical, objects to be welded, cut, or heated must be moved to a designated safe location or, if the objects to be welded, cut, or heated cannot be readily moved, all movable fire hazards in the vicinity must be taken to a safe place, or otherwise protected. If the object to be welded, cut, or heated cannot be moved and if all the fire hazards cannot be removed, positive means must be taken to confine the heat, sparks, and slag, and to protect the immovable fire hazards from them.
   4. Suitable fire extinguishing equipment must be immediately available in the work area and must be maintained in a state of readiness for instant use.
   5. All combustible or flammable materials within 50 feet of the site which can neither be hosed down with water nor moved away from the area must be protected by a covering of non-combustible material at all times during the operations.

J. Electrical (CFR 29 OSHA 1926.402)
   1. All electrical activities, materials and equipment must conform to all safety requirements including but not limited to NEC, IEC, NFPA 101, MOSH and OSHA requirements.
      a. NOTE: If the electrical installation is made in accordance with the National
         Electrical Code ANSI/NFPA 70, exclusive of Formal Interpretations and Tentative Interim Amendments, it will be deemed to be in compliance with OSHA 1926 – for the purposes of this Specification Section only.
   2. Reference CFR 1926, Subparts V – Power Transmission and Distribution, CC – Cranes and Derrick in Construction, for requirement regarding possible contact with live circuits in equipment and overhead.

K. Scaffolds (CFR 29 OSHA 1926.451)
   1. The Contractor must ensure that each scaffold and scaffold component is capable of supporting, without failure, its own weight and at least 4 times the maximum intended load to be applied or transmitted to it.
   2. Direct connections to roofs and floors, and counterweights used to balance adjustable suspension scaffolds, must be capable of resisting at least 4 times the tipping moment imposed by the scaffold operating at the rated load of the hoist, or 1.5 (minimum) times the tipping moment imposed by the scaffold

operating at the stall load of the hoist, whichever is greater.

3. Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds must be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.
4. Aerial lifts must be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms," ANSI A92.2-current edition, including appendix. Aerial lifts include the following types of vehicle-mounted aerial devices used to elevate personnel to job-sites above ground: Extensible boom platforms; Aerial ladders; Articulating boom platforms; Vertical towers. Lift controls must be tested each day prior to use to determine that such controls are in safe working condition. Only authorized persons shall operate an aerial lift.
5. The Contractor must ensure that each employee who performs work while on a scaffold is trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training must include the following areas, as applicable: the nature of any electrical hazards, fall hazards and falling object hazards in the work area; the correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the fall protection systems and falling object protection systems being used; the proper use of the scaffold, and the proper handling of materials on the scaffold; the maximum intended load and the load-carrying capacities of the scaffolds used; and any other pertinent requirements.
6. The Contractor must ensure that each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold is trained by a competent person to recognize any hazards associated with the work in question.
7. When the Contractor has reason to believe that a person at the Project Site lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the contractor must require the training or retraining of each such employee so that the requisite proficiency is demonstrated. This training or retraining is required in at least the following situations: where changes at the worksite present a hazard about which an employee has not been previously trained; or where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained; or where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.
8. Mast climber platforms must be erected, used, and dismantled according to the manufacturer’s specification. Special care must be taken to ensure there is no corrosion of scaffold components. The Contractor must ensure that loading and balancing limitations are observed; that bases are adequately supported, and that anchorages are sufficient. The travel path must be free of obstructions. Full guardrail systems and adequate planking are maintained, and tie-offs during dismantling the platform are not removed prematurely.
9. All scaffolding systems including mast climber platforms must require a safety inspection and must be clearly tagged cleared for use by third party before they can be put into service.

L. Fall Protection (CFR 29 OSHA 1926.501)
   1. The Contractor must determine if the walking/working surfaces on which any

persons at the Site are to travel have the strength and structural integrity to support the persons safely. Any persons at the Site must be allowed on those surfaces only when the surfaces have the requisite strength and structural integrity.

2. Each person at the Site on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8 m) or more above a lower level must be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.
3. Guardrail systems and their use must comply with the following provisions: Top edge height of top rails, or equivalent guardrail system members, must be 42 inches plus or minus 3 inches above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other criteria of this paragraph. Note: When employees are using stilts, the top edge height of the top rail, or equivalent member, must be increased an amount equal to the height of the stilts.
4. Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall at least 21 inches high. Midrails, when used, must be installed at a height midway between the top edge of the guardrail system and the walking/working level. Screens and mesh, when used, must extend from the top rail to the walking/working level and along the entire opening between top rail supports.
5. Guardrail systems must be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge. When the 200 pound test load is applied in a downward direction, the top edge of the guardrail must not deflect to a height less than 39 inches above the walking/working level.
6. Midrails, screens, mesh, intermediate vertical members, solid panels, and equivalent structural members must be capable of withstanding, without failure, a force of at least 150 pounds applied in any downward or outward direction at any point along the midrail or other member. Guardrail systems must be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing. The ends of all top rails and midrails must not overhang the terminal posts, except where such overhang does not constitute a projection hazard.
7. The Contractor must ensure provide a training program for each employee who might be exposed to fall hazards. The program must enable each employee to recognize the hazards of falling and must train each employee in the procedures to be followed in order to minimize these hazards.

8. Where possible, site personnel must be protected from falls through use of guardrail systems. Personal fall arrest systems must be used only where guardrail systems are technically not possible. The use of personal fall arrest systems must comply with 29 CFR 1926.502(d).

M. Excavations (CFR 29 OSHA 1926.651)
1. All surface encumbrances that are located so as to create a hazard to site personnel must be removed or supported, as necessary, to safeguard employees.
2. The estimated location of utility installations, such as sewer, telephone, fuel,

electric, water lines, or any other underground installations that reasonably may be expected to be encountered during excavation work, must be determined prior to opening an excavation. When excavation operations approach the estimated location of underground installations, the exact location of the installations must be determined by safe and acceptable means. While the excavation is open, underground installations must be protected, supported or removed as necessary to safeguard employees.

3. A stairway, ladder, ramp or other safe means of egress must be located in trench excavations that are 4 feet or more in depth so as to require no more than 25 feet of lateral travel for employees.
4. Persons on the Site exposed to public vehicular traffic must be provided with, and must wear; warning vests or other suitable garments marked with or made of reflectorized or high-visibility material.
5. No person on the Site shall be permitted underneath loads handled by lifting or digging equipment. Persons must be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, to provide adequate protection for the operator during loading and unloading operations.
6. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, and the operator does not have a clear and direct view of the edge of the excavation, a warning system must be utilized such as barricades, hand or mechanical signals, or stop logs. If possible, the grade should be away from the excavation.
7. The Contractor must perform testing and controls to prevent exposure to harmful levels of atmospheric contaminants and to assure acceptable atmospheric conditions in accordance with the following requirements: Where oxygen deficiency (atmospheres containing less than 19.5 percent oxygen) or a hazardous atmosphere exists or could reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation must be tested before employees enter excavations greater than 4 feet in depth. Adequate precautions must be taken to prevent employee exposure to atmospheres containing less than 19.5 percent oxygen and other hazardous atmospheres. These precautions include providing proper respiratory protection or ventilation.
8. Each person in an excavation or trench must be protected from cave-ins by an adequate protective system designed with the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied or transmitted to the system.
9. The slopes and configurations of sloping and benching systems must be selected and constructed by the Contractor and supervised by a competent person.

N. Concrete and Masonry Construction (CFR 29 OSHA 1926.701)

1. No construction loads must be placed on a concrete structure or portion of a concrete structure unless the Contractor determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.
2. All protruding reinforcing steel, onto and into which Site persons could fall, must be guarded to eliminate the hazard of impalement.

3. No persons on the Site (except those essential to the post-tensioning operations) shall be permitted to be behind the jack during tensioning operations. Signs and barriers must be erected to limit personnel access to the post-tensioning area during tensioning operations.
4. No person shall be permitted to ride concrete buckets. No person shall be permitted to work under concrete buckets while buckets are being elevated or lowered into position. To the extent practical, elevated concrete buckets must be routed so that no person, or the fewest number of persons, is exposed to the hazards associated with falling concrete buckets. No person shall be permitted to apply a cement, sand, and water mixture through a pneumatic hose unless the person is wearing protective head and face equipment.
5. A limited access zone must be established whenever a masonry wall is being constructed.The limited access zone must be established prior to the start of construction of the wall. The limited access zone must be equal to the height of the wall to be constructed plus four feet and must run the entire length of the wall. The limited access zone must be established on the side of the wall which will be unscaffolded. The limited access zone must be restricted to entry by persons actively engaged in constructing the wall. No other persons shall be permitted to enter the zone.

O. Steel Erection (CFR 29 OSHA 1926.752)
1. Before authorizing the commencement of steel erection, the Contractor must ensure that the steel erector is provided with the following written notifications: The concrete in the footings, piers and walls and the mortar in the masonry piers and walls has attained, on the basis of an appropriate ASTM standard test method of field-cured samples, either 75 percent of the intended minimum compressive design strength or sufficient strength to support the loads imposed during steel erection. Any repairs, replacements and modifications to the anchor bolts were conducted.
2. The Contractor must ensure that the following is provided and maintained: Adequate access roads into and through the site for the safe delivery and movement of derricks, cranes, trucks, other necessary equipment, and the material to be erected and means and methods for pedestrian and vehicular control. Exception: This requirement does not apply to roads outside of the construction site. A firm, properly graded, drained area, readily accessible to the work with adequate space for the safe storage of materials and the safe operation of the erector's equipment.
3. All hoisting operations in steel erection must be pre-planned per a Site-specific erection plan. Where the Contractor elects, due to conditions specific to the site, to develop alternate means and methods that provide personnel protection, it must be detailed in a site-specific erection plan developed by a qualified person and available at the work site.
4. Where technically possible, the Contractor must protect personnel from falls during leading edge work through the use of engineered systems designed to provide ample anchorage points along the leading edge of the work.

P. Demolition (CFR 29 OSHA 1926.850)
1. Prior to permitting personnel to start demolition operations, a written engineering survey must be made, by a competent person, of the structure to determine the

condition of the framing, floors, and walls, and possibility of unplanned collapse of any portion of the structure. Any adjacent structure where personnel may be exposed must also be similarly checked. Also, a survey for hazardous materials including but not limited to asbestos shall be conducted; all potential hazardous materials shall be identified and removed prior to commencing demolition work. The Contractor must have written evidence that such surveys have been performed. All electric, gas, water, steam, sewer, and other service lines must be shut off, capped, or otherwise controlled, outside the building line before demolition work is started. In each case, any utility company which is involved must be notified in advance.

2. When debris is dropped through holes in the floor without the use of chutes, the area onto which the material is dropped must be completely enclosed with barricades not less than 42 inches high and not less than 6 feet back from the projected edge of the opening above. Signs, warning of the hazard of falling materials, must be posted at each level. Removal must not be permitted in this lower area until debris handling ceases above. All floor openings, not used as material drops, must be covered over with material substantial enough to support the weight of any load which may be imposed. Such material must be properly secured to prevent its accidental movement. Except for the cutting of holes in floors for chutes, holes through which to drop materials, preparation of storage space, and similar necessary preparatory work, the demolition of exterior walls and floor construction must begin at the top of the structure and proceed downward. Each story of exterior wall and floor construction must be removed and dropped into the storage space before commencing the removal of exterior walls and floors in the story next below.
3. Personnel entrances to multistory structures being demolished must be completely protected by sidewalk sheds or canopies, or both, providing protection from the face of the building for a minimum of 8 feet. All such canopies must be at least 2 feet wider than the building entrances or openings (1 foot wider on each side thereof), and must be capable of sustaining a load of 150 pounds per square foot.
4. To the extent possible, mechanical demolition must be conducted using wet methods to control personnel's and the public's exposure to dust.

Q. Blasting and Use of Explosives (CFR 29 OSHA 1926.900)

1. The Contractor must permit only authorized and qualified persons to handle and use explosives. Smoking, firearms, matches, open flame lamps, and other fires, flame or heat producing devices and sparks must be prohibited in or near explosive magazines or while explosives are being handled, transported or used. No person shall be allowed to handle or use explosives while under the influence of intoxicating liquors, narcotics, or other dangerous drugs.
2. All explosives must be accounted for at all times. Explosives not being used must be kept in a locked magazine, unavailable to persons not authorized to handle them. The contractor must maintain an inventory and use record of all explosives. Appropriate authorities must be notified of any loss, theft, or unauthorized entry into a magazine. No explosives or blasting agents shall be abandoned.
3. No fire shall be fought where the fire is in imminent danger of contact with explosives. All employees must be removed to a safe area and the fire area

guarded against intruders.

R. Ladders (CFR 29 OSHA 1926.1051)

1. A stairway or ladder must be provided at all personnel points of access where there is a break in elevation of 19 inches or more, and no ramp, runway, sloped embankment, or personnel hoist is provided. Employees must not use any spiral stairways that will not be a permanent part of the structure on which construction work is being performed. A double-cleated ladder or two or more separate ladders must be provided when ladders are the only mean of access or exit from a working area for 25 or more persons, or when a ladder is to serve simultaneous two-way traffic.

2. When a building or structure has only one point of access between levels, that point of access must be kept clear to permit free passage of personnel. When work must be

performed or equipment must be used such that free passage at that point of access is restricted, a second point of access must be provided and used. The Contractor must provide and install all stairway and ladder fall protection systems required before personnel begin any work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems.

3. The Contractor must provide a training program for each employee who might be exposed to hazards of working on ladders. The program must enable each employee to

recognize the hazards - and must train each employee in the procedures to be followed in order to minimize these hazards.

S. Power Transmission and Distribution (CFR 29 OSHA 1926.950)

1. Existing conditions must be determined before starting work, by an inspection or a test. Such conditions shall include, but not be limited to, energized lines and equipment, conditions of poles, and the location of circuits and equipment, including power andcommunication lines, CATV and fire alarm circuits.

2. Electric equipment and lines must be considered energized until determined to be de- energized by tests or other appropriate methods or means. Operating voltage of equipment and lines must be determined before working on or near energized parts. No personnel shall be permitted to approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in OSHA 1926.950 Table V-1, unless: The person is insulated or guarded from the energized part (gloves or gloves with sleeves rated for the voltage involved shall be considered insulation of the employee from the energized part), or the energized part is insulated or guarded from him and any other conductive object at a different potential, or the person is isolated, insulated, or guarded from any other conductive object(s), as during live-line bare-hand work.

3. The minimum working distance and minimum clear hot stick distances stated in OSHA 1926.950 Table V-1 must not be violated. The minimum clear hot stick distance is that for the use of live-line tools held by linemen when performing live-line work. Conductor support tools, such as link sticks, strain carriers, and insulator cradles, may be used: Provided, that the clear insulation

is at least as long as the insulator string or the minimum distance specified in OSHA 1926.950 Table V-1 for the operating voltage.

T. Cranes and Derricks (CFR 1926 Subparts V – Power Transmission and Distribution, CC – Cranes and Derrick in Construction)

1. "Ground conditions" means the ability of the ground to support the equipment (including slope, compaction, and firmness). "Supporting materials" means blocking, mats, cribbing, marsh buggies (in marshes/wetlands), or similar supporting materials or devices.
2. The equipment must not be assembled or used unless ground conditions are firm, drained, and graded to a sufficient extent so that, in conjunction (if necessary) with the use of supporting materials, the equipment manufacturer's specifications for adequate supportand degree of level of the equipment are met. The requirement for the ground to be drained does not apply to marshes/wetlands.
3. The Contractor must: Ensure that ground preparations necessary to meet the requirements have been completed and tested. Inform the user of the equipment and the operator of the location of hazards beneath the equipment set-up area (such as voids, tanks, utilities) if those hazards are identified in documents (such as site drawings, as-built drawings, and soil analyses) that are in the possession of the Contractor (whether at the site or off-site) or the hazards are otherwise known to the Contractor.
4. If the A/D director for the crane and derrick Subcontractor (or Sub-subcontractor) determines that ground conditions do not meet the requirements for safe operation of the crane/derrick, that Subcontractor (or Sub-subcontractor) must have a discussion with the Contractor regarding the ground preparations that are needed so that, with the use of suitable supporting materials/devices (if necessary), safe operation requirements can be met.
5. Assembly/disassembly must be directed by a person who meets the criteria for both a competent person and a qualified person, or by a competent person who is assisted by one or more qualified persons ("A/D director"). The A/D director must understand the applicable assembly/disassembly procedures. The A/D director must review the applicable assembly/disassembly procedures immediately prior to the commencement of assembly/disassembly unless the A/D director understands the procedures and has applied them to the same type and configuration of equipment (including accessories, if any).
6. Before commencing assembly/disassembly operations, the A/D director must ensure that the crew members understand all of the following: Their tasks, the hazards associated with their tasks, and the hazardous positions/locations that they need to avoid.
7. Before a crew member goes to a location that is out of view of the operator and is either in, on, or under the equipment, or near the equipment (or load) where the crew member could be injured by movement of the equipment (or load), the crew member must inform the operator that he/she is going to that location. Where the operator knows that a crew member went to a location, the operator must not move any part of the equipment (or load) until the operator is informed in accordance with a pre-arranged system of communication that the crew member is in a safe position.
8. The Contractor must coordinate with a power line owner/operator prior to

use of a crane/derrick near a power line. The power line owner/operator's registered professional engineer, who is a qualified person with respect to electrical power transmission and distribution, shall determine the minimum clearance distance that must be maintained to prevent electrical contact in light of the on-site conditions. The factors that must be considered in making this determination include, but are not limited to: Conditions affecting atmospheric conductivity; time necessary to bring the equipment, load line, and load (including rigging and lifting accessories) to a complete stop; wind conditions; degree of sway in the power line; lighting conditions, and other conditions affecting the ability to prevent electrical contact.

1.4 CONTRACTOR SAFETY RESPONSIBILITIES FOR EMERGENCIES

A. The Contractor must display a list of "Emergency Telephone Numbers" at visible locations of project site including, as a minimum, outside of the Contractor's trailer or office; a minimum list of Emergency Telephone Numbers is shown at the end of this section. In the event of an emergency or unsafe site condition, site personnel must be instructed to immediately notify the Safety Supervisor. In case of a critical injury or a fatality, site personnel must be instructed to immediately call 911 and to immediately notify the safety supervisor. The safety supervisor must immediately call 911 (if others have not already done so) and then notify MOSH, the Owner's On-Site Representative, and the County Project Manager within one hour of the incident.

B. The Contractor must train site personnel to know how to evacuate the Project Site in the event of an emergency. The Contractor must train site personnel to be aware of all the possible obstructions to entry and exit routes, to know an escape path, and to note the location of fire extinguishers before starting work.

C. Contractors must keep a current list of names of all site personnel including all employees of the Contractor, the Subcontractors and Sub-subcontractors at all time to be able to account for everyone in the event of an emergency.

EMERGENCY TELEPHONE NUMBERS
911 General Emergencies (Ambulance, Fire and Police) SAFETY SUPERVISOR (office and cell phone number) MOSH
PROJECT MANAGER
OWNER'S
REPRESENTATIVE

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 142400 –

HYDRAULIC ELEVATOR

PART 1 - GENERAL

1.1 WORK INCLUDED

A. To renovate two passenger hydraulic elevators located in the Sidney Kramer Up County RSC 12900 Middlebrook Lane Germantown, Maryland as shown on attached drawings and as hereinafter specified. This shall include, but not be limited to the following:

1. Replace jack assembly
2. Replace controls
3. Replace buffers
4. Replace corridor control stations and signals
5. Replace car enclosure
6. Replace door operator & protection system
7. Replace car control station and signals
8. Replace pump unit and piping

Materials, equipment and installation shall be such to specifically address use and environmental conditions associated with those found at the site.

B. Coincidentally with the progress of replacing various systems, all reused material shall be checked, modified and repaired or replaced, if necessary, so each item is equal in condition to that of a new item.

C. Everything required to satisfactorily complete elevator installation as required by contract documents.

D. Removal and disposal of existing elevator equipment which is not reused or as specifically noted herein.

E. Cleaning, inspection, repair and replacement of components. Refurbishing and lubrication/painting of existing equipment which is retained and reused. (Such equipment must be compatible with new systems and components.)

F. Provide preventive maintenance and repair services on all elevators associated with this specification to retain the elevator equipment and performance in “like new” condition beginning with the Notice to Proceed and continuing for a period of 24 months after the date of “Final” acceptance of all work associated with this contract.

1.2 RELATED WORK

A. Existing

1. Hoistway and Pit:

a. Existing hoistway.

2. Machine Room:

a. Existing machine room enclosure.

B. To be provided by Contractor

1. Hoistway and Pit:

a. Proper patch of all areas of hoistway wall construction to retain 2-hour fire rating.
b. Provide clean dry pit.
c. Provide pit access ladder as required by Code.

2. Machine Room:

a. Provide all necessary heating and cooling to the present machine room to maintain proper environmental conditions between 55 degrees F and 90 degrees F and not to exceed 85 percent relative humidity regardless of exterior weather conditions. Submit details of proposed design along with supporting information for the design selected for approval.
b. Proper patch of all areas of machine room construction to retain fire rating.

3. Electrical:

a. GFCI type convenience outlets in elevator pits and machine room.
b. Modify existing smoke sensors system in each elevator lobby, hoistway and machine room to operate Firefighters' return feature as required by applicable Codes.
c. Provide proper machine room and pit lighting.
d. Power feeders to elevator controller for lighting and exhaust blower. Individual disconnect switch at machine room location shown on Elevator Contractor shop drawings.
e. Public telephone system connections to elevator control panels in elevator machine room.
f. 3-phase mainline switch. Switch to include an auxiliary contact that will be open when switch is in “off” position.

1.3 DEFINITION OF TERMS

A. Words in the singular shall include the plural whenever applicable or the context so indicates.

B. All terms in these specifications have the definition given in the latest edition of the American National Standard Safety Code for Elevators and Escalators ASME A17.1.

1.4 QUALITY OF ASSURANCE

A. Approved Manufacturers:

1. Hydraulic Elevators: Canton Elevator Inc., Minnesota Elevator Inc. ThyssenKrupp Elevator.
2. Car Enclosures: Columbia Elevator Products Co., ECI, Elevator Modernization Company Inc., Globe Van Doorn, Gunderlin, Hauenstein & Burmeister, Tyler.
3. Hoistway Entrances: Canton Elevator Inc., Columbia Elevator Products, Elevator Doors, Minnesota Elevator Inc.
4. Control: Motion Control.
5. Operating & Signaling Devices: EPCO, GAL, Innovation Industries, Monitor Controls, PTL Equipment Manufacturing.

B. Non-Proprietary Equipment: All equipment shall be of the non-proprietary type. Equipment that must be maintained, serviced and adjusted by the original equipment manufacturer shall be considered proprietary. This also includes equipment that requires use of tools and equipment along with instructions for their use that are not available to the Owner.

C. Document Verification: In order to discover and resolve conflicts or lack of definition which might create construction problems, Elevator Bidders must review contract documents and existing conditions for compatibility with their products prior to bidding. Bidder's compliance with all provisions of contract documents is assumed and required. Owner will not pay for changes to structural, mechanical, electrical or other systems required to accommodate Bidders' equipment.

D. Measurements and Drawings: Any drawings or measurements included with the bidding material shall be for the convenience of the bidders only. Complete responsibility for detailed dimensions lies with the Contractor. In the execution of the work on the job, the Contractor is to verify all dimensions with the actual conditions. Where the work of one trade is to join another trade, the shop drawings shall show the actual dimensions and the method of joining the work of the two trades.

E. Compliance with Regulatory Agencies: Comply with most-stringent applicable provisions of following Codes and/or Authorities, including revisions and changes in effect on date of these specifications:

1. Safety Code for Elevators and Escalators ASME A17.1 - 2016.
2. Guide for Inspection of Elevators, Escalators and Moving Walks ASME A17.2.2 - 2017.

3. Safety Code for Existing Elevators and Escalators, ASME A17.3 – 2015.
4. National Electrical Code, NFPA 70 - 2017.
5. Life Safety Code, NFPA No. 101 - 2018 and local fire authority.
6. Requirements of International Building Code (IBC) and any other Codes, Ordinances and Laws applicable within the governing jurisdiction.
7. Providing Accessibility and Usability for Physically Handicapped People, ANSI A117.1.
8. Accessibility Guidelines for Buildings and Facilities issued July 26, 1991 by the United States Architectural and Transportation Barriers Compliance Board.

F. Warranty:

1. Materials and workmanship of the elevator installation shall comply in every respect with contract documents. Unless due to improper use or care by Owner, correct defects which develop within two years from date of final acceptance of work to the satisfaction of the Owner, at no additional cost.
2. Make modifications, adjustments, improvements, etc., to meet performance requirements in Parts 2 and 3 of this specification.

1.5 TEST AND INSPECTIONS

A. Perform pre-inspection and tests as well as tests required by the Governing Authority and/or the ASME A17.1 Safety Code for Elevators and Escalators, with procedures described in ASME A17.2 Guide for Inspection of Elevators, Escalators, and Moving Walks.

B. Supply personnel and equipment for tests and final reviews indicated in Part 3 of this specification at no added cost.

1.6 PROTECTION OF WORK AND PROPERTY: The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Owner's property from injury or loss arising out of this contract. The Contractor shall make good any such damages, injury or loss, except such as may be directly caused by agents or employees of the Owner. The Contractor shall provide all barricades required to protect open hoistways or shafts. Enclosures shall be constructed of nonperforated material, enclose the complete work area without interfering with normal activity, extend floor to ceiling, be securely fastened in place, outside surfaces shall be relatively smooth and painted and, if access through the enclosure is necessary, the access shall be self-closing and lockable. In addition, barricades shall meet OSHA regulations.

1.7 WORK AREA

A. Contractor will be provided work area at the job site with convenient access to the elevators. Space provided will be approximately 26' x 18'. Any additional off-site space required is the responsibility of the Contractor.

B. Allocate the available work areas and coordinate their use with the other trades on the job. Maintain a current layout of all areas.

C. Contractor will be responsible for barricading and securing the area from public access.

D. Contractor will be responsible for signage directing the public to the operational elevators during construction.

1.8 REMOVAL OF DEBRIS AND RUBBISH: The Contractor shall remove and properly dispose of all debris, rubbish as fast as it accumulates, keeping the building and premises clean during the progress of work and leave the premises at completion in perfect condition as far as his work is concerned to the Owner's complete satisfaction.

1.9 MATERIALS AND WORKMANSHIP: All materials and equipment furnished shall be new and the best of their respective kinds to address use and environmental conditions associated with those found in this type structure. Installation shall be in a neat, accurate, workman like manner and be subject to the approval of the Owner. All materials and equipment provided shall conform to the regulations of the bodies having jurisdiction. The Contractor shall furnish for approval all samples as directed and material shall be in accordance with approved samples.

1.10 REMOVAL OF EXISTING EQUIPMENT: All existing elevator equipment which is not to be used in the modernization shall be removed by the Contractor and immediately become his property.

1.11 CARTAGE AND HOISTING

A. All required hoisting and movement to, on and from the job site of new equipment, reused equipment or removal of existing equipment shall be the responsibility of the Contractor.

B. Materials, products and equipment shall be properly packaged and protected to prevent damage during transportation and handling.

1.12 REUSED EQUIPMENT: All equipment which is reused shall be refurbished in a manner to address use and environmental conditions associated with those found in this type facility and included in the two-year warranty.

1.13 CERTIFICATE OF INSPECTION: Contractor shall arrange and pay for any necessary inspections by governing authorities, certificates of inspection and permits necessary for operation of the elevators by the Owner and conduct regularly scheduled inspections during the term of the maintenance agreement.

1.14 GUARANTEE OF WORK: Contractor shall guarantee that the materials and workmanship of the apparatus installed by them under this contract shall meet specified requirements in

every respect and that they will make good any defects not due to improper use, which may develop within two years from the date of final acceptance of all equipment. Neither the final payment nor any provision of the contract documents shall relieve the Contractor of the extent and period provided by law and upon written notice he shall remedy any defects due thereto and pay all expenses for any damage to other work resulting there from.

1.15 PROGRESS OF WORK

A. Upon Notice to Proceed, the Contractor shall, within fourteen (14) calendar days, submit for approval complete project schedule, including equipment delivery dates, plan of individual efforts, sequence of efforts, manpower, etc. based on the information submitted on the bid form. When an elevator is removed from service, all work shall be completed, inspected and accepted prior to removal of another elevator from service. The Contractor is expected to maintain this schedule. Any deviations to the program require 7 day prior notice and must include revised schedule for approval.

B. The Contractor shall submit in writing the following information to the Owner throughout the construction period:

1. Request for Information regarding specifications, drawings or job conditions requiring action of the Owner shall be faxed to the Owner's office. A prompt response will be given to prevent delays.
2. A bi-weekly progress report of job status showing compliance with approved schedule. Any deviations will be specifically noted with actions taken to maintain completion.
3. A progress report with the submission of each payment request showing the progress being made and the percentage of the job completed and shall certify to the Owner that labor and materials listed on the request for payment have been performed or installed or verified in storage.

1.16 SUBMITTALS

A. Within 30 days following notice to proceed with the work, Contractor shall submit, and have approved, calculations, layouts, shop drawings and standard cuts as noted hereafter.

B. Drawings:

1. Contractor shall submit one reproducible and three print copies of hoistway plan, machine room plan, hoistway and machine room section and lobby entrance elevation layout drawings, car enclosure layout and details, accessory and fixture drawings, details and finish samples to the Owner for review. One print copy/sample shall be returned to the Contractor within 14 days of transmittal date.
2. Acknowledge and/or respond to drawing markup within 7 days of return; promptly incorporate required changes so that delivery and installation schedules are not affected. Revision response is not justification for delay.

C. Calculations:

1. Electrical requirements necessary to verify adequacy of existing electrical provisions.
2. Retained equipment adequacy if car weight modified by more than 5% per Code.

1.17 COMPLETION DOCUMENTATION AND EQUIPMENT

A. Drawings: At the conclusion of the job, submit a reproducible copy of all final drawings previously described under Submittals. The drawings shall reflect AS INSTALLED conditions. (Reproducible set shall be Mylar master.)

B. Wiring Diagrams:

1. One complete reproducible and four print sets of AS INSTALLED straight-line wiring diagrams, showing the electrical connections of all elevator equipment in the hoistway as well as the machine room, shall be furnished upon completion. (One set of diagrams shall be reproducible Mylar master.) Provide and continually update this set to reflect any changes made. (These diagrams shall become the Owner's property.)
2. A legend sheet shall be furnished with each set of drawings containing the following information:

a. Name and symbol of each component.
b. Location on drawings, drawing sheet number and area of component.
c. Location of apparatus whether on controller, selector, starter, hoistway or elevator car.

C. Printed Instructions: The following printed information shall be furnished for all new and reused equipment upon completion. Material shall be based on manufacturer’s requirements. The documents shall include a table of contents and locator tabs:

1. Three sets of neatly bound instructions explaining all operating features including all apparatus in the car and lobby control panels.
2. Three sets of neatly bound maintenance and adjustment instructions explaining areas to be addressed, methods and procedures to be used, and specified tolerances to be maintained for all equipment. Include instructions for use, calibration, repairs and replacement for all tools and instruments used adjusting and accessing operational systems.
3. Three lubrication charts indicating all lubricating points, frequency of lubrication, methods for application and type of lubricant recommended for all equipment. Provide lubricant specification or acceptable lubricant manufacturer with corresponding identification information.
4. One maintenance log to be placed in respective machine room. One copy shall also be incorporated into bound maintenance and adjustment instructions. Log

shall list the various items requiring examination, the procedure to be followed, the frequency of the examination and place to record compliance with the recommended procedure. The log shall cover a period of at least one year. At the end of each year, the log shall be returned to the Owner and a copy of the log for the next year will be provided by the Owner. The logs are the property of the Owner and will remain so.

5. One maintenance and call back log for the machine room. The log shall provide a permanent record of visits. The log shall indicate the date of the visit, person making the visit, unit involved, reason for the visit and work accomplished. One copy shall also be incorporated into bound maintenance and adjustment instructions. The log shall cover a period of at least one year. At the end of each year, the log shall be returned to the Owner and a copy of the log for the next year will be provided by the Owner. The logs are the property of the Owner and will remain so.
6. Hydraulic fluid replacement log for each elevator to be placed in respective machine room. The log shall indicate date when fluid was added, amount added, person making the addition and reason for additional fluid. One copy shall be incorporated into bound maintenance and adjustment instructions. The log shall cover a period of at least one year. At the end of each year, the log shall be returned to the Owner and a copy of the log for the next year will be provided by the Owner. The logs are the property of the Owner and shall remain so.
7. One Firefighters' Service Test Log to comply with requirements of Section 8.6.10.1 of ASME A17.1. Log shall be placed in respective machine room. One copy shall also be incorporated into bound maintenance and adjustment instructions. The log shall cover a period of at least one year. At the end of each year, the log shall be returned to the Owner and a copy of the log for the next year will be provided by the Owner. The logs are the property of the Owner and will remain so.
8. Three complete parts catalogs for all replaceable parts. Catalog shall identify parts by names and location, and information required for ordering. It shall also include a list of recommended parts, with suggested quantities, to be maintained. List shall identify components unique to project, failure of which could result in extended down time, or loss of which could require extended time period for replacement.
9. Two copies of complete elevator function charts delineating each specific elevator function such as Automatic Operation, Inspection Operation, Parking, Independent Service, Firefighters' Operation, Standby Power Operation and Security Controls.
10. The Contractor shall submit all information to the Owner for approval.

D. Keys: Three sets of keys to operate all keyed switches and locks shall be furnished to the Owner upon completion. Each key shall be properly identified with a metal or plastic tag bearing key application. The tag shall be securely attached to the key. All keying shall be coordinated with the Owner.

E. Spare Parts Cabinet: Provide metal cabinet for storage of parts and lubricants.

F. Maintenance and Adjustment Tools and Equipment: Provide at least 1 set of any and all tools and equipment not commercially obtainable in the open market along with means for calibration, repairs, replacement, etc. to the Owner. Provide two sets of written documentation on proper use and maintenance of all maintenance and adjustment tools to the Owner. All materials shall be usable by the Owner or his/her designated representative designated to perform maintenance, service and/or adjustment functions. Tools and equipment shall allow access for all levels of monitoring, trouble shooting, adjusting and diagnostic procedures. Equipment shall contain non-volatile components or software. Replacement parts, literature and future servicing of items provided shall be made available to the Owner at a fair market price.

1.18 MANUFACTURER'S NAMEPLATES

A. Manufacturer's name plates and other identifying markings shall not be affixed on surfaces exposed to public view unless approved by the Owner.

B. This requirement does not apply to Underwriter's Laboratories and Code required labels where required. Each major component of mechanical and electrical equipment shall have, on a securely attached plate, the manufacturer's name, address, model number, rating and any other information required by governing codes.

1.19 MATERIALS

A. Steel:

1. Sheet Steel (Furniture Steel for Exposed Work): Stretcher-leveled, cold-rolled, commercial- quality carbon steel, complying with ASTM A366, matte finish.
2. Sheet Steel (for Unexposed Work): Hot-rolled, commercial-quality carbon steel, pickled and oiled, complying with ASTM A569.
3. Structural Steel Shapes and Plates: ASTM A6, ASTM A36, and ASTM A108.

B. Stainless Steel:

1. Type 302 or 304 complying with ASTM A167, with standard tempers and hardness required for fabrication, strength and durability.
2. Apply mechanical finish on fabricated work in the locations shown or specified. (Federal Standard and NAAMM nomenclature), with texture and reflectivity required to match Architect's sample. Protect with adhesive-paper covering. No. 4 bright directional polish (satin finish). Graining directions as shown or, if not shown, in longest dimension.

C. Plastic Laminate: ASTM E84 Class A and NEMA LD3, Fire-Rated Grade (FR-50), Type 7, 0.050" +/- .005 inches thick; color and texture as follows:

1. Exposed Surfaces: Color and texture selected by Owner.

2. Concealed Surfaces: Manufacturer's standard color and finish.

D. Fire-Retardant Treated Plywood or Particle-Board Panels: Minimum 3/4 inch thick backup for natural finished wood, and plastic laminate veneered panels, edged and faced as shown, provided with suitable anti-warp backing; meet ASTM E84 Class "I" rating with a flame spread rating of 25 or less, registered with Local Authorities for elevator finish materials.

E. Paint: Clean exposed metal of oil, grease, scale and other foreign matter and factory paint one coat of Manufacturer's standard rust-resistant primer. After erection, provide one finish coat of Industrial enamel paint. Galvanized metal need not be painted.

F. Prime Finish: Clean all surfaces receiving a baked enamel finish of oil, grease, scale, etc. Apply one coat of rust-resistant paint followed by a filler coat over uneven surfaces. Sand smooth and apply final coat.

G. Baked Enamel: Prime per paragraph F above. Apply and bake 3 additional coats of enamel in the color selected by Owner.

H. Entrance Field Painting: Clean all surfaces of dirt and grease. Sand as necessary to remove pits and scratches and prepare surface for painting. Apply filler to insure smooth surface, sand and apply one coat of electrostatic enamel in the color selected by Owner.

I. Refinishing of Natural Metals: Remove existing protective finish. Buff as necessary to remove scratches, regrain and/or finish as specified. Protect as indicated for particular metal type.

1.20 PROTECTION

A. Provide, erect and maintain catch platforms, lights, barriers, weather protection, warning signs and other items as required for proper protection of the public, occupants of the building, workmen engaged in work and adjacent construction.

B. Provide and maintain weather protection at exterior openings so as to fully protect the interior premises against damage from the elements until such openings are closed by new construction.

C. Provide and maintain temporary protection of the existing structure designated to remain where removal and new work is being done, connections made, materials handled or equipment moved.

D. Take necessary precautions to prevent dust from rising by wetting removed masonry, concrete, plaster and similar debris. Protect unaltered portions of the existing building affected by the operations under this Section by dustproof partitions and other adequate means.

E. Provide adequate fire protection in accordance with local Fire Department requirements.

F. Do not close or obstruct walkways, passageways or stairways. Do not store or place materials in passageways, stairs or other means of egress. Conduct operations with minimum traffic interference.

G. Be responsible for any damage to the existing structure or contents by reason of the insufficiency of protection provided.

1.21 WORKMANSHIP

A. Perform removal and alteration work as shown, with due care, including shoring, bracing, etc. Be responsible for damage, which may be caused by such work, to any part or parts of existing structures or items designated for reuse. Perform patching restoration and new work as applicable.

B. Execute the work in a careful and orderly manner, with the least possible disturbance to the public and to the occupants of the building.

C. Where alterations occur, or new and old work join, cut, remove, patch, repair or refinish the adjacent surfaces to match condition which existed prior to commencement of the work. The materials and workmanship employed in the alterations, unless otherwise shown or specified, shall comply with that of the original work. Alteration work shall be performed by the various respective trades which normally perform the particular items of work.

D. Finish new and adjacent existing surfaces as specified for new work. Clean existing surfaces of dirt, grease, loose paint, etc. before refinishing.

E. Where existing equipment and fixtures are indicated to be retained, repair such equipment and fixtures to "like new" condition. Refinish as directed.

F. Remove all debris as the work progresses. Maintain the premises in a neat and clean condition.

1.22 MAINTENANCE

A. Statement of Task: The Contractor shall furnish a preventive maintenance program which will place and retain the elevator equipment and performance in a "like new" condition. The program shall clean, properly lubricate, replace worn and defective components prior to failure and make necessary adjustments to assure peak performance and maximum life of the equipment and installation. It is intended that equipment related shutdowns will be kept to an absolute minimum. Should they occur, the Contractor shall respond and make necessary repairs and adjustments. The maintenance program shall include the conditions here in specified and shall be in conformance with requirements of Section 8.6 of ASME A17.1.

B. Period of Coverage: The Contractor shall assume responsibility for, based on conditions at that time and furnish preventive maintenance and service on the operating elevators described herein beginning at the notice to proceed and continuing for a period of 24 months, after the date of "Final" acceptance of all work associated with this contract.

C. Cost: The cost for all maintenance and 24-hour call back service is included in this contract and shall be included in the base bid.

D. Security Provisions:

1. All security requirements established by the using agency for its facility shall become a part of these specifications. It shall be the Contractor's responsibility to comply with any special security provisions established.
2. At the conclusion of each visit, all keys shall be returned to the Owner or his/her designed representative. They shall not be removed from the building.

E. Working Hours: Regular service work, which does not interfere with the elevator operation, shall be performed during normal working hours (9:00 A.M. - 3:30 P.M. Monday thru Friday). Elevator shall not be removed from service prior to 9:00 A.M. or after 3:30 P.M. Work outside normal working hours work must be coordinated and approved by the Owner or his/her designated representative.

F. Local Conditions Covering Work:

1. The Contractor shall cooperate with those in authority on the premises to prevent the entrance and exit of all workmen and/or others whose presence is forbidden or undesirable and in bringing, storing or removal of all materials and equipment, (to observe all County rules and regulations in force), to avoid unnecessary dust, or accumulated debris or the undue interference with the convenience, sanitation or routine of the public and Owner (and to prevent the loss of, or damage to the property of the Owner). The Contractor shall repair any and all damage he/she may cause to the building or property, to the full satisfaction of the Owner.
2. Contractor shall maintain the machine room, machinery spaces, hoistways, cars and pits in reasonably clean condition at all times. Equipment shall be properly protected to prevent damage as result of environmental conditions. If damage does occur, surfaces shall be properly cleaned, remove damage and properly treat to prevent continued damage.

G. Breakdowns and Shutdowns: The Contractor shall have sufficient manpower, expertise, technical support and materials available to limit breakdowns and shutdowns as specified below.

1. Breakdowns and shutdowns, such as electrical troubles, burned out control coils, open circuits, electrical or mechanical adjustments, will not keep the respective

elevator out of service longer than one (1) day (24 hours).

2. Under no circumstances will any shutdown or breakdown last longer than three (3) days (72 hours). This includes the locating of the trouble, procurement of parts, the installation of these parts and the replacing of the respective elevator back into safe uninterrupted operation.
3. The Contractor must be so equipped to meet the above conditions. The excuse of not being able to obtain parts, necessary technical and engineering advice, etc., will not be acceptable, and the Contractor will be considered in default, giving sufficient justification to the Owner to obtain these services from Contractors who can provide the Owner with uninterrupted elevator service.
4. The Owner may take over the work and prosecute it to completion by contract or otherwise, and the Contractor and his/her sureties (if any), shall be liable to the Owner for any additional cost occasioned by the Owner, previous to the termination of the contract.

H. Parts and Material Inventory:

1. The Contractor shall maintain a supply of contacts, coils, leads, fuses, valve parts, hanger rollers, clutch rollers, lubricants which meet original equipment manufacturer's specifications, wiping cloths, and other minor parts for the performance of routine preventive maintenance properly stored in the elevator machine room.
2. The Contractor shall also maintain a supply of spare lending and replacement parts in their warehouse inventory. This inventory shall include all parts listed in the manufacturer's recommended spare parts lists and any other parts and materials necessary to maintain these elevators as herein specified.
3. All replacement parts and materials shall be specifically designed for the elevators on which they are to be used. The Contractor shall provide for replacement parts and lubricants from the original manufacturer of the elevator equipment or approved suppliers of such original manufacturer's parts. Substitute parts may not be utilized unless prior approval of the Owner is obtained.

I. Technical Standards: The items, materials, or appliances required by this specification must conform to the ASME A17.1 - 2016 Safety Code for Elevators and Escalators with Supplements, the standards of the ASME A17.2 - 2017 Guide for Inspection of Elevators, Escalators and Moving Walks, ASME A17.3 - 2015 Safety Code for Existing Elevators and Escalators with supplements and the CAN/CSA-B44-M91, ASME A17.5 - 2014 Elevator and Escalator Electrical Equipment.

J. Owner's Right of Inspection and Test: The Owner reserves the right to make or cause to be made, such inspections and tests, as deemed advisable, to ascertain that the requirements of these specifications are being fulfilled. Should it be found that the standards herein specified are not being satisfactorily maintained, the Owner may immediately demand that the Contractor place the elevators in a condition to meet those requirements. If the Contractor fails to comply with such demands, within a three (3) day (72 hours) time period, the Owner may, by written notice to the

Contractor, terminate his right to proceed further with the work. In such event, the Owner may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and his sureties (if any), shall be liable to the Owner for any additional costs occasioned by the Owner.

K. Periodic Visits to the Site: The Contractor shall make no less than monthly preventive maintenance visits to the site for the purpose of performing all preventive maintenance tasks, adjustments and service requirements as recommended by the elevator manufacturers and as indicated on the preventive maintenance charts, lubrication charts and schedules.

L. Demand Visits to Site:

1. The Contractor shall also provide call back service within two (2) hours of notification by the Owner for any conditions that require adjustments or repair.
2. Emergency service shall be rendered within (30) minutes or less from the time a call is placed for emergency service. Emergency services shall be requested for the following conditions:

    a. Shutdowns involving entrapments.
    b. Situations involving injury or hazardous conditions.
    c. Fire or other emergency conditions.

    Emergency calls shall be so identified by the Owner at the time of the call.

3. The Contractor shall also provide maintenance, adjustments and/or repairs to comply with any violation of the Governing Agencies and recommendations of casualty companies on due notice from the Owner.

M. Service Records:

1. It shall be the responsibility of Contractor's service personnel to log in and out, where directed by the Owner, each time he/she visit the site for either a routine or demand service check.
2. Upon completion of the work, service personnel shall record required information on the Maintenance log (See paragraph 1.17,C,4), Maintenance call back log (See paragraph 1.17,C,5) and/or Firefighters' Service test log (See paragraph 1.17,C,7).
3. An itemized service ticket indicating the work accomplished shall be left with the Owner after each visit. Service tickets shall be clearly legible and include complete description of work done. In the case of a call back, ticket shall also include a description as to the nature of the call.

N. Repairs and/or Renewals:

1. The Contractor shall be responsible for all necessary repairs, adjustments and

parts renewal to all elevator components including periodic static loading of the car as required to verify and, if necessary, set automatic control limit devices.

2. Repairs or renewals necessitated by accidents, misuse, storm, fire, flood, or water damage, or due to any other cause beyond the Contractor's control shall be the responsibility of the Owner. When the Contractor feels it is this type work to be accomplished, they shall notify the Owner immediately. Notification shall include description of work and cost. Authorization for the Contractor to accomplish such work shall be provided in writing by the Owner. Written notification confirming verbal description, cost and name of person authorizing work, if applicable, will be provided.
3. The Contractor shall be responsible for repairs or renewals of machine room enclosure and shaftway enclosure necessitated by contractor's negligence, accidents or misuse.
4. The Contractor shall be responsible for coordinating and performing all required safety testing and monthly testing of Firefighters' Service as required by ASME A17.1 Section 8.6.10.1.

O. Contractor's Responsibility: When the Owner finds it necessary to request immediate service from the Contractor in order to repair improper operation or nonperformance of the elevator, this service and repair will be considered by the Owner as a reoccurring maintenance problem that is the responsibility of the Contractor. The cost of this service and repair when performed shall be borne by the Contractor. If the Contractor can prove, to the Owner's satisfaction, that this problem was not a maintenance problem covered in the contract specifications, the Contractor may charge the Owner for the additional service performed at the respective billing rate. When the above Contractor's service is requested after normal working hours (7:30 A.M. - 4:00 P.M. Monday through Friday except designated holidays), the Contractor must respond to this request by rendering service within two (2) hours after the request is made.

P. Liability: The Contractor shall not be held responsible for non-operation of said equipment by reason of fire, flood, acts of civil or military authorities, or by insurrection or riot.

Q. Miscellaneous Agreements:

1. If the Contractor fails to perform the work in accordance with the specifications as interpreted by the Owner without reasonable justification, the Contractor will be considered to be in default and thereby shall make it necessary for the Owner to obtain these services from Contractors who can provide the Owner with the required services.
2. The Owner may take over the work and prosecute it to completion by contract or otherwise, and the Contractor and his sureties (if any) shall be liable to the Owner for any additional cost occasioned by the Owner previous to the termination of this contract.
3. The Contractor shall maintain, on site, the Owner's detailed service logs for each elevator. These service logs must be kept in the machine room. Completed

annual logs shall be returned to the Owner.

4. The Contractor will maintain and retain all records and documents relating to the performance of the Contract for a period of three years after completion of the contractual services and will make such records available for audit and inspection by the Owner.

R. Preventive Maintenance:

1. The Contractor shall be responsible for determining the proper number of hours per month to perform the necessary preventive maintenance tasks based on equipment manufacturer's recommendations, environmental conditions and experience; however, they shall provide a minimum number of hours per month to perform these tasks as follows:

   3 hours per elevator

2. Maintenance, repairs or replacement of the following elevator equipment, is not to be considered as part of the minimum number of hours for performing preventive maintenance as previously stated:

   a. Performing tests, as required by the Owner, shall be additional required work man-hours by the Contractor at no cost to the Owner.
   b. Repairs and/or renewals made at Owner's direction.
   c. Adjustments, repairs, and/or renewals made in conjunction with requirements of previous paragraphs L and N of this section.
   d. Demand visits to site.

S. Job Supervisor: The Contractor shall indicate one person who shall be responsible for the scheduling control and performance of work specified in the Contract. This person shall be available upon request by the Owner to review any aspect of this contract. The Contractor shall notify the Owner if there is a change in job supervisors.

PART 2 - PRODUCTS

2.1 Summary

A. Passenger Elevator:

Capacity:	Elev. 1: 2500 Pounds Elev. 2: 3500 Pounds
Speed:	125 FPM
Operational Control:	Group Automatic with Microprocessor-Logic System

Motor Control:	Hydraulic Solid State Starting
Stops:	3
Openings:	3
Floors Served:	1-2-3
Travel: (Approx.)	26'-8" (To be verified by Contractor)
Platform Size: (Approx.)	Elev. 1: 7'-0 ¾" Wide x 5'-1" Deep Elev. 2: 7'-0 ¾" Wide x 6'-4" Deep
Inside Clear Size:	Elev. 1: 6'-8 ¾" Wide x 4'-3" Deep x 7'-6" High Elev. 2: 6'-8 ¾" Wide x 5'-5 ½" Deep x 8'-2" High with Interior Finishes
Entrance Size:	3'-6" Wide x 7'-0" High
Entrance Type:	Single Speed, Side Opening
Entrance Finish:	Stainless Steel
Door Operation:	To be Replaced
Door Protection:	Infrared Screen Detector with Differential Timing and Nudging
Machine:	Direct Connected Hydraulic
Guide Rails:	"T" Type
Buffers:	Spring
Car Enclosure:	As Specified
Signals -	
Hall Stations:	Single Riser, Illuminated Vandal Resistant Buttons, Engraved Use Stair Sign

Car Operating Panel:	Illuminated Vandal Resistant Buttons in Return
Car Position Indicator:	Car with Floor Passing Tone
Combination Corridor Position Indicator and Hall Lanterns:	Above Entrances at all Floors
Communication System:	Self-dialing, Hands-free Telephone, Telephone Box and Shielded Wiring to Car Controller in Elevator Machine Room

B. Common Additional Features:

Roller Guides

Car Top Inspection Station

Emergency Car Lighting and Alarm Battery Pack

Firefighters' Service, Including Alternate Floor Return Feature

Standby Power Source to Lower Elevator to Bottom Floor

Handicapped Accessible

Hoistway Access Switches Mounted in the strike jamb recess at Bottom and Top Floor

Hoistway Door Unlocking Means at all Floors

Independent Service Feature

Car/Jack Unit Isolation

Tamper-Resistant Screws for Faceplates

24-Month Maintenance with 24-Hour Call Back Service

Machine, and Controller Sound Isolation

Wiring Diagrams, Operating Instructions and Parts Ordering Information

Engraving Filled with Black Paint Unless Otherwise Noted

No Visible Company Name or Logo

2.2 PERFORMANCE

A. Speed: +/-10% of contract speed under any loading condition.

B. Capacity: Safely lower, stop and hold up to 125% of rated load.

C. Stopping Accuracy: +/-1/4" under any loading condition.

D. Door Opening Time: **3.1 seconds** from start of opening to fully open.

E. Door Closing Time: **4.0 seconds** measured from the instant the doors begin to close until the doors are fully closed.

The kinetic energy of the hoistway door and all parts rigidly connected thereto (includes the sum of the weights of the hoistway and car doors and related parts) computed for the average closing speed shall not exceed 7 ft. lbs. The force necessary to prevent closing of the hoistway door or car door from rest shall **not exceed 30 pounds**.

F. Floor-to-Floor Performance Time: **15.5 seconds** from start of doors closing until doors are 3/4 open and car level and stopped at next successive floor under any loading condition or travel direction. (12'-0" average floor height)

G. Pressure: Do not exceed operating pressure of **350 P.S.I.**

2.3 OPERATION

A. Provide a microprocessor-based operating system for a two car group control. Elevators to operate as a group capable of balancing service and continuing operation with one car removed from the system.

Elevators to operate from a single riser of corridor buttons located at each floor and a series of car call buttons corresponding to the various landings served located in each

car. The system shall slow down and automatically stop cars at landings corresponding to registered calls. Make stops at successive floors for each direction of travel irrespective of the order in which calls are registered except when bypassing hall calls to balance and improve overall service. Stop only one car in response to particular hall call. Assign hall calls to specific elevators and periodically review and modify these assignments to improve service. Simultaneous to initiation of slow down of a car for a hall call, cancel that call. Render hall button ineffective until car doors begin to close after passenger transfer. Cancel car calls in the same manner. Give priority to coincidental car and hall calls in call assignment. Cancel car calls upon direction reversal.

At other than dispatching floors, hold doors open an adjustable interval. (See paragraph 2.7, L of this Section.) Cancel initial door open interval when door protective system is actuated, and establish an adjustable door open interval (See paragraph 2.7, L of this Section) following actuation of protective system.

Operate system to meet changing traffic conditions on demand basis. (Dispatch from terminal landings may be used when most traffic is in one direction.) Include provisions for handling traffic which may be heavier in either direction, intermittent or very light. As traffic demands change, automatically and continually modify elevator response to provide the most-effective means to handle traffic conditions. Assign hall calls to individual cars, review assignments; provide means to sense long-wait hall calls and preferentially serve them; and accomplish direction reversal without closing and reopening doors.

Use easily re-programmable system software. Design basic algorithm to optimize service based on equalizing system's response to registered hall calls at shortest possible level and equalizing trip time at shortest possible level.

Serve floors below dispatch terminal in a manner which logically minimizes delay in passing or stopping at the terminal in both directions of travel.

Required Features:

1. Dispatch Protection: Backup dispatching in the event primary dispatcher fails.
2. Delayed Car Removal: Remove delayed car from group operation.
3. Position Sensing: Minimum capability to reset at each floor when stop made.
4. Landing Button Failure: Multiple power sources for button risers.

B. On-Site Monitoring: Provide control with on-site monitoring and diagnostic capability. This shall include a cabinet mounted color CRT with accessible keyboard. As a minimum, the system shall be able to display the following:

1. Job Configuration: This report shall provide a brief description of the system, including the programable job name, identification number of car, number of

landings, openings per landing, programable landing designation, fire service options and other system options.

2. System Performance Graph: This report shall provide elevator system performance data based on hall call waiting times. At the end of each hour, the number of up and down hall calls and the up and down waiting time averages shall be calculated and saved in the controller's non-volatile RAM. This information shall be stored for a minimum of seven days.
3. Hall Call Distribution: This report shall provide hourly hall call distribution in a tabular format for each hour, showing the number of hall calls which were answered within 15 to 90 second intervals for each landing and direction, and show the percentage and number of cars that were in service during a specified time frame. This information shall be stored for at least 24 hours.
4. Graphic Display of Elevator Status: This report shall provide a graphic display of the elevator hoistway that gives the user a comprehensive picture of car location, door status, direction of travel, car calls registered, hall calls registered, hall call assignments, estimated time of arrival of a car for a registered hall call, wait time of a registered hall call, floor labels, system status and a car status window. A status window shall be provided that shows the status of the car such as automatic operation, inspection, fire service main and alternate, time out of service, top floor demand and bottom floor demand.
5. Entering Hall and Car Calls: The CRT terminal shall provide a means for entering hall and car calls using the arrow and enter keys. If the call is valid and registered, a corresponding symbol shall be displayed on the screen.
6. Dispatching Parameters: The CRT terminal shall be capable of monitoring and adjusting the dispatching parameters, including, but not limited to, the configurations of parking floors and their priorities, system mode of operation, parking delay times, etc., the system parameters of long hall call wait threshold time and the lobby up peak parameters.
7. Real-Time Clock: The user shall be provided with the capability to program the controller's real-time clock.
8. Car Flags: The CRT shall provide simultaneous viewing of most individual car flags to detect important sequential events.
9. Special Event Calendar Menu: The special event calendar menu shall provide three options. The first, display of Special Event Entries, allows the user to examine the documented faults or events. The second, List and Description of Events, which can be recorded, allows the user to examine the faults and events which are monitored. The third, Initialize the Special Event Calendar, allows the user to clear all the documented faults and events.

    a. Displayed events shall include but not limited to the following:

        1) Fire Service Phase I-Main - The elevator has been placed on Firefighters' Phase I operation and is responding to or at the designated landing.
        2) Fire Service Phase I-Alternate - The elevator has been placed on Firefighters' Phase I operation and is responding to or at the alternate

landing.

3) Fire Service Phase II - The elevator has been placed on Firefighters' Phase II operation.
4) Standby Power Supply - The normal elevator operating supply power has been lost and the standby power source has been placed in service.
5) Elevator Operating Supply Power - The normal elevator operating supply power is available and that the mainline disconnect is closed.
6) Elevator Lighting Supply Power - The normal elevator lighting supply power is available and that the mainline room car lighting disconnect is closed.
7) System Out of Service - Elevator has demand to operate from a hall call but does not respond. Mainline power is available, and no planned operational features are activated (i.e., Inspection, Independent Service, Firefighters' Service, ...).
8) Car Out of Service - Elevator has demand to operate from a car call but does not respond. Mainline power is available, and no planned operational features are activated (i.e., Inspection, Independent Service, Firefighters' Service, ...).
9) Inspection - Elevator is operating on In-Car Inspection, Access, or Car Top Inspection Service.
10) Independent Service - Elevator is operating on Independent Service control.
11) In-Car Stop Switch - The In-car stop switch is open.
12) Car Top Stop Switch - The car top stop switch is open.
13) Pit Stop Switch - The pit stop switch is open.
14) Clock Operation - The clock indicates that the elevator is available for use.

b. Displayed faults shall include but not limited to the following:

1) Control Power Out - Normal supply power is available but there is no control power.
2) Car On Top Limit - Car on top normal limit.
3) Car On Bottom Limit - Car on bottom normal or final limit.
4) Car Top Exit - Car top exit is open.
5) Car Doors Open with Hoistway Doors Closed - Car door switch open with hoistway door switches closed.
6) Car Doors Closed with Hoistway Doors Open - Car door switch closed with hoistway door switch or switches open.
7) Door Operator Failure Opening - Door operator has signal to open but does not respond.
8) Door Operator Failure Closing - Door operator has signal to close but does not respond.
9) Forced Door Closing Failure - The forced door closing feature has been activated but does not reset within 30 seconds of activation.
10) Low Oil - Activation of the low oil control.

The system shall include means to incorporate input time delay in order to prevent event registration for bounce signals. The delay shall allow application to any of the events being reported and shall be independently adjusted.

C. Remote Monitoring: Provide connection to Owner's existing MCE's Imonitor and Ireport system. The system is located at Montgomery County Department of Public Works and Transportation 1301 Seven Locks Road. The elevator control shall, as a minimum, be able to communicate the following information to the remote station either when contacting the elevator with specific requests, or the elevator control provides an automatic, time designated, daily down load of specific events or immediate down load of designated emergency events:

1. Information available upon request from the system: All information listed under paragraph B of this Section.
2. Information designated for emergency notification:

    a. Events 1, 2, 3, 4, 7 & 8 listed under paragraph B,9,a of this Section.
    b. All Faults listed under paragraph B,9,b of this Section.

3. Information designated for daily down load:

    a. All events listed under paragraph B,9,a of this Section.
    b. All faults listed under paragraph B,9,b of this Section.

All transmissions from the elevator control to the remote system shall have the ability to recall the remote system until information is transmitted. The number of attempts can be limited provided reasonable effort has been made. A log of attempts will be recorded and reported as part of daily down load.

All events and faults shall display date and time item took place and give description of event. It shall also list date and time item returned to normal condition.

Emergency notification shall take place only when item changes from normal condition to signal change. This information, along with date and time of restoration of that event, will be recorded on the daily report.

The elevator control shall have the capacity to store all information for a minimum of 21 days. Information collected on the eighth day shall be placed at the end of the chain while material from the first day will be deleted. This process will continue. However, material transmitted as part of the daily report shall be for the most current period from last down load transmission. Polling of information originated from the CMS shall not influence daily reporting period. Should condition be such that the daily information cannot be transmitted at the designated time, then this information will be retained and transmitted at the next scheduled time that transmission can be made. Failure of the system to make scheduled contact shall be reported as an emergency

fault.

D. Door Operation: Open doors automatically when the car arrives at a floor to permit transfer of passengers. Automatically close doors after a timed interval.

E. Automatic Stopping Accuracy: 2-way automatic with releveling feature stop car within 1/4" above or below the landing sill. Avoid overtravel, as well as undertravel, and maintain stopping accuracy regardless of load in car or direction of travel.

F. Independent Service: Provide controls for operation of the elevator from car buttons only. Close doors by constant pressure on desired destination floor button. Open doors automatically upon arrival at selected floor. Any landing calls in registration shall be canceled. Landing buttons shall be made inoperative.

G. Low-Oil Control: In the event oil level is insufficient for travel to the top floor, provide controls to return elevator to the bottom level, open doors on arrival, close doors after normal dwell time and shut down. Door will not open by activation of corridor call. Doors will open by activation of door open button in car operating panel then automatically close. Adding hydraulic fluid and recycling of mainline switch is required to return elevator to normal service.

H. Motion Control: AC type with wye-delta reduced voltage starting and a unit type valve suitable for operation specified and capable of providing smooth, comfortable acceleration, retardation and stopping. Limit the difference in speed between full load and no load to not more than +/- 10% of the contract speed under any loading condition.

I. Firefighters' Emergency Operation: Operate in accordance with requirements of ASME A17.1 Code.

Designated landing is: First Floor

Alternate landing is: Second Floor

J. Standby Lighting and Alarm: Car-mounted, battery unit with solid-state charger to operate alarm bell and lighting, per Code. Battery to be rechargeable with 5-year minimum-life expectancy. Stanby lighting to be an integral with the normal lighting fixtures.

K. Standby-Power Source: In the event normal power fails, provide controls to automatically lower the car nonstop to the lowest landing using DC battery power source installed in machine room. Include solid-state charger and testing means mounted in a common metal container. Provide rechargeable lead acid or nickel cadium battery 10-year minimum life expectancy. Provide switch in controller to disconnect unit during maintenance. Provide operating instructions adjacent to switch. Upon failure of normal power, lower elevator to landing, open doors

automatically, hold open until regular door time has expired, then close doors and shut elevator down. Automatically resume normal operation when power is restored. Auxiliary contact in disconnect to be connected to deactivate standby power operation when switch is in "off" position.

2.4 MACHINE ROOM EQUIPMENT

A. Arrange equipment in spaces shown in contract drawings. Provide means for removal of existing equipment and installation of new equipment in the machine room. Provide any demolition and repair made necessary by these requirements.

Provide identifying numbers on pump unit, controller and disconnect switch. Comply with N.E.C. for working clearances. Provide means and spacing to accommodate service, repair and/or replace equipment in machine room and machinery spaces.

B. Pump Unit: New assembled unit consisting of a submersed positive-displacement pump and induction motor with accessible master-type control valves combining safety features, holding, direction, bypass, stopping and manual-lowering functions. Provide means below control valve to retain falling part and prevent entry into oil reservoir. Unit to include a shut-off valve, oil reservoir with protected-vent opening, oil gage and outlet strainer, drip pan and connections all mounted on isolating pads. Provide means to maintain oil at operating temperature.

C. Selector: Provide a new device mounted on the car or in machine room to monitor car position and provide absolute floor position for stopping. Update parity at each floor and restore automatically after power loss.

D. Controller: New non-proprietary control and operational system. Complete diagnostic and control/design parameter adjustments shall be accessible and shall not require the use of any special tools or devices owned or leased by control manufacturer. Equipment provided shall contain non-volatile components or software. Control manufacturer shall be available to make any required software changes. The controller shall be cabinet type, removable doors and adequate ventilation to dissipate heat. Wire to identified terminal block studs. Identifying symbols or letters identical to those on wiring diagrams permanently marked adjacent to each component on the controller. Provide wye-delta reduced-voltage motor-starting circuits.

1. Frame: Securely mount all assemblies, power supplies, chassis switches, relays and other items on a substantial, self-supporting steel frame. Completely enclose equipment with covers and ventilate to prevent overheating.
2. Switch and Relay Design: Direct-current type, magnet operated with contacts of design and material to insure maximum conductivity, long life and reliable operation without overheating or excessive wear, and provide a wiping action to prevent sticking due to fusion. Provide switches carrying highly inductive currents with arc deflectors or suppressors.

3. Microprocessor-Related Hardware:

    a. Fabricate printed circuit boards with FR4 or G10 glass epoxy material with a minimum equivalent 1-ounce copper.
    b. Coat all printed circuitry with tin lead.
    c. Include built-in noise-suppression devices which provide a high level of noise immunity on double-sided printed circuit boards.
    d. Include built-in noise suppression devices which provide a high level of noise immunity on all solid-state hardware and devices.
    e. Provide power supplies with noise-suppression devices.
    f. Isolate inputs from external devices (such as pushbuttons) with opto-isolation modules.
    g. Provide separate regulated power supply for each computer chassis.
    h. Design control circuits so that 1 side of power supply is grounded to provide for testing.
    i. Under no circumstances shall the safety circuits be affected by accidental grounding of any part of the system.
    j. Design the system so that it will start properly when power is restored in the event of a power failure or interruption.
    k. Provide system memory so that data is retained in the event of power failure or disturbance.

4. Power Supplies: UL or CSA recognized, with short-circuit protection.
5. Wiring: UL or CSA labeled copper wires for factory wiring. Neatly route all wiring interconnections and securely attach wiring connections to studs or terminals.
6. Permanently mark components (relays, fuses, PC board, etc.) with symbols shown on drawings.
7. Provide extender boards when computing devices are used inside a computer chassis to facilitate access to the printed circuit cards utilized.
8. Use stable capacitor or crystals as the time base for electronic time delay devices.
9. Provide wye-delta reduced-voltage motor-starting circuits.

E. Muffler: Provide new muffler in discharge oil line near pump unit. Design to dampen and absorb pulsation and noise in the flow of hydraulic fluid.

F. Piping and Oil: Provide new piping, connections and oil for the system. Use isolated couplings between the pump unit and oil lines. All piping shall be properly supported to relieve load on fittings. Piping supports shall be isolated to minimize noise and vibration.

G. Shut-Off Valve: Manual ball type valve in line adjacent to pump unit.

H. Noise and Vibration Control:

1. To minimize noise and vibration in occupied areas, mechanically isolate elevator

equipment from the structure; electrically isolate controllers and motor.

2. Limit noise level relating to elevator equipment and its operation to no more than 60 dBa in elevator car under any condition including door operation and exhaust blower on highest speed.

2.5 HOISTWAY EQUIPMENT

A. Guide Rails: Replace existing.

1. Install planed steel T-sections car guide rails for elevator travel, car weight and car loading with supporting brackets for attachment to building structure.
2. Thoroughly clean all guide rails of grease, oil and other foreign substances, file and remove all rough edges and surfaces, align and tighten bracket bolts and guide clips for smooth and quiet operation of car.
3. Provide any required rail backing and/or intermediate tie brackets to comply with current Code.
4. Show guide rail loads, including the loading upon safety application, on shop drawings.

B. Buffers: New spring type with blocking and supports.

C. Piping: Provide new piping to extend system from machine room to jack assembly. All piping shall be properly supported to relieve load on fittings. Piping supports shall be isolated to minimize noise and vibration.

D. Cylinder: New seamless steel pipe. Protect with Trantex VID-20 or Fiberglass wrapping sealed with epoxy resin. Design head to receive unit type packing and provide means to collect oil at cylinder head and return to oil reservoir.

E. Plunger: New polished seamless steel tubing or pipe. If plunger length exceeds 24', provide 2 or more sections not exceeding 16' in length, or coordinate installation of longer unit at the job site. Join section by internal threaded couplings. Factory polish multiple section jack units while assembled and mark for proper future reassembly. Isolate plunger from car sling.

F. Oil Scavenger System: Provide new means to collect oil from cylinder and automatically return filtered oil to reservoir when quantity reaches prescribed amount. The collection unit shall have a device that will prevent return of collected oil should pit be exposed to amount of water sufficient to contaminate the retained oil.

G. Well Hole and Casing: Remove existing jack assembly. Remove and properly dispose of all debris and fill from hole. Opening in pit floor to be done such to insure water proofing of area. Install secondary Schedule 40 PVC pipe inner casing with bottom and joints sealed inside steel casing. Sealing to be done with adhesive that does not produce flammable fumes. PVC casing to extend 6 inches above plane of pit floor. Casing to be tested to assure seal and ventilated, prior to installation, to assure

dissipation of flammable fumes. It is to be installed plumb. Fill space around outside of PVC casing with loose, clean sand while maintaining plumb position. Install wrapped jack unit inside PVC casing. It is to be installed plumb. Seal space between PVC casing and pit floor to maintain pit waterproofing. Close area between PVC casing and jack unit such to prevent entry of debris and liquids, but removable for inspection. In lieu of providing secondary PVC casing a Cylinder/PVC assembly can be provided. This is when the PVC casing is an integral part of the jack assembly. Design to be submitted for approval.

Note: The Contractor shall include with his bid a cost, (designated Alternate #1 and Alternate #2) for redrilling the well hole. Should the Contractor find that they are unable to reuse the existing well hole and with the approval of the Owner shall proceed with the following additional work.

Redrill well hole; remove and properly dispose of excess excavated material. Install steel casing, 20" minimum diameter and 1/4" minimum wall thickness. Casing to include waterproofing collar. Opening in pit floor to be done such to insure waterproofing of area. Close bottom of casing with at least 6" of nonshrink concrete. Install secondary Schedule 40 PVC pipe inner casing inside steel casing. PVC casing is to be installed plumb. Fill space between steel and PVC casing with loose, clean sand while maintaining plumb position. Seal space between PVC casing, steel casing and pit floor to maintain pit waterproofing.

H. Jack Support: Provide new full width steel channels to support jack and transmit loads to building structure.

I. Normal and Final Terminal Stopping Devices: Install new per requirements of A17.1 Code.

J. Electrical Wiring: All existing elevator fixed wire and traveling cable shall be removed and new wire and cable installed. Existing conduit, wire duct and fittings may be reused provided it meets current requirements of National Electrical Code.

