SECTION 27 51 24
INTERCOM SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Intercom equipment.

B. Intercom cable.

C. Accessories.

D. Existing wiring system is to be protected and maintained.

E. Repair or Replace wiring and/or conduit as necessary to ensure full operation of the intercom.

F. Adjust, program and test all equipment, and leave in proper operating condition.

G. Provide training for the Development Superintendent, Director and Staff in the proper and complete system operation. A complete set of operating manuals and shop drawings shall be delivered to the Superintendent and a second set delivered to the Office of Design (OoD).

1.02 RELATED REQUIREMENTS

A. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.

B. Section 27 51 29 - Area of Refuge/Rescue Assistance Systems: Two-way emergency communication systems for areas of refuge/rescue assistance.

1.03 REGULATIONS

A. All work shall comply with the New York City Electrical Code 2011.

B. All other references and regulatory requirements as listed in Section 26 , the more stringent requirements shall apply

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Shop Drawings: Indicate cable routing and connections.
   1. Shop Drawings: to include, but not be limited to, the following:
      a. Dimensions and components for each type of intercom installation.
      b. Precise location of each intercom installation.
      c. Precise location of junction boxes, sources of power, and all lengths of wiring and conduit.
      d. Type of wire/cable termination "quick connectors" for ease of maintenance.
      e. Means for installing and securing wire/cable to equipment in hinge, door frame and door.
      f. Precise location for penetrations from Low Voltage Center (LV-CTR) to entrance

C. Product Data: For each item of equipment.

D. Manufacturer's Installation Instructions.

E. Project Record Documents: Accurately record actual locations of devices and wiring.

F. Operation Data: Include instructions for routine operation of master and remote stations.

G. Maintenance Data: Include instructions for minor troubleshooting, preventive maintenance, and cleaning.

H. Samples of all types of intercom panels, finishes, anchors, waterproofing, wiring, and all associated components.

1.05 JOB CONDITIONS

A. All items shall include everything necessary for a complete and functioning installation. Unless otherwise specified, all equipment furnished and installed under this Contract shall be new

B. It is the Contractor's responsibility to assure that the new intercom, contactors, magnetic locks, switches, hinges, power supplies are fully compatible as an overall Entrance Security System. The Contractor shall visit the site and shall verify that all existing equipment to remain is properly functioning.

C. The Contractor shall bring to the attention of the Authority, in writing, any condition that would prevent the new intercom panels from properly functioning with the existing equipment to remain, or any existing condition that would result in a completed intercom installation at variance with the requirements of these Specifications.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this Section with minimum three years of documented experience.

B. Supplier Qualifications: Company authorized by manufacturer and specializing in supplying products specified in this Section with minimum three years documented experience.

C. Installer Qualifications: Company specializing in installing the products specified in this Section with minimum three years documented experience.

D. Products: Listed, classified, and labeled as suitable for the purpose intended.

E. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

PART 2 PRODUCTS

2.01 INTERCOM SYSTEM

A. Manufacturers:
   1. Alpha Communications; _____: www.alphacommunications.com.
   2. Clear-Com Intercom Systems; _____: www.clearcom.com.
   3. Valcom; _____: www.valcom.com.
   4. _____.
   5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Intercom System: Private voice communication between locations indicated on Drawings.

C. Configuration: Direct-connected, keyed intercom system.

D. System Capacity: One master station; one speaker/microphone station.

E. Conversation Paths: Two.

F. System Capacity: Four lines, two trunks.

G. Sequence of Operation: Master selects any other master, all other masters, any speaker/microphone station, all speaker/microphone stations, zones of masters and speaker/microphone stations, zoned by _____, and groups of _____ simultaneously. Incoming calls from remote station are annunciated by light and momentary audible signal.

H. Sequence of Operation: Master selects any or all remote stations by entering one digit number associated with that station or all call. Only the selected station can communicate.

I. Sequence of Operation: Master selects any or all remote stations by entering one digit number associated with that station or all call. Speaker/microphone station selects any master station by entering one digit number associated with that station.

J. Sequence of Operation: Any station calls any other station by dialing the one digit number associated with that station.

K. Interconnection with Public Telephone System: Dial one digit number associated with outgoing line for interconnection with no restriction.

L. The Access Control/Telephone Entry Controller shall be designed to communicate over ordinary, voice-grade telephone lines. A visitor shall be able to call a resident's telephone via the Intercom directory and keypad to gain access through a locked gate or door. The tenant

shall be able to grant access to the visitor by pressing a key on the tenant's telephone. It shall be programmed and/or monitored solely using a single software program that can connect via TCP/IP

M. The Controller shall have the capability of being fully be fully compatible with all equipment specified and installed as part of the Global NYCHA Layered Access Initiative.
   1. The controller can operate either as a single access point or be fully integrated within an access control network consisting of an unlimited number of access points.
   2. Up to eight (8) telephone entry modules shall be able to share one telephone line.
   3. The access control module shall be equipped with a two-wire, half-duplex, RS-485 communication protocol for communicating with the telephone entry module once integrated into the Global NYCHA Layered Access Initiative as well as supervised proximity readers and additional I/O modules.
   4. The controller shall use a LCD screen for a tenant directory and message indicator.
   5. The controller shall utilize a touch-tone dialing method.
   6. Hands-free voice communication shall be standard.
   7. The controller enclosure construction shall be fully weather tight and vandal resistant.
   8. The various controller housing designs will allow for surface or flush mounting. See Architectural Drawings
   9. When connected to a PC, the controller shall contact the host and upload the contents of the controller's buffer when the buffer reaches a pre-programmed percentage of its event database memory capacity. Should the communication connection be broken during the upload process, the controller shall try to reestablish the communication connection every ten minutes until a successful connection is made and all data is uploaded.

N. When connected to a PC, the controller shall contact the host and upload the contents of the controller's buffer when the buffer reaches a pre-programmed percentage of its event database memory capacity. Should the communication connection be broken during the upload process, the controller shall try to reestablish the communication connection every ten minutes until a successful connection is made and all data is uploaded

O. Controller Specifications: The controller shall be a two part unit that allows for the location of the card access control module in a remote, secure location. When connected, the two parts shall function as a unified Controller that shall be fully compatible with all equipment specified and installed as part of the Global NYCHA Layered Access Initiative. Controller enclosure dimensions and specification shall be equal to the following:
   1. Card Access Control Module and Telephone Entry Module Enclosure Style and Size--See Architectural Drawings for final dimensions:
      a. Lockable, Card Access Control Enclosure, Surface Mount: Approximately 13.125"H x 10.625"W x 3.06"D
      b. Telephone Entry Module Faceplate: Approximately. 9.0”H x 6.0”W, 10 gauge. The unit shall come with two rear mounting plