Bidders are hereby notified that the Bidding and Contract Documents for the above project, for which Bids are to be received on **Tuesday, September 26, 2017**, are amended as follows:

<table>
<thead>
<tr>
<th>Q1.</th>
<th>Is it acceptable to use the existing Thyssenkrupp IMS system to incorporate the new elevators 1-11.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1.</td>
<td>Yes. Refer to updated specification section below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2.</th>
<th>Can the specifications for the ride quality be amended to 18mg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2.</td>
<td>No. Refer to updated specification section below</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3.</th>
<th>Please provide the manufacturer's name and model number of the proposed card reader system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3.</td>
<td>Refer to the updated specification below</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Q4.</th>
<th>Will ½” hoist ropes be acceptable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4.</td>
<td>Yes. Refer to the updated specification below</td>
</tr>
</tbody>
</table>

Changes to Technical Specifications:

1. 142100-2  
2. 142100-2  
3. 142100-4  
4. 142100-4  
5. 142100-5  
6. 142100-7  
7. 142100-9  
8. 142100-9  
9. 142100-12 
10. 142100-16
11. 142100-17  2.9.D.2.c – add the word “all” between the words ... for and elevators... eliminate the reference to “7-11”
12. 142100 -17  2.9.E.2..b – Add “include an allowance of $5,000.00 per elevator for the custom lens”.
13. 142100- 17  2.9.F after the words...Lift-Net,... add “Thyssenkrupp IMS”
14. 142100-18  2.9.G.1 – in the second sentence eliminate the words...behind wall panel adjacent to the Lobby Guard Desk.... And add “in the existing Fire Control Room on the Ground level.”
15. 142100-18  2.9.G.2 – add number 2 to read “Remove and discard the existing control panels located behind the wall panel adjacent to the Lobby Guard’s Desk.”
16. 142100-19  3.3.B – in line one eliminate the words...and high -... Add after the words... machine room equipment, add “and all activities that create disturbing noises or produce noxious smells”...Add the following sentence “For purposes of this activity the normal business hours are considered 6:00 am to 6:00 pm.
17. 142100 21  3.7.E – Add new item. All painting to be performed after 6:00 pm week days or anytime on the weekends.

NOTE: Bidders must acknowledge receipt of this Addendum by listing the number and date, where provided, on the PROPOSAL P.-1

END OF ADDENDUM No. 2

Jaime Garrido, RA, LEED AP
Project Manager
Street Transportation Department

[Signature]

EXPIRES: 9-9-20
PART 1 - GENERAL

1.1 SUMMARY

A. General: Modernization of eleven (11) gearless overhead traction passenger elevators.

1. Everything required to satisfactorily complete elevator installation as required by contract documents unless exceptions noted in writing with bid.
2. Assumption of all elevators not being modernized on full preventative maintenance.
3. Removal and disposal of existing elevator equipment which is not reused.
4. Cleaning, inspection, repair, replacement and adjustment of components.
5. Refurbishing and lubrication/painting of existing equipment which is retained and reused.

B. Related Sections: Applicable conditions of General, Special, Supplemental Conditions, and Division 01.

C. Work Specified Elsewhere

1. Power feeders: to terminals on mainline disconnect.
2. Main line disconnect switches.
3. Lighting circuits: to terminals on disconnect switches.
4. Lighting disconnect switches.
5. Standby Power.
   a. Provide two (2) pairs of 16-gauge wires from auxiliary contacts of each automatic transfer switch to controllers in the elevator machine room.
   b. Provide signal to indicate standby has been initiated.
   c. Provide signal to alert that within 30 seconds, standby power will revert back to utility power.

7. Public Address Speakers: If provided, supplied under other applicable sections, installed under this section.
8. Cameras: If provided, supplied under other applicable sections, installed under this section.
9. Card Readers: When provided, supplied under other applicable sections, installed under this section.
10. HVAC:
    a. Provide necessary heating and air conditioning.
    b. Elevator Machine Room to maintain temperature between 45° and 90° Fahrenheit.

11. Connectivity: Provide RJ 45 IT connections in each elevator machine room, the Lobby Guard Station and the location where the Fire Command Center Panel will be located. Provide connectivity between all points to facilitate the information sharing required by the elevator control and monitoring systems.
12. Architectural modifications required to accept the new Fire Command Center Emergency Power Control Panel.
13. Architectural modifications required to accept the manufacturer’s touchscreen installation at all lobby levels in the event the Alternate for the destination based control system is accepted.

D. Allowances: Include an allowance of Seventy-two thousand dollars ($72,000.00) to cover unforeseen conditions that may arise during the course of the project. All requests to utilize all or a part of the allowance must be approved in advance by the City of Phoenix Project Manager responsible for the project.

E. Alternate 1:

1. Provide a destination based dispatch control system in lieu of the specified 2-button conventional Group Automatic control as manufactured by one of the following manufacturer’s products:
   a. KONE - Polaris
   b. Otis - Compass
   c. ThyssenKrupp – Destination Dispatch

2. Requests for alternate systems must be received no later than seven (7) days after publishing of the bid date and must include the following information:
   a. Name of manufacturer
   b. Confirmation of the ability to conduct traffic simulations and share the results
   c. Number of years the product has been operational in occupied buildings
   d. Number of and locations of existing installations
   e. Experience of contractor proposing the system with the system

F. Alternate 2:

1. Modernize two (2) elevators simultaneously on the low-rise in lieu of the base case where only one (1) elevator is modernized at a time.

G. Alternate 3: Add 2

1. Provide all associated activities with the removal and replacement of the low-rise elevator machine room equipment outside of the City’s normal business hours. For purposes of this activity, the normal business hours are considered 6:00 am to 6:00 pm Monday thru Friday.
2. Undertake all activities that create disturbing noises or produce noxious smells outside the City’s normal business hours as defined above.
3. Assume based on Alternate 2 work schedule.

H. Alternate 4: Add 2

1. In lieu of Alternate 3, perform all field labor associated with the installation outside of normal business hours as defined above.
2. Assume based on Alternate 3 work schedule.
1.2 QUALITY ASSURANCE

A. Approved Contractors

1. The contractor must hold the correct license as deemed appropriate by the Arizona Registrar of Contractors prior to bidding for this project in accordance with Arizona Revised Statute 32-1151.
2. Has sufficient trained technical personnel with the ability to perform the required maintenance and response times as identified in Section 3.6.

B. Document and Site Verification: In order to discover and resolve conflicts or lack of definition which might create construction problems, Elevator Contractors must review contract documents and existing site conditions for compatibility with their products prior to submittal of quotation. Attach specific, written exceptions and/or clarifications with quotation. Elevator Contractor’s compliance with all provisions of contract documents is assumed and required in absence of written exceptions. Owner will not pay for changes to structural, mechanical, electrical or other systems required to accommodate Bidders’ equipment if not identified before submittal of quotation.

C. 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. Requirements of The City of Phoenix and any other Codes, Ordinances and Laws applicable within the governing jurisdiction
3. Safety Code for Elevators and Escalators ASME A17.1-2010 as amended by the City of Phoenix
5. Safety Code for Existing Elevators and Escalators ASME A17.3-2002 with City Amendments in 2005
7. Life Safety Code, NFPA/ASME No. 101 and Local Fire Authority

D. Permits: Arrange and pay for installation permits, inspections and operating permits by the governing authorities.

1.3 SUBMITTALS

A. Product Data: Manufacturer's specifications, catalog cuts or renderings of items exposed to public view.

B. Shop Drawings: Submit as required by the Owner and/or Owner’s Representative. The Owner’s Representative reserves the right to require any details of any portion of the equipment.

1. Layouts: Scaled and fully dimensioned plan and section of hoistways, pits and machinery spaces; include impact and static loads imposed on building structure, location of hoistway ventilation and required clearances around equipment.
2. Details: Submit details of cabs, fixtures and entrances.
3. **Data:** Indicate on layouts or separate data sheets; machine spaces heat release, power requirements, conduit runs outside of hoistways and machine rooms, car and counterweight roller guides and door operators.

C. **Samples:** Provide samples of car and lobby pushbuttons, car and lobby braille plates, all materials and finishes exposed to public view and any additional item specifically requested. Provide 6-inch x 6-inch panels, 12 inch lengths or full size if smaller, as applicable.

D. **Operating Instructions:** Submit manufacturer's literature describing system operations and special operations as specified.

### 1.4 WARRANTY

1. Materials and workmanship of the elevator installation shall comply in every respect with contract documents. Unless due to ordinary wear and tear, or improper use or care by Purchaser, correct defects which develop within one (1) year from date of final acceptance of all elevators to the satisfaction of the Owner and/or Consultant at no additional cost.

2. Make modifications, adjustments, improvements, etc., to meet performance requirements in Parts 2 and 3.

3. The warranty shall be written and issued at the completion and prior to final payment.

### 1.5 MAINTENANCE

A. **Interim Maintenance**

1. Provide interim maintenance on all elevators including elevator 12 and 13 from the time of the Notice to Proceed for the elevator modernization until the start of the 12-month warranty maintenance period. There will be no proration or exclusions allowed.

2. Include systematic examination, adjustment and lubrication of the equipment whenever required but no less than one (1) hour every week per unit.

3. Provide 24-hour call back service in the event of failures with a maximum of one (1) hour response time with the exception of a passenger entrapment where the response time shall be a maximum of fifteen (15) minutes.

4. Call backs due to passenger entrapment or where there is no elevator service to the building shall be at no additional cost to the Owner regardless of time of day or day of the week. Other after hour calls can be billed at premium time only. After hours is defined as outside the normal building operating hours of 8:00 am to 5:00 pm. 6:00

5. Perform any testing such as CAT 1 or CAT 5 required on elevators not yet modernized during the term of the interim maintenance period.
B. Warranty Maintenance

1. Provide full preventative maintenance on all elevators including elevators 12 and 13 for a period of 12 months from the time of final acceptance by the Owner of all elevators as stated in Section 1.4.

2. Include systematic examination, adjustment and lubrication of the equipment whenever required but no less than one (1) hour every week per unit.

3. Maintain complete maintenance records in the elevator machine room including the company MCP, check charts, activity log and Fireman’s Recall Test log.

4. Perform monthly test of the Fireman’s Recall service for all elevators. Test to be conducted outside City Hall normal business hours, which is defined here as 6:00 am to 6:00 pm.

5. Provide 24-hour call back service in the event of failures with a maximum of one (1) hour response time with the exception of a passenger entrapment where the response time shall be a maximum of fifteen (15) minutes.

6. Call backs due to passenger entrapment or where there is no elevator service to the building shall be at no additional cost to the Owner regardless of time of day or day of the week. Other after hour calls can be billed at premium time only. After hours is defined here as outside the normal building operating hours of 8:00 am to 6:00 pm.

7. In the event that the frequency of call backs exceeds one (1) per unit in any given month or a total of two (2) collectively in a given month, the warranty and warranty maintenance period shall be extended by one (1) additional month from the start of the 12-month period.

C. Maintenance Billing

1. If during the term of the Interim or Warranty periods work is required that is not covered by the terms stated herein provide the billing rates associated with a Mechanic and a Helper/Apprentice for both straight time and for overtime.

1.6 PERMITS, TESTS AND INSPECTIONS

A. Obtain and pay for permits, licenses and inspection fees necessary to complete the elevator installation.

B. Perform tests required by Consultant, Governing Authority and/or the ASME A17.1 Safety Code for Elevators and Escalators, with procedures described in ASME A17.2 Inspectors’ Manual for Elevators and Escalators, in the presence of Authorized Representatives.

C. Supply personnel and equipment for tests and final reviews indicated in Part 3 at no added cost.

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PART 2 - PRODUCTS

2.1 SUMMARY OF SYSTEM

A. Low-rise Passenger Elevators

1. Number of Cars: Six (6)
2. Capacity: 3500 lbs.
3. Speed: 500 F.P.M.
4. Type: Gearless Overhead Traction
5. Roping: 2:1
7. Power Characteristics: 480 Volts, 3 Phase, 60 Hertz (Field verify)
8. Stops: Ten (10) in-line
9. Openings: Ten (10) in-line
10. Floors Served: 1-10
11. Travel: Field Verify
12. Platform Size: 7' - 0" wide x 5' - 6" deep (Field Verify)
   Entrance Size: 3' - 6" wide x 9' - 0" high Center Opening

B. High-rise Passenger Elevators

1. Number of Cars: Five (5)
2. Capacity: 3500 lbs.
3. Speed: 700 F.P.M.
4. Type: Gearless Overhead Traction
5. Roping: 2:1
7. Power Characteristics: 480 Volts, 3 Phase, 60 Hertz (Field verify)
8. Stops: Elevators 7-9, Twelve (12) in-line
   Elevators 10-11, Thirteen (13) in-line
9. Openings: Elevators 7-9, Twelve (12) inline
   Elevators 10-11, Thirteen (13) in-line
10. Floors Served: Elevators 7-9, 1-10
    Elevators 10-11, B, 1, (10T), 11-20
11. Travel: Field Verify
12. Platform Size: 7" - 0" wide x 5" - 6" deep (Field Verify)
13. Entrance Size: 3" - 6" wide x 9" - 0" high Center Opening

2.2 PERFORMANCE

A. Speed: Traction - +3% of contract speed under any loading condition.

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

C. Stopping Accuracy: ±1/4” under any loading condition.

D. Door Opening Time: Seconds from start of opening to fully open:

   1. Elevators 1-11: 1.7 seconds.
E. Door Closing Time: Measured from the instant the doors begin to close until the doors are fully closed:
   1. Elevators 1-11: 2.9 seconds.
   2. 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 lbs.

F. Floor-to-Floor Performance Time: Seconds from start of doors closing until doors are \( \frac{1}{2} \) open and car level and stopped at next successive floor under any loading condition or travel direction (12' - 6" typical floor height):
   1. Elevators 1-11: 9.5 seconds.

G. Ride Quality: Design, install and adjust elevator equipment to meet the performance requirements of Paragraph 2.2 within the following parameters:
   1. Horizontal and Vertical Movement within Cars during All Riding and Door Operating Conditions (X, Y and Z axis): Not more than \( \pm 15 \) mg peak-to-peak in the 1-10Hz range. In no case shall it exceed the pre-modernization value if under 15mg. Measured using PMT in ISO filtered mode.
   2. Acceleration and Deceleration: Constant and not more than 4 feet/ second\(^2\) with an initial ramp between 0.5 and 0.75 second.
   3. Sustained Jerk: Not more than 8 feet/second\(^3\).
   4. Sound: Sound levels inside the cab under all operating conditions not to exceed 55 dBA.

H. System Response Time
   1. Hall Calls Answered within 30 Seconds: Not less than 80%.
   2. Hall Calls Answered within 60 Seconds: Not less than 95%.
   3. Hall Calls Answered within 90 Seconds: Not less than 100%.

I. System Response Time
   1. Average Passenger Wait Time: Not more than 25-30 seconds.
   2. Longest Passenger Wait Time: Not more than 60-75 seconds.
   3. Base requirements on not more than 150 calls being registered within a 15-minute period, all cars in group operation for passenger service during test period, and only floors served by all elevators included in test.
   4. At the completion of the Project, the Contractor shall record each elevator group’s system response times and submit the result to the Elevator Consultant for verification.

2.3 AUTOMATIC OPERATION

A. Pre-Approved Products
   1. GAL — Galaxy
   2. KONE – ReSolve KMC
   3. Motion Control – iBox
   4. Otis – 411M
   5. SmartRise - SRA
   6. ThyssenKrupp – TAC 32T
B. General Operation

1. Provide a non-proprietary microprocessor-controlled dispatching system designed to monitor all types of traffic, and sufficiently flexible so that it can be modified to accommodate changes in traffic patterns. Include hardware necessary to protect hoist motors, motor drives and door operators. Software shall control group and simplex program operations.

2. The system shall continuously monitor the demand based on real-time calculations to assign and reassign the elevators to handle the traffic in the most efficient manner.

3. Provide anti-nuisance service, whereby all car calls shall be cancelled if the load-weighing device detects that an abnormal number of calls are registered given the number of passengers in the car. System using false call answering to accomplish this is not acceptable.

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

5. Fault Diagnostic System: Provide Owner with all hardware, such as onboard diagnostics LED, handheld device or laptop computer, SIM card as standard with manufacturer, and supporting software documentation. Diagnostic system shall be capable of adjusting, performing all tests and determining faults most difficult to find.

C. Special Operations

1. Load Weighing: Provide strain gauge type means for weighing passenger load. Design control system to provide dispatching in advance of normal intervals and to provide landing call by-pass when the car is filled to adjustable percentage of rated capacity. (Adjustment range: 10-100 %.)

2. Anti-Nuisance Feature: If car loading is not commensurate with registered car calls, cancel all car calls. In event that three times the number of car calls are registered as there are passengers in car allowing 150 pounds per person all calls should be cancelled. System using false call answering (light ray interruption) is unacceptable.

3. Automatic Stopping Accuracy: Stop car within ¼" above or below the landing sill. Avoid overtravel, as well as undertravel, and maintain stopping accuracy regardless of load in car, direction of travel, rope slippage or stretch.

4. Independent Service: Provide controls for operation of each elevator from car buttons only. Close doors by pressure on desired destination floor button. Open doors automatically upon arrival at selected floor.

5. Inspection Operation: Provide new key operated hoistway access devices (switches) at top and bottom landings and car top operating device.

6. Firefighters’ Service: Provide new per ASME A17.1 Code-2010, to operate and recall elevators to designated or alternate floors in fire or other emergency condition. Provide sensor signal wiring from hoistway or machine room connection point to controller terminals. Provide similar operation and fixtures on all elevators. Operate visual/audible signal until return is complete or automatic operation restored.

   a. Designated Floor = Main Lobby Floor
   b. Alternate Floor = Elevator Nos. 1-6 @ 2nd Floor, Elevator Nos. 7-11 @ 10th Floor.

7. Standby Cab Lighting and Alarm: Provide new car-mounted, battery unit and alarm bell with solid-state charger to operate alarm bell and lighting, per code. The battery is to be rechargeable with 5-year minimum-life expectancy. Provide test button in service.
cabinet of car station which causes illumination of standby lighting bulbs. Incorporate lights so they are part of normal car lighting system.

8. **Stand-by Power**: If normal power fails, adequate standby power will be supplied through normal power feeders to start and run each elevator at rated speed.

9. **Security System**: Provide means to limit elevator access to each building floor through the use of a separate security system integrated with the elevator control systems. Design of the system has not been finalized although it is expected to be a proximity type reader located within each car. The current readers are made by Indala and the operating system is Lenel Diamond 2.

### 2.4 MACHINE ROOM EQUIPMENT

**A.** Arrange equipment in existing machine room space.

1. Provide new identifying numbers on machine, power conversion unit, controller, and disconnect switches.
2. Provide means to remove existing and place new equipment in the machine rooms.
3. Provide any demolition and repair made necessary by this requirement.
4. Provide necessary finish floor protection while moving the new and old equipment through public spaces. This will require the removal of such protection on a daily basis on the 11th floor so as not to interfere with on-going City business.

**B.** Gearless Traction Overhead Machines

1. Provide new code compliant AC gearless motors, new drive/deflector sheaves and dual braking systems mounted on a common bedplate
2. Roping systems utilizing less than 5/8” 1/2” traction steel ropes are not acceptable.
3. Fit into the current allotted space and existing rope slots in machine room floor slab.
4. Provide all required support and building modifications if necessary.

**C.** Power Conversion Unit

1. Provide new solid-state armature-reversing Variable Voltage Variable Frequency drive unit to limit current, suppress noise, and prevent transient voltage feedback into building power supply.
   
a. Isolate unit to minimize noise and vibration transmission

b. Provide isolation transformers, filter networks, and choke inductors
2. Generate power using IGBT inverter and shunt transistors having a 10 kHz switching frequency.
3. All drives shall be regenerative type. Provide means to absorb and dissipate the regenerated power and heat under dynamic braking during emergency generator operation.
4. Elevator Contractor is responsible to suppress solid-state converter noises, radio-frequency interference, and eliminate regenerative voltage transients induced into the main line feeders or the standby power generator.
5. Supply supplemental direct-current power for operation of dispatch logic processors, brake, and door operator as required.

**D.** Encoders: Solid-state, optical, digital-count type, mechanically coupled to the car via a slotted tape with drive sheaves and a pit-tensioning sheave, or driven from the car top or governor. Update parity at each floor and restore automatically after power loss.
E. Controller-Individual Car and Group

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 power ventilates to prevent overheating.

2. Switch and Relay Design: Direct-current type, magnet operated with contacts of design and material to ensure 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. Design the system so that it will start properly when power is restored in the event of a power failure or interruption.
   b. Provide system memory so that data is retained in the event of power failure or disturbance.
   c. Protect equipment to provide electromagnetic interference (E.M.I.) shielding within F.C.C. Guidelines.


5. 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 auxiliary disconnect switches if required by code.

F. Sleeves and Guards

1. Provide rope and smoke guards for cable slots.

2. Provide rope guards on each drive sheave and secondary sheave to prevent dislodgement of hoist rope.

3. Provide rope guards covering as much of the exposed rope as possible with the machine design. The elevator Consultant reserves the right to require more than what the manufacturer considers a standard installation.

G. Machine Beams and other Support Steel: Existing elevator machine beams, sheave beams, dead-end beams, and rope fastening plates shall be reused. All beam anchorings shall be examined and made secure. If additional support beams are required, they shall be the responsibility of the Contractor.

H. Governor

1. Provide new centrifugal-type, car driven, with pull-through jaws and bi-directional electrical shutdown switches to building structure.

