a.

1. International Building Code.
2. Evanston Building Code.

E. Life Safety:

1. NFPA 101 -

1.6 ACTION SUBMITTALS

A. Product Data: Include capacities, sizes, performances, operations, safety features, finishes, and similar information. Include product data for car enclosures, hoistway entrances, and operation, control, and signal systems.

1. Power Data: Contractor shall provide electrical calculations for all three-phase and single-phase feeder requirements. The electrical calculations shall include full load maximum current, cab lighting current, in-rush current and maximum heat loads.
2. Test Data: Contractor shall provide certified laboratory test reports on components as specified or required by referenced codes.

B. Shop Drawings:

1. Machine room plan indicating equipment sizes, location of equipment and location of electrical service connection.
2. Vibration/noise transmissibility characteristics, including both mechanical and electrical, for all power transmission components and the method of elimination/ attenuation of all potential vibration/noise transmission.
3.

D. Adjuster's Test Reports: Contractor shall provide one (1) complete report and two (2) complete electronic reports with all controller settings, parameters and adjustments, along with all data from all tests performed. All settings and adjustments shall be noted.

E. Maintenance Manuals: Contractor shall provide one (1) neatly bound manual and two (2) electronic manuals including instructions explaining all operating features, parts lists (part numbers and available vendors), recommended spare parts, lubrication charts and recommended maintenance schedule. Contractor shall also provide one (1) separate copy and two (2) electronic copies of the adjustment, system overview, service tool and troubleshooting manuals.

F. Maintenance Control Program: The Contractor shall provide three (3) separate copies and one (1) CD of the written maintenance control program. One copy shall be stored in the machine room with the maintenance records.

G. Keys: The Contractor shall provide one emergency door key and three (3) sets of properly tagged keys to operate all keyed switches and locks upon completion of the first elevator. Keys shall be delivered to the Owner.

H. Service/Diagnostic Tools:

1. Device: The Contractor shall provide one (1) device (hand-

2. Award of Contract: Contractor shall not proceed until the contract is signed by the Owner. Owner may provide written notification to proceed prior to signing contract. Date of notification shall serve as the date of Award of Contract for scheduling purposes.
3. Installation Period: The Installation Period shall be time from the start of the first elevator through Final Acceptance. The Contractor shall not begin the installation of any elevator until all material for the elevator is delivered.
4. Temporary Acceptance: Contractor shall place the elevator into service after the Acceptance Review upon signing of the Temporary Acceptance by the Owner. Contractor shall coordinate the completion of the remaining work for the elevator after Temporary Acceptance with the Owner.
5. Final Acceptance: Contractor shall continue to work at the Location until the Final Acceptance Review is completed. Date of Final Review shall serve as Date of Final Acceptance.

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patched to maintain fire rating. Sprayed-on fiber insulation shall not be applied to any surface of the hoistway walls to achieve the required fire rating.

2. Alignment: Hoistway shall be provided which is plumb within 1 inch.
3. Projections: Beveled guards (minimum 75 degrees) shall be provided where the side or rear wall projects, recedes or is set-back more than 4 inches.
4. Hoistway Door Frames and Sills: Steel channel hoistway door frames and reinforcement angle sills shall be provided at each hoistway opening. Walls shall be grouted to maintain fire rating. Floors shall be grouted for sills.
5. Patching: Walls shall be patched for drywall-type entrance assemblies to maintain fire rating.
6. Painting: Walls around entrances and fixtures shall be painted. Baked enamel entrance frames and door panels shall be painted.
7. Buffing: Stainless steel entrance frames and door panels shall be cleaned, buffed and shined.
8. Sump Well: A sump well shall be provided in the elevator pit area. A metal cover shall be provided over sump well which shall be capable of supporting 300 pounds and shall be installed level with the pit floor. Existing drains shall be removed.
9. Sump Pumps: Sump pump shall be provided in pit. The pump shall be a single-phase 110-Volt submersible type and be complete with a waterproof cord and plug. A gate valve, check valve and union shall be installed in the pump discharge line. Sump discharge line shall not be directly attached to a drain or sewer line or discharge into a

elevators which have multiple levels or multiple hoistways. A duplex GFI-type outlet shall be provided in each pit area. The lighting and outlet shall be from a separate branch circuit.

5. Sump Pump: Adequate power shall be provided in the pit area for the sump pump. A single non- GFI-type outlet shall be provided in the pit area. The outlet shall be from a separate branch circuit.
6. Emergency/Standby Power: Adequate power shall be provided to operate one elevator in each group from the emergency/standby generator. Means for absorbing regenerate power shall be retained.
7. Emergency/Standby Power Signals: Two signals shall be provided to each elevator group operational control system. One signal shall activate when the power has transferred to the emergency/standby power source. The other signal shall activate prior to transfer back to normal power. This pre-transfer signal shall be adjustable and initially set at 30 seconds.
8. Elevator Control Panel Conduit: Conduit shall be provided from an elevator hoistway to the Elevator Control Panel.
9. Card Reader System: An interface panel shall be provided in the machine room. Piping and wire shall be provided to the elevator controller.
10. Electrical Piping: All electrical piping runs shall be run overhead or in a manner which does not restrict the clearance around and the access to both the electrical and elevator equipment.

E. Cab Requirements:

1. Flooring: Flooring shall be provided for each elevator cab.
2. Card Readers: Card readers shall be provided for each cab.
3. CCTV: Cameras shall be provided for each cab.

F. Communication Requirements:

1. Cab Telephone/Data Service: Piping, wiring, box (jack) and connection to terminals in the elevator controller shall be provided for each elevator for voice and remote monitoring system. Provide one (1) NUIT University Standard Outlet (USO 4-wire jack) for each elevator. Contractor to record phone number before disconnecting existing phone line. Contractor to provide cable test reports to NUIT and coordinate activation of new phone lines and data connections.
2. Cab Emergency One-Way Speaker: Speaker, piping, wiring, box and connection to terminals in the elevator controller shall be provided for each elevator as required. The speaker shall be mounted on top of the elevator cab.
3. Piping: All piping runs shall be run overhead in the machine room or in a manner which does not restrict the clearance around and the access to both the electrical and elevator equipment.

G. Life Safety Requirements:

1. Smoke Detectors: Smoke sensors shall be provided as required and dry contacts terminated in the machine room adjacent to the group controller assembly.
2. Heat Detectors: Heat sensors shall be provided within 2 feet of each sprinkler head and connected to the shunt-trip disconnect switch in order to remove power from the elevator equipment prior to water being applied.
3. Interface Devices: Wiring, box with LED indicator and connection to terminals in the elevator controller shall be provided for each elevator group. Input signals shall be provided for main floor return, alternate floor return, flashing fire indicator, shunt trip disconnect and shunt-trip power monitor.

E. Temporary Use Condition: Upon notification by the Owner, the elevators shall be stripped of all protective materials, fully tested and check-out and turned over to Owner in "like-new" condition.

1.12 MAINTENANCE SERVICE

A. General: Contractor shall provide all maintenance, repair and adjustment to the elevator equipment from the Date of Award through the end of the Warranty Period.

B. Owners Maintenance Representative: Contractor shall coordinate all maintenance, callback

Owner. This report shall be clear, legible, signed and dated by the mechanic that performed the work.

K. Reviews: Contractor shall provide personnel for maintenance reviews. Owner may schedule this review anytime during the installation and warranty periods. Contractor shall provide any modifications to the elevator equipment and any adjustment necessary to meet requirements of the Contract Documents identified during the review within 30 days of notification.

1.13 WARRANTY

A. General: Contractor shall guarantee that the materials and workmanship of the elevator equipment installed under these specifications shall be first-class in every respect.

B. Documentation: Contractor shall provide a written warranty, signed by the Contractor agreeing to repair or replace defective materials and workmanship of the elevator work.

C. Period: Contractor shall make good any defects which may develop within one year of Final Acceptance.

D. Review: Contractor shall provide personnel for one warranty review. Owner may schedule this review anytime during the warranty period. Contractor shall provide any modifications to the elevator equipment and any adjustment necessary to meet requirements of the Contract Documents identified during the warranty review within 30 days of notification.

PART 2 - PRODUCTS

2.1 GENERAL

A. Outline:

1. Quantity: **<existing/calculated number of elevators>** [illegible]

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6. Door Hold Operation: Provide separately adjustable timers to vary the time the doors hold open as follows:

   a. Car Call Timer: The amount of time the doors shall be held open in response to a car call. Timer setting shall be between 3.0 and 6.0 seconds.
   b. Hall Call Timer: The amount of time the doors shall be held open in response to a hall call or coincident call. Timer setting shall be between 4.0 and 8.0 seconds.
   c. Interrupted Screen Timer: The amount of time the doors shall be held open after the screen is reestablished. Timer setting shall be between 1.0 and 3.0 seconds. Timer shall be reset with each interruption of the door screen.
   d. Door Reversal Timer: The amount of time the door shall be held open after doors are fully reopened. Timer setting shall be between 1.0 and 3.0 seconds.
   e. Nudging Timer: The amount of time the doors shall be held open before sounding an audible tone. Timer setting shall be between 20 and 30 seconds.
   f. Long Door Hold Timer: The amount of extended time the doors shall be held. Timer setting shall be between 15 and 60 seconds.
   g. Initial Timer Settings: Timers shall be initially set to the minimum allowed by handicapped accessibility standards. Car call and door close buttons shall have no effect on timers.

7. Door Stall Operation: Provide means to re-open doors in the event that the doors do not close all the way within 30 seconds of closing operation. Provide means to remove the elevator from service after the third unsuccessful attempt.