1. Conductors and Connections: Copper throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control cabinets, junction boxes, or condulets. Provide 10% spare conductors throughout. Provide 4 pairs of shielded communication wires in addition to those required to connect specified items. Run spare wires from car connection points to individual elevator controllers in the machine room. Tag spares so they can be identified in the machine room.
2. Conduit, Etc.: Painted or galvanized steel conduit, electrical metallic tubing and/or duct. Conduit size, 1/2 " minimum. Do not use flexible conduit exceeding 36" in length. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices. Buried conduit and fittings to be galvanized steel.

3. Traveling Cables: Flame and moisture-resistant outer cover. Include 4 sets of shielded communication wires and car lighting circuit from machine room to car connecting points. Prevent traveling cables from rubbing or chafing against hoistway or elevator equipment within hoistway.

K. Entrance Equipment:

1. Door Hangers: 2-point suspension with upthrust adjustment. Tire rollers so that no metal-to-metal contact exists.
2. Door Tracks: Bar or formed, convexed guiding surface, cold-drawn steel with smooth hanger contact surface. Provide removable tracks or track surface for replacement.
3. Interlocks: Provide type operable without retiring cam. Paint interlocks flat black.
4. Closers: Sill mounted spring type door closers.
5. Access: Means to open doors manually from lobby side at all floors when interlock is in locked position. Provide escutcheon sleeve through door panel with fastening means to prevent removal.

L. Pit Stop Switch: Install new per requirements of A17.1 Code.

M. Floor Numbers: Stencil painted 4" high floor numbers within the hoistway per Code. Color to contrast with background for easy identification.

2.6 HOISTWAY ENTRANCES

A. Existing hoistway entrance frames to be reused. Door panels are to be replaced.

B. Frames: The existing painted metal frames to be retained. Metal surfaces should be stripped of all paint, scratches and dents filled and completely sanded smooth. The surfaces shall be encased with 24 gauge wrap-around stainless steel. Covers shall follow contour of existing entrance and extend around the return edges. It shall be securely bonded. Permanently attach on both jambs, floor designation 2 inches high, raised 0.030 inches, 60 inches above the floor. Numerals shall be on contrasting color background. Stick-on plates are unacceptable. Finish of floor designation to match hall station faceplates.

C. Door Panels: The existing painted metal panels in to be replaced. Provide 16-gage steel, sandwich construction B labeled door panels without binder angles. Provide a minimum of 2 door guide assemblies, one at leading and one at trailing edge with guides in the sill groove their entire length of travel. Safety retaining means shall be a separate assembly and not part of the guide assemblies.

D. Sight Guards: Provide new 14-gage material sight guards with same material and finish as hoistway entrance door panels.

E. Sills: Existing to be retained. They shall be cleaned, leveled, all fastenings made secure and any loose or missing grout replaced.

F. Sill Support Means: Existing to be reused. All fastenings made secure.

G. Fascia, Toe Guards and Hanger Covers: Existing equipment to be thoroughly cleaned and painted. All missing and damaged fascias, guards, covers or related hardware to be replaced and all fastenings secured. Verify toe guard length is in compliance with Code regulations. Replace if necessary.

H. Struts and Headers: Existing equipment to be thoroughly cleaned and painted. All missing and damaged hardware to be replaced and all fastenings secured. Provide door open bumpers on entrances equipped with vertical struts.

I. Finishes of Entrances: Stainless steel with satin finish in accordance with requirements of item 1.19, B.

2.7 CAR EQUIPMENT

A. Car Frames: Existing car frames to be reused. Check frame for proper alignment and make adjustments, where necessary, to accomplish that alignment. All fastenings shall be made secure. Missing, damaged or broken fastenings shall be replaced. Provide properly located balancing weights and frames to achieve the required true balance. Provide new crosshead data tag. (Do not remove existing tag.) Stencil paint car number (4 inch high) on crosshead beam web so it can be read from landing side.

B. Platforms: Existing car platforms to be reused. Make adjustments to achieve proper alignment. All fastenings shall be made secure. Damaged or broken parts shall be replaced. Isolation pads shall be replaced with new pads meeting original manufacturer’s specification.

C. Guide Shoes: Existing guides to be removed and replaced with new roller type guides using 3 or more spring loaded sound-deadening rollers per shoe.

D. Finish Floor Covering:

1. Remove existing floor covering. Condition floor surfaces so that they are clean, smooth, firm and free from dirt or any other damaging material. Cracks wider than 1/8 inch and holes larger than 1/4 inch in diameter shall be filled. All ridges or other uneven surfaces shall be planed, scraped, or sanded smooth. Lining felt shall be applied over wood floor surfaces and seams in felt shall be butted. Adhesive shall be applied in accordance with manufacturer's recommendations.
2. Rubber tile to be 1/8 inch thick raised circular pattern. Circular pattern to be 1 inch diameter by 0.025". Color selected by Owner. Lay tile flush with sill and base of car.

E. Car Sills: Existing to be removed and replaced with new. New sill to be extruded white bronze or nickel silver. Sill to extend full width of car door in it's open position.

F. Toe Guard: Provide new metal guard in accordance with Code requirements.

G. Car Doors, Hangers and Tracks: Existing to be removed. Provide as specified.

1. New 2 point suspension hangers with upthrust adjustment. Tired roller so that no metal-to-metal contact exists.
2. New bar or formed, cold drawn steel tracks with smooth hanger contact surface. Provide removable tracks or tracks surface for replacement.

H. Header: Construct of steel; shape to provide stiffening flanges.

I. Car Door Electrical Contact: Arrange so that elevator cannot operate unless doors are closed within tolerance allowed by Code.

J. Car Door Clutches: Existing clutch mechanism to be replaced with new heavy-duty clutches, linkage arms, drive blocks and pickup rollers or cams to provide positive, smooth, quiet door operation. Design clutches so car doors can be closed for maintenance purposes, while hoistway doors remain open. Clutch shall include means to restrain car doors from opening more than 4 inches when the elevator is outside the unlocking zone.

K. Door Operator and Operation: New medium-speed, heavy-duty, master door operator capable of opening doors at no less than 1-1/2 f.p.s., and accomplishing reversal in no more than 2-1/2" of door movement. Open doors automatically when car arrives at a floor to permit egress of passengers. Close doors automatically after a timed interval.

L. Door Reopening and Control Devices: Existing door protection to be removed and replaced with new.

1. Infrared Detector Device:

a. New multi-beam infrared pulsed screen car door protective device projecting across entire entrance opening. If the device becomes inoperative, the door closing kinetic energy shall immediately be reduced to a maximum of 2 1/2 foot pounds and a buzzer will sound during each closing operation.
b. Interrupted Screen Time: If screen is interrupted after doors are open, reduce time doors normally remain fully open to an adjustable time of about one second after screen is reestablished.

2. Forced Door Closing: If door opening is obstructed for a predetermined adjustable time (15 - 45 seconds), with initial setting at **30 seconds**, sound buzzer and attempt to close doors with a maximum of 2 1/2 foot pounds kinetic energy.
3. Differential Door Time: Provide separately adjustable timers to enable varying time that doors remain open after stopping in response to calls.

a. Car Call: Hold open time with adjustable range of 0 to 10 seconds. Initial setting to be **3 seconds**.
b. Landing Call: Hold open time with adjustable range of 0 to 15 seconds. Initial setting to be **6 seconds**. Use landing call timing when responding to coincidental calls.

M. Elevator Car Operating Panel:

1. New elevator control station with faceplate and a metal box containing the operating fixtures, mounted behind the car enclosure stationary front return panel.
2. Locate operating controls no higher than 48" above the car floor; 35" for alarm button. Suitably identify floor buttons, alarm button and door open and close button by flush type raised letters or symbols against a contrasting color background per Local Accessibility Standards including braille.
3. Provide 1/8" raised stainless steel vandal resistant type floor pushbuttons with illuminating halo around the perimeter of the button to indicate call registration.
4. Provide illuminated alarm button at bottom of station to ring bell. Button to illuminate as bell sounds.
5. Provide keyed stop switch in panel faceplate with markings to show "run" and "stop" positions, or locate similarly identified button or switch in locked service cabinet.
6. Provide door open and door close buttons to stop and reopen closing doors and activate door closing. Make buttons operable while car is stopped at landing, regardless of special operational features (except Firefighters' Service).
7. Provide Phase I Emergency Recall Operation visual and audible signals as required by Code.
8. Provide Firefighters' service key switch with engraved instructions, stop switch, door open and closed buttons, light, and call cancel button per Code requirements.
9. Provide lockable service panel with recessed, flush cover plate matching main panel. Include the following controls with purpose and operating positions identified by engraved letters painted black:

    a. Inspection switch, conforming to the Code, for disconnecting automatic operation, limiting the car speed and activating hoistway access switches when car is at access landing. Switch to be keyed same as access switches.
    b. Light switch.
    c. 3-position exhaust blower switch.
    d. Independent service switch to permit selection of independent or automatic operation.
    e. Duplex 120-volt, AC, electrical convenience outlet GFCI type.

10. Provide black paint filled engraving with size and style as required by respective Code or as approved. Engraving to be as follows:

    a. Elevator number on main car station

b. Elevator capacity in pounds on main car station
c. Firefighters' Instructions
d. Emergency Communication Instructions
e. Warning sign to read “WARNING - ELEVATORS SHALL NOT BE USED IN EVENT OF FIRE. USE MARKED EXIT STAIRWAYS”. Lettering for “WARNING” shall be at least 3/8 inch high. Remainder of lettering shall be at least 1/4 inch high.

11. Faceplate Material and Finish: Stainless Steel with No. 4 brushed finish. All edges shall be beveled. Faceplate to be sized to cover opening in return panel and to cover any damage resulting from installation.

12. Montgomery County Standard barrel type key codes:

a.	Firefighters’ Service	FEO-K1
b.	Inspection and Hoistway Access	514
c.	In-car Stop Switch	514
d.	Light	513
e.	Fan	513
f.	Independent Service	513
g.	Service Cabinet	513

N. Car Top Control Station: Existing to be removed and replaced with new station per requirements of A17.1 Code. Device shall be permanently attached to crosshead.

O. Emergency Exit: Provide new contact on exit which when open prevents operation of elevator.

P. Work Light and Duplex Plug Receptacle: Top and bottom of elevator car. GFCI type outlets. Provide lights with on-off switch and bulb guard.

Q. Communication System:

1. Provide a new self-dialing (hands-free) communication system incorporated in the car operating panel. New speaker-transmitter shall be compatible with existing building communication system. Perforations for the speaker-transmitter shall be provided in the cover of car operating panel. Perforations sized and protected to prevent vandalism damage to device behind. Activation of the call annunciation shall be through a "PHONE" pushbutton. A telephone symbol shall appear adjacent to the "PHONE" pushbutton which is a button similar to car operating buttons. Pressing of the button shall cause the automatic placement of a call to a point of 24-hour monitoring. The call button shall illuminate to indicate the call is being made. Communicating through the instrument shall be done without any further depression of the activation button. A visual indicator in the car panel shall light once the call has been received. Instructions under the visual indicator shall read as follows: "Assistance is on the

Way". The devices shall also be capable of receiving incoming calls.

2. Furnish and install all traveling cable, conductors, conduits, etc., required for the service from the cabinet in the car to the connection box in the machine room.
3. Emergency procedure instructions shall read as follows: "TO USE EMERGENCY COMMUNICATION, PRESS THE "PHONE" BUTTON. SIGNALING WILL OCCUR AUTOMATICALLY".

2.8 CAR ENCLOSURE

A. Existing car enclosure to be removed and replaced with new enclosure. New enclosure design shall be submitted for approval.

B. Shell: Nonperforated reinforced 14-gage furniture steel with stainless steel satin finish reveals around interior panels. Apply sound-deadening mastic to exterior.

C. Top: Reinforced 12-gage furniture steel with hinged exit openable from car top only. Provide contact on exit which when open prevents operation of elevator. Finish with white, reflective enamel.

D. Front Return Panels: 14-gage stainless steel with satin finish. Provide cutouts for car stations, etc.

E. Entrance Columns: 14-gage stainless steel with satin finish.

F. Transom: 14-gage stainless steel with satin finish and cutouts for car position indicator.

G. Car Door Panels: 16-gage steel, sandwich construction without binder angles. Provide a minimum of 2 door guide assemblies per door panel, one guide at leading and one at trailing edge with guides in the sill groove their entire length of travel. Interior face to be stainless steel with satin finish.