I. Noise and Vibration Control

1. To minimize noise and vibration in occupied areas, mechanically isolate elevator equipment (including hoist machines, deflector sheaves, power-conversion units and support equipment) from the structure; electrically isolate controllers, machine motors, and power conversion units.

2. Limit audible noise level relating to elevator equipment and its operation to no more than 70 dBA.
2.5 HOISTWAY EQUIPMENT

A. Guide Rails
   1. Retain existing car and counterweight guide rails and brackets.
   2. Thoroughly clean all guide rails of grease, oil and other foreign substances, file and
      remove all rough edges and surfaces, align as necessary to achieve specified ride quality,
      and tighten bracket bolts and guide clips for smooth and quiet operation of car and
      counterweight.
   3. Provide required rail backing and/or intermediate tie brackets to comply with the ASME
      A17.1 Code.
   4. Show guide rail loads on safety application on shop drawings.

B. Buffers
   1. Flush, clean, and blue all buffers units with new oil.
   2. Clean and paint all pit equipment and floor.
   3. Load test and retag after equipment modifications.
   4. Provide new electrical contact on car buffers and connect circuit to prevent full-speed
      operation of the elevator if the buffer is not fully extended.
   5. Indicate reactions on buffer application, on shop drawings.
   6. Indicate car number on buffers and all pit equipment with painted stencil indication.
   7. Provide new permanent buffer inspection platforms for elevator Nos. 7-11.

C. Sheaves: Replace existing hoistway (car top) rope sheaves. Provide and install new rope
sheave guards if required.

D. Governor and Encoder Pit-Tensioning Sheaves: Provide new. Mount sheaves and frames on pit
support members or guide rails. Provide with guides or pivot points to enable free vertical
movement and properly tension cables/tapes.

E. Counterweights and Roller Guides
   1. Adjust weight as necessary to approximate car weight plus 40-50% of rated load.
   2. Filler weights shall be held securely in alignment with tie rods passing through holes in
      the weights and frame members. Rods shall be equipped with locknuts secured by cotter
      pins at each end.
   3. Adjust so that rollers have continuous contact with the corresponding guide rail surface
      under all loading conditions.
   4. Replace counterweight slide guides with new ELSCO Type B or approved equal.

F. Hoist and Governor Ropes
   1. Replace all hoist ropes and governor ropes.
   2. Rope Shackles: The existing Babbitt rope shackles shall be replaced with new wedge
      clamp shackles when new ropes are installed.

G. Compensation
   1. General: Provide proper number and size to adequately compensate weight of hoist ropes
      and traveling cables.
2. Chain: For elevator Nos. 1-6 provide new encapsulated chain with pit roller to ensure quiet operation. Provide Whisper-Flex by Republic Wire and Cable or approved equal. Existing guiding system in pit to limit movement can be reused; replace all roller guides.

3. Rope: For elevator Nos. 7-11 provide new rope compensation. Retain existing compensation sheaves, re-groove if necessary. Replace all bearings.

H. Normal and Final Terminal Stopping Devices: Provide new noiseless type per code.

I. Electrical Wiring: All existing elevator fixed wire and traveling cables shall be removed and new wire and cables installed throughout. Existing conduit, wire duct and fittings may be reused provided they meet 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 conduits.

2. Conduit:
   a. Painted or galvanized steel conduit and duct minimum size ½”
   b. Do not use flexible conduit on flat portions of the car top or exceeding 36” in length
   c. Flexible heavy-duty service cord may be used between fixed car wiring and car door switches for door protective devices
   d. Elevator contractor shall provide both conduit and wiring to the EMIS system including the display screens and control boxes at the Guard’s Desk at the main lobby level as well as to the Engineers Fire Control Room on the Ground floor level

3. Traveling Cables: Flame and moisture-resistant outer cover with steel supporting messenger cables. Prevent traveling cables from rubbing or chafing against hoistway or elevator equipment within hoistway by installing continuous strips of wire cloth between cables and hoistway items.
   a. Include lighting and communication circuits in at least two (2) traveling cables.
   b. Provide 10% spare conductors throughout. Provide eight (8) extra 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 easily be identified in the machine room.
   c. Provide provisions for closed circuit in all elevators. Each elevator to include two (2) coaxial circuits and cable. Run continuous unspliced shielded cable (Belden No. 9259 or approved equal) from elevator car to Machine Room.

J. Hoistway Protection: Provide full depth and height protection screens between elevators that are operating and car(s) shut down for modernization.

K. Pit Stop Switch: Provide new stop switches at top and bottom of each pit access ladder.

L. Pit Ladders: Provide new or modify existing pit ladders to provide the minimum legal distance required from the rung to the face of the wall.

M. Floor Numbers: Provide new stencil painted 4” high floor numbers in contrasting color within the hoistway, per code (one per door panel).
2.6 HOISTWAY ENTRANCES