2.3 CONTROLLER ASSEMBLIES

A. General: Provide material from Motion Control Engineering or Otis Elevator Company.

B. Microprocessor: Provide a microprocessor-base unit for operational and communication functions. Provide a microprocessor-base unit for operational and communication functions. Provide MCE M-2000 model or Otis E-211 model.

C. Software: Provide non-proprietary type.

D. Service Tool: Provide service tools required for maintenance, testing and troubleshooting.

E. Drive: Provide four-valve control for A. C. pump motor.

F. Position Sensing: Provide digital solid-state type. The operational controller shall maintain the position during a power loss. A LED-type position indicator shall be located in the controller.

G. Contactors and Relays: Provide D.C. type which shall be sized to insure proper conductivity and reliable operation.

H. Identifications: Provide permanent non-obstructed markings for all components, including size and type of fuses, identical to those symbols found on the Electrical Wiring Diagrams.

I. Remote Monitoring: Provide terminals for connection to a remote monitoring system. Provide separate output to be connected to the BAS system to signal when the elevator is out of service, including Programmed Shut-Down Operation.

J. Isolation Transformers/Filters: Provide transformers and filters to isolate noise from the electrical system. The wiring shall be copper.

K. Cabinets: Provide NEMA I controller cabinets with hinged doors. Door shall swing as to not block the line of sight with the machine assembly.

L. Labeling: Provide UL, CSA or ASME A.17.5 label for all equipment. The labels shall be easily

C. Cylinder: Provide a steel pipe which is machined. The upper end shall have a machine flange and the lower end shall have a heavy steel bulkhead. A double wrap of polyethylene tape bonded with a special corrosion resistant bonding agent shall be provided for protection.

D. Casing: Provide PVC type with inspection hole.

E. Jack Hole: Provide excavation for jack. Hole shall be plumb within 1" for every 10 feet or less of depth.

F. Channels: Provide pit channels on each side of the cylinder.

G. Shut-off Valve: Provide one manual type in pit near the cylinder.

2.6 CAR ASSEMBLIES, GUIDE AND BALANCE SYSTEMS

A. General: Provide material from Hollister-Whitney Elevator Corp. or Minnesota Elevator Inc.

B. Car Frames: Provide steel plank, crosshead and stiles. Provide Car Top Inspection Stations with properly covered work light and GFI-type outlet permanently mounted to the crosshead of each elevator. Provide a second properly covered work light with a magnetic base. Provide Crosshead Data Tags permanently mounted to the crosshead adjacent to the original data tags. Both the stations and the data tags shall be easily accessed from the hoistway landing without getting onto the car.

C. Platforms: Provide steel-type reinforced for loading classification.

D. Car Guide Rails: Provide standard T-type steel rails with brackets for attachment to building structure. Provide any backing or intermediate tie brackets.

E. Car Guide Assemblies: Provide roller-type which allows front-to-back and side-to-side adjustment of each guide. Each arm shall be spring mounted with adjustable stops. Rollers shall operate at less than 250 rpm. Guide assemblies shall be designed maintain guidance with the loss of the roller.

F. Car Balance: Provide mounting locations and additional weight for balance of the elevator.

2.7 SAFETY AND BUFFER SYSTEMS

A. General: Provide material from Hollister-Whitney Elevator Corp. or Minnesota Elevator Inc.

B. Car Buffers: Provide spring type mounted to the pit channels.

C. Pit Access: Provide ladder for access to each pit. The handles shall extend at least 48 inches above the access floor level and be within reach of the access door.

D. Oil Recovery Units: Provide a scavenger pump in the pit area connected to the tank.

2.8 DOOR OPERATION SYSTEMS

A. General: Provide material from GAL Manufacturing or Janus Elevator Products.

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Q. Pads: Provide a complete set of pads with integral hooks.

E. Environmental: Contractor shall verify proper operating environment has been provided.

F. Variations: Contractor shall provide written notification of any and all conditions which will prevent producing satisfactory work within the schedule.

G. Acceptance of Conditions: Contractor shall accept conditions pritiorins4(ent)-1.1ptent hasi Ck w pror i has.1(a

3. A PVC liner consisting of PVC pipe shall be installed in the cylinder well for containment of di-electric backfill. The PVC pipe must have a minimum wall thickness of 0.330". Its outside dimension shall be a minimum of 2" less than the inside dimension of the steel boring casing. Additionally, the PVC pipe must have an inside dimension 5" larger than the outside dimension of the hydraulic cylinder assembly plus 1" additional diameter for every 15 feet of cylinder depth over 20 feet.
4. The PVC pipe must be capped at the bottom and all joints solvent welded per manufacturer's an(er) -1.157 TD [(ev)4(er)-30.5(y)16.1(1)-12.2(5 f)-i157 TD uc12.2(5 f)-i.1(a)-12er ea-1