H. Base: Cove type 14-gage stainless steel with satin finish and concealed ventilation cutouts.

I. Interior: Two equally sized wood panels on each side and three equally sized panels across the back. Panels to be faced with plastic laminate. Color and pattern to be selected by owner. Edges shall be covered with 1/8 inch satin finish stainless steel framing. Interior edge of framing shall project 1/16 inch beyond panel facing and have edges rounded. Other edge will wrap behind wood panel such to conceal mounting. No fastenings will be visible. All corners will be mitered. Reveals between and around the panels shall be satin finish stainless steel.

J. Flooring: See paragraph 2.7, D of this Section.

K. Ventilation: 3-speed exhaust blower mounted on isolated rubber grommets, Morrison Products, Model AA with a diffusor and grille.

L. Suspended Ceiling: Island type suspended ceiling using 3/4 inch wood core with satin finish stainless steel finish on interior and exposed edges. Provide finished metal egg crate guards around perimeter of island enclosing area between island and sides of enclosure. Guards shall permit movement of ventilation and prevent vandalism. Guards shall be removable for relamping.

M. Lighting: Indirect fluorescent fixtures mounted around perimeter of island ceiling. Arrangement shall include reflectors to direct light into area below. Provide wiring and hookup for lighting system.

N. Hand Rails: 2 inch x 3/8 inch flat stainless steel bars with satin finish on two sides and back located 32 inches from floor to centerline. Fastenings shall be vandal proof and reinforced to prevent damage to enclosure.

O. Wall Protection Pads and Hangers: Provide elevators with an approved elevator wall protection pad assembly.

1. The pads shall be provided with heavy eyelets properly spaced to suit #4 brushed stainless steel pad button type hangers. Wall mounted pad stud type hangers shall not be placed over 16 inches apart and shall be located in an inconspicuous position at the top of the hanging panels. Color to be selected by owner.
2. Submit samples for approval and test data for compliance to ASME A17.1.

2.9 LANDING CONTROL STATIONS: Provide new

A. Pushbuttons: Existing pushbutton stations to be removed. A new riser of flush mounted stations as shown on drawings to be provided. Provide only a key switch with illuminated signal to register a call. Centerline of call buttons to be 42 inches above lobby floor. Each station shall include an engraved warning sign as specified in paragraph 2.7, M, 10, e of this Section in pushbutton faceplate and fill with black. Designated landing station to include Firefighters' Service controls with engraved instructions. All engraving shall be filled with black unless otherwise noted. Faceplate to be sized to cover area of existing station and any damage resulting from installation of new station. Faceplate layout to be such to compliment size of plate.

B. Hoistway Access Switches: Existing to be removed and wall to be patched to Mount in the strike jamb recess of the hoistway entrance at bottom and top floor. They shall be positioned at a height of 6 feet above finished floor. Switch shall be identified and designated position relating to direction of travel should also be identified. No faceplate shall be used.

C. Faceplate Material and Finish: Stainless steel with satin finish. All edges shall be

beveled.

D. Faceplate Size: New panels shall be sized to encompass area of existing panel and any defacement of the surrounding surface. When wall surface is irregular means will be provided to close the gap between the faceplate and wall surface.

2.10 SIGNALS: Provide New

A. Car Position Indicator: Provide digital type indicator shall be provided. It shall show the floor served and the direction of car travel. It shall be located above the car door. When a car leaves or passes a floor, illuminate numeral representing position of car in hoistway. Illuminate proper direction arrow to indicate the direction of travel. Provide audible signal which will sound when car is stopping at or passing a landing.

B. Combination Corridor Position Indicator, Hall Lantern and Elevator Not In Service sign: Provide combination digital-type indicator with directional arrows and hall lanterns at all floors. Characters shall be at least 3/4 inches high. When the car leaves or passes a floor, illuminate numeral representing position of car in hoistway. Illuminate proper direction arrow to indicate the direction of travel. Lanterns to indicate travel direction of arriving elevator to waiting passengers. Lantern indications shall be arrow shaped, at least 2 1/2 inches high and project at least 1/2 inch beyond the surface of the faceplate. Green up arrow shall be on the one side and red down arrow on the other. Terminal floor indicators shall have dual arrows relating to direction. Illuminate respective lantern with shielded light and sound adjustable level electronic tone mechanism mounted in a metal box fastened in the wall. Illuminate up or down lights and sound tone (twice for down direction travel) at least 4 seconds prior to car arrival at floor. Illuminate lantern until the elevator doors start to close. Provide back lit “Elevator Not In Service” which is invisible with no illumination. Locate under the floor designations. The light shall be activated and blink when the electronic timer has deactivated the hall stations and when the elevator has been taken out of service by other means.

C. Faceplate Material and Finish: Stainless steel with satin finish. All edges shall be beveled.

D. Faceplate Size: New panels shall be sized to encompass area of existing panel and any defacement of the surrounding surface. When wall surface is irregular means will be provided to close the gap between the faceplate and wall surface. All plates shall be of the same layout design and the same size.

PART 3 - EXECUTION

3.1 SITE CONDITION INSPECTION

A. Prior to beginning installation of equipment, examine hoistway and machine room areas. Verify that no irregularities exist which affect execution of work specified.

B. Do not proceed with installation until work in place conforms to project requirements.

3.2 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver materials in Manufacturer's original, unopened protective packaging.

B. Store material in original protective packaging. Prevent soiling, physical damage, and wetting.

C. Protect equipment and exposed finishes during transportation, erection, and construction against damage and stains.

3.3 INSTALLATIONS

A. Install each equipment item in accordance with Manufacturer's direction, referenced codes, and specifications.

B. Install machine room equipment with clearances in accordance with referenced codes and specifications.

C. Install equipment with sufficient clearance such that they may be easily removed for maintenance and repair.

D. Install equipment with sufficient clearance such that access for maintenance is safe and parts are readily available.

E. Install equipment to afford maximum safety and continuity of operation.

F. Clean the following items of oil, grease, scale, and other foreign matter, and apply one coat of field-applied industrial enamel paint. Surfaces not previously painted shall be given a prior coat of rust inhibiting paint.

1. All exposed stationary equipment and metal work relating to elevator which does not have architectural finish.
2. Machine room equipment.
3. Neatly touch up damaged factory-painted surfaces with original paint and color. Protect machine-finish surfaces against corrosion.

3.4 FIELD QUALITY CONTROL

A. Work at the job site will be checked during the course of installation. Contractor shall utilize periodic quality control inspections by supervisory personnel to insure quality of work and adherence to specifications.

B. Owner and/or Enforcing Authority may conduct inspections of work.

C. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.

3.5 ADJUSTMENTS

A. Align guide rails vertically with tolerance of 1/16 inch top to bottom. Secure joints without gaps and file any irregularities to a smooth surface.

B. Balance cars to equalize pressure of guide rollers on rails.

C. Lubricate all equipment in accordance with manufacturer's instructions using manufacturer’s specified lubrication.

D. Adjust pump unit, valve, controller, leveling switches, limit switches, stopping switches, door operator, interlocks and safety devices, etc., in accordance with manufacturer’s instructions to achieve required performance levels.

E. Fabricate and assemble various parts in shop to minimize field assembly. Assemble parts, in the shop which require close field fit and mark for field erection.

3.6 CLEANUP

A. Keep work areas orderly and free from debris during progress of project. Remove packaging materials on a daily basis as equipment is installed.

B. Remove daily all loose materials and filings resulting from work.

C. Clean machine room equipment and floor of dirt, oil and grease.

D. Clean hoistways, cars, car enclosures, entrances, operating and signal fixtures, and trim of dirt, oil, grease, and fingermarks.

3.7 PAINTING AND FINISHES

A. All equipment and metal work installed or reused under this contract, which does not have a baked enamel or special architectural finish and which is exposed in the hoistway, shall be cleaned and painted one field coat of enamel. The shank and base of the T-Section of the guide rails shall be thoroughly cleaned and painted one field coat of black metal enamel.

B. All machine room equipment shall be painted upon completion of the installation with the manufacturer's standard machinery enamel.

C. All natural metals shall be of the best grade and shall have the grain of belting in the direction of the longest dimension with a fine, brushed finish. All surfaces shall be

perfectly smooth and without waves.

D. All building surfaces damaged as a result of work done shall be refinished to match existing conditions. Color and texture shall match adjacent areas. Contractor shall employ the services of personnel specially trained and experienced in the finishing of the respective surfaces. The areas requiring to be refinished shall be determined based on ability of Contractor to provide acceptable blend into existing finished surface.

3.8 ACCEPTANCE INSPECTION AND TESTS

A. General: Furnish labor, materials and equipment necessary to perform all inspections and testing.

B. Code Required Acceptance Inspection and Testing: Contractor is responsible to have Code Authority to perform required inspections and testing. Contractor shall notify the Owner of schedule date at least 5 days in advance. This inspection and test will not be scheduled unless Contractor has performed acceptable quality control inspection and tests prior. Verification of such quality control inspection and test shall be submitted to the Owner prior to scheduling.

C. Owner's Acceptance Inspection and Tests: Owner's acceptance of installation shall be made only after Code Authority has completed their inspection and all identified deficiencies have been corrected, accepted and copies of inspection reports provided for the Owner's file. The inspections and tests shall include, but not limited to, the following:

1. Workmanship and equipment comply with drawings and specifications.
2. Contract speed, capacity and floor-to-floor performance comply with specification.
3. Performance of following are satisfactory:

    a. Starting, accelerating, running
    b. Decelerating, stopping accuracy
    c. Door operation, closing force and associated operational function
    d. Equipment noise levels
    e. Signal fixture utility
    f. Overall ride quality
    g. Overall performance of operational system
    h. Ability of on-site monitoring to perform
    i. Ability of remote monitoring to interface with existing Central Monitoring System.

4. Test Results:

    a. In all test conditions, obtain specified speed, performance times, floor accuracy without releveling and ride quality to satisfaction of the Owner.

b. Temperature rise in windings limited to 50 degrees Celsius above ambient. Conduct a verification full-capacity, one-hour running test, stopping at each floor for 10 seconds in up and down directions.

D. Performance Guarantee: Should inspections and tests reveal defects, poor workmanship, variance or noncompliance with requirements of specified Codes and/or ordinances, or variance or noncompliance with the requirements of specifications, complete corrective work to satisfaction of the Owner at no additional cost:

1. Replace equipment that does not meet Code or specification requirements.
2. Perform work and furnish labor, materials and equipment necessary to meet specified operation and performance.
3. Perform and assume cost for retesting required by Governing Code Authority and the Owner to verify specified operation and/or performance.

3.9 ACCEPTANCE OF DOCUMENTS: Contractor provides complete and proper documentation as required elsewhere in this Section.

END OF SECTION 142400

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion complete the following. List items below that are incomplete in request.
1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
4. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
6. Touch up and otherwise repair and restore marred exposed finishes to eliminate isual defects.
7. Submit certificate of manufacturer's inspection.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.3 FINAL COMPLETION

A. Refer to General Conditions Article 14.3.
B. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
1. Submit a final Application for Payment.
2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
C. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.5 CORE SAMPLES

A. The Owner reserves the right to have core sampling performed by the Contractor where moisture contamination is suspected within the new roof system until the expiration of the Contractor's warranty. Core sample locations shall be chosen by the Owner and be performed at no cost to the Owner.

1.6 WARRANTIES

A. Submittal Time: Submit manufacturer's warranties and contractor's guarantees on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

1.7 PROJECT CLOSEOUT SUBMITTALS

A. When both the Owner or Owner's Representative and the Manufacturer's Representative agree that the Contractor has performed according to the Specifications and has installed the materials to the satisfaction of the Manufacturer, submit the following:

1. Specified Contractor's and Manufacturer's Warranties and Guarantees.
2. Lien Releases from Contractor, subcontractor, and suppliers (AIA Forms G706, G706A).
3. Consent of Surety to Final Payment (AIA Form G707).

PART 2 – PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 – EXECUTION

3.1 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700