A. Existing Entrances

1. Existing doors, frames and sills are to be retained and refurbished.
2. Door Hangers: Provide new 2-point suspension with upthrust adjustment. Provide all new polyurethane rollers and new bearings for all hoistway doors.
3. Door Trackers: Retain existing door tracks. Clean and sand smooth.
4. Interlocks: Provide new, type operable without retiring cam and equipped with new SF2 fire-resistant wiring.
5. Door Unlocking Access: Provide door unlocking access holes with stainless steel escutcheons at each elevator hoistway opening. Holes to be provided without distortion to the surrounding area. If distortion occurs both door panels of the opening must be replaced to ensure the architectural continuity.
6. Closers: Provide new spirator type closers at all openings.
7. Door Gibs: Replace all existing gibs. Provide two (2) removable nylon door guiding gibs per door panel. Between the gibs provide a third metal “z” (fire-tab) bracket.
8. Sills: Existing sills to be retained. They shall be cleaned and polished. All fastenings made secure and any loose or missing grout replaced.
9. Sill Support Angles: Existing to be reused. All fastenings made secure.
10. Fascia, Toe Guards and Hanger Covers: Existing equipment to be thoroughly cleaned and painted flat black. All missing hanger covers, dust covers and damaged hardware to be replaced and all fastenings secured. Verify toe guard length is in compliance with Code regulations. Replace if necessary.
11. Struts and Headers: Existing equipment to be thoroughly cleaned and painted flat black. All missing and damaged hardware to be replaced and all fastenings secured. Provide new door open bumpers on entrances equipped with vertical struts.

2.7 CAR EQUIPMENT

A. Car Frame

1. Retain existing car frames.
2. Check for proper alignment and correct if necessary. All fastenings shall be checked and made secure. Missing, damaged or broken fastenings shall be replaced.
3. Eliminate all squeaks and rattles.
4. Modify balancing weights and frames as required and properly locate to achieve the required true car balance.
5. Static balance the car after the new door operators and cab interiors have been installed.
6. Provide new crosshead data tag. (Do not remove existing tag.) Stencil paint car number (4" high) on crosshead beam web so it can be read from landing side.

B. Car Safety Device: Reuse existing.

1. Check for proper alignment and correct if necessary.
2. All fastenings shall be checked and made secure.
3. Missing, worn, damaged, broken, or if needed, additional parts shall be replaced. At a minimum replace all springs and pins.
4. Retest and tag safeties after modernization is complete.
C. Platform
   1. Retain existing car platforms.
   2. Check for proper alignment and correct if necessary. All fastenings shall be checked and made secure. Damaged or broken parts shall be replaced.
   3. Isolation pads shall be replaced with new pads meeting original Manufacturers’ specifications.
   4. Eliminate all squeaks and rattles.

D. Guide Shoes
   1. Provide new roller guide assemblies with new ELSCO Express 3 type.
   2. Adjust to ensure the Ride Quality performance criteria is achieved.

E. Car Sills: Clean and polish all sills and make fastening secure.

F. Toe Guard: Provide new guards to comply with current code requirements for all elevators. Paint flat black.

G. Car Doors, Hangers and Tracks: Reuse existing units. Provide new polyurethane-tired hanger rollers and new bearings. Paint the hoistway side of all entrance doors flat black.

H. Header: Existing headers shall be reused or new units provided to support the new door operators.

I. Car Door Electrical Contact: Provide new contact arranged so that elevator cannot operate unless doors are closed within tolerance allowed by code.

J. Car Door Clutches: New heavy-duty, collapsible double-clutch 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.

K. Door Operator
   1. Provide new high-speed, heavy-duty, closed loop master door operator capable of opening doors at no less than 2-1/2 fps, and accomplishing reversal in no more that 2-1/2" of door movement.
   2. Acceptable Manufacturers:
      a. GAL – MOVRF
      b. KONE - Renova
      c. Otis - Glide P
      d. ThyssenKrupp - AMD

L. Car Door Restrictors: Provide mechanical type restrictors on car doors so they cannot be opened unless the car is within the unlocking zone.

M. Door Control Devices
   1. Replace existing infrared full-screen detector devices with new 3D field electronic infrared detector, similar to Pana Forty 194 3D Slim Line or approved equal, extending the full height of the opening and aligned flush with leading edge of the door.
   2. Interrupted Beam Time: Doors remain open as long as any light beam is interrupted.
3. Nudging Action: If door opening is obstructed for a predetermined adjustable time (20-30 seconds), sound buzzer and attempt to close doors with a maximum of 2-1/2 foot pounds kinetic energy. Stop and hold doors during closing if protection device is obstructed. Allow door to close after obstruction removed.

4. 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 adjustable between 3 and 4 seconds. Set initial hold open time at 3.0 seconds
   b. Landing Call: Hold open time adjustable between 3 and 8 seconds. Use landing call timing when responding to coincidental calls. Set initial timing at 5.0 seconds or longest time to meet A.D.A. requirements

N. Car Top Control Station: Provide new units for all elevators with minimum 4’ – 0” long, permanently attached, extension cord for remote operation.

O. Car Top Railing: Provide new rail on three (3) sides 42 inches above the canopy.

2.8 CAR ENCLOSURES

A. The Existing car interiors will be retained with the exception of the swing front return panels.

B. Swing Front Returns: Replace swing front return panels with new Car Operating Panel arrangement as specified below.

C. Emergency Car Lighting: New emergency car lighting with code required backup battery shall be provided. System to illuminate all or part (minimum 2 fixtures) of the normal car interior lighting.

2.9 SIGNALS AND FIXTURES

A. General: Provide new signals and fixtures as specified. Location and arrangement of the fixtures shall comply with all handicap requirements.
   1. Buttons: Provide manufacturer’s premium quality line including vandal-proof design if selected by the Owner.
   2. Switches: Toggle type or key operated where noted located within the Service Compartment.
   3. Faceplates: Provide manufacturer’s standard premium quality signal fixtures with No. 4 stainless steel finish.
   4. Fastenings: Provide with tamper-proof screws of material and finish matching the faceplate.
   5. Cabinets: Provide with concealed hinges and doors mounted flush with hairline joints to adjacent surfaces.
   6. Arrangement: Arrangement of fixtures shall generally conform to that specified, but components may be rearranged, if desired, subject to the Owner’s approval.
   7. Engraving: Of size indicated, color backfill with epoxy paint in contrasting color as selected by the Owner.

11. Tactile Markings
   a. Provide raised Braille and alpha characters as manufactured by SCS or approved equal
   b. Numerals and or symbols to be located to the left of the operating buttons and devices used by the public
   c. Indications shall be separate plates, back mounted with concealed mechanical fasteners so face of the plate is flush with the adjoining COP faceplate
   d. Plates shall be the same size and shape of the buttons or alternatively the “fishtail” type in the car operating panels

B. Car Operating Panels
   1. Two (2) elevator Car Operating Panels without faceplates in swing return panels as selected by the Owner, consisting of a metal box containing the operating fixtures, mounted in the car enclosure front return panels.
   2. Provide keyed Stop switch, illuminated, alarm button, phone call button, door open and door close button with engraved and painted letters or symbols per Handicapped Standards including Braille. Locate operating controls between 35” to 54” above the car floor.
   3. Provide door open button to stop and reopen closing doors. Make button operable while car is stopped at landing, regardless of special operational features (except firefighters’ service).
   4. Provide lockable Firefighters panel with recessed, flush door matching the return panel finish. Lock shall be keyed with Firefighters recall key. Provide firefighters’ Phase 2 service key switch with engraved instructions per local requirement, light jewel, buzzer and call cancel button.
   5. Provide lockable service panel with recessed, flush door matching return panel finish. Include the following controls with purpose and operating positions identified by engraved letters painted:
      a. Emergency light test button
      b. Inspection service switch
      c. Car lighting dimmer switch
      d. 3-position exhaust blower switch
      e. Duplex 120-volt, AC, electrical convenience outlet
      f. Two (2) spare toggle switches
      g. Serial or USB port to accept elevator and/or door operator control diagnostic tools
   6. Provide black paint filled engraving with size and style approved by Owner.
   7. Engrave CERTIFICATE ON FILE IN BUILDING MANAGERS OFFICE.

C. Car Position Indicators
   1. Provide new in-car video display units similar to CE Electronic 12” Elite PI or approved equal.
   2. Provide as integral part of each car operating panel.
D. Hall Call Pushbutton Stations

1. Retain the existing fixtures and re-lamp with 24 volt LED’s.
2. In the event Alternate 1 is accepted provide:
   a. Touchscreens with color LED display as selected by the Owner
   b. Touchscreen faceplates to include bank and elevator identification engraving as selected by the Owner
   c. Fifty percent (50%) of the touchscreens for all elevators 7-11 to incorporate provisions for card readers

E. Hall Lanterns

1. Retain the existing custom fixtures and re-lamp with 24 volt LED’s and electronic chimes.
2. In the event Alternate 1 is accepted provide:
   a. Active Car Identifiers
   b. Modify existing custom Hall Lantern lens to new illuminated Car Identifiers.
      Include an allowance of $5,000.00 per elevator for the custom lens.

F. Lobby Control Station (LCS): Provide Elevator Management Information System (EMIS) as manufactured by Lift-Net, Thyssenkrupp IMS or approved equal. Locate at the Lobby Guards Desk utilizing single 19 inch high-resolution LED or TFT flat panel monitor, keyboard and printer for all features listed. Monitor shall be capable of displaying status and position of all groups simultaneously. Tie in existing elevator Nos. 12 and 13 which have recently been modernized. Provide dedicated UPS unit for the system CPU. Include the following information:

1. Position/Status Indication: Provide indication of car position, direction, status and velocity of each elevator; the open/close status of each car door; and status display, including car in/out of service. Audio and visual indication on screen shall flash when the phone, alarm or stop buttons in the car have been activated.
2. Service Control: Through keyboard, provide means to place cars in or out of service. Activation returns car to main landing with car lights and fan off. When car is returned to service, lights and fan automatically turn on.
3. Independent Service: Status display indicates activation of Independent Service switch in car.
4. Emergency Alarm: Audible and visual indication showing stop switch, phone button and/or emergency alarm has been activated. Indication remains on until manually reset by keyboard at Lobby Control Station.
5. Standby Power: Status display indicates elevator operating under Standby Power.
6. Fireman’s Service: Status display indicates elevator operating in Fireman Recall Mode.
7. Functions of the EMIS include the ability to monitor and retrieve and print up to 120 days of historical information, including the following:
   a. Wait times
   b. System malfunctions
   c. System response performance times
8. Communications: Provide master handset unit with laminated sheet containing the extension identification of all elevators.
G. Fire Command Control (FCC) Panel

1. Provide the following features in a stainless steel faceplate with all indications and instructions engraved and backfilled with enamel paint. Locate the panel behind wall panel adjacent to the Lobby Guard Desk in the existing Fire Control Room on the Ground level. Remove and discard the existing panels. Include wiring and conduit from elevator hoistway to the panel as located by the Owner. Include the following features/functions:
   a. Car position
   b. Car direction
   c. In-/Out-of-service pilot lights
   d. Emergency power override selection switches
   e. Emergency power status lights
   f. Fireman’s recall switch
   g. Fireman’s recall status lights
   h. Master handset unit with laminated sheet containing the extension identification of all elevators

2. Remove and discard the existing control panels located behind the wall panel adjacent to the Lobby Guard’s Desk.

H. Hoistway Access Switches: Provide new switches at top terminal landings and bottom terminal landings for elevator numbers 10 and 11 that serve the basement level.

I. Firefighters’ Return Switch: Provide all new Phase 1 and Phase 2 switches and wiring.

J. Firefighters’ Key Box: Provide new boxes and instructions.

K. Communication (Phone) System

1. Provide ADA compliant two-way intercommunication devices that provide automatic elevator identification, as manufactured by Ring Communications or approved equal. Mount discreetly within the car operating panel with a pattern of holes or slots as selected and call button and “Help Is On The Way” jewel exposed. The device to be tied into the master stations in Elevator Machine Rooms, the LCS station and the FCC panel. Program the system automatic dialer to the Central Monitoring Station (CMS) central operations.

2. Distress light for each elevator which illuminates on each master handset when alarm or phone buttons in an elevator car is actuated. Sound buzzer or chime whenever a distress light is illuminated. Energize distress light and buzzer or chime until intercom selection button for that car has been depressed at a master station to establish 2-way voice communication.

3. Provide notification on the EMIS monitor.

2.10 DISABLED DESIGNATIONS

A. General: Braille Indications: Provide indications as separate cast metal plates as manufactured by SCS or approved equal. Background of indication painted in epoxy color as selected by the Owner.

B. Car Operating Panels: Braille/Arabic plates and operation buttons to be the same diameter.

1. Alternatively, the Owner may choose the “fishtail” type plate that surrounds the button.
2. Install plates back mounted with concealed mechanical fastenings; flush with face of Car Operating Panel with hairline joints.
C. Hoistway Entrance Frames: In the event Alternate 1 is accepted, provide surface mounted rectangular shape plates of the same design as indications in Car Operating Panel of size required by governing authority and as approved by the Owner.

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. There will be a limited amount of storage space available at the B level. Assume no more than 2-3 parking stalls.

C. Parking: Contractor is to make arrangements for off-site parking for the installation crews. There will be no available space on site.

D. Contractor is responsible for providing any security for an area provided by the City for storage of material and staging of the work boxes etc.

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

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

G. Provide barricades in front of each landing of the elevator being modernized. At the Ground level provide a solid, painted, 3-sided enclosure at least seven (7) feet high with a lockable entry door. Secure enclosure so that it cannot be easily moved to avoid unauthorized people from entering particularly in off-hours. Provide similar enclosures at the typical levels with a door latch from the inside of the enclosure.

3.3 INSTALLATION

A. Plan the installation so that two (2) elevators are modernized at the same, one in the low-rise and one in the high-rise.

B. The removal and replacement of all low and high-rise elevator machine room equipment and all activities that create disturbing noises or produce noxious smells must be undertaken outside of City Hall normal working hours (nights and weekends). For purpose of this activity the normal business hours are considered 6:00 am to 6:00pm.

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

D. Install machine room equipment with clearances in accordance with referenced codes and specifications.
E. Install items so they may be easily removed for maintenance and repair.

F. Install items so that access for maintenance is safe and readily available.

G. Clean the following items of oil, grease, scale, and other foreign matter, and apply one (1) coat of field-applied machinery enamel:
   1. All exposed equipment and metal work installed as part of this work which does not have an architectural finish.
   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 jobsite will be checked during the course of installation. Full cooperation with reviewing personnel is mandatory. Accomplish corrective work required prior to performing further installation.

B. Have Code Authority acceptance inspection performed and complete corrective work.

3.5 ADJUSTMENTS

A. Align guide rails vertically with tolerance of 1/16 inch per 100 feet. Secure joints without gaps and file any irregularities to a smooth surface.

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

C. Lubricate all equipment in accordance with Manufacturer’s instructions.

D. Adjust motors, generators, brakes, controllers, leveling switches, limit switches, stopping switches, door operators, interlocks and safety devices, etc., to achieve required performance levels.

E. Fabricate and assemble various parts in shop to minimize field assembly. Assemble parts which require close field fit in the shop 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 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 finger marks.
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 (1) field coat of 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. Paint pit and machine room floors with epoxy paint just prior to turning over the cars.

E. All painting to be performed after 6:00 pm week days or anytime on the weekends.

3.8 ACCEPTANCE INSPECTION AND TESTS

A. General: Furnish labor, materials, and equipment necessary for tests.

1. Notify Elevator Consultant 10 days in advance when ready for final review of each elevator unit or group.

2. Final acceptance of installation will be made only after all field-quality control reviews have been completed, identified deficiencies have been corrected, all submittals and certificates have been received, and the following items have been completed to satisfaction of Owner and Elevator Consultant.

3. Workmanship and equipment comply with specification.


5. Performance of following are satisfactory:

   a. Starting, accelerating, running
   b. Decelerating, stopping accuracy
   c. Door operation and closing force
   d. Equipment noise levels
   e. Signal fixture utility
   f. Overall ride quality

6. Test Results:

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

B. Performance Guarantee: Should 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 Owner and/or Consultant at no 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 Owner (Consultant) to verify specified operation and/or performance.

C. Warranty Closeout

1. Final Service: Four (4) weeks before the expiration of the warranty maintenance period, a representative of the Owner will make a complete survey of the equipment and installation.

2. Prior to the final review the contractor will:

   a. Perform a complete hoistway clean-down including but not limited to all door relating equipment, car tops and pits.
   b. Perform an annual CAT 1 inspection test on all elevators.

3. Survey will include a review of the level of maintenance work, call back records, maintenance check charts and Fire Service Recall logs. All must be current.

4. Contractor to complete any deficiencies noted or corrections required within thirty (30) days. Final payment will not be made until all deficiencies are corrected.

END OF SECTION 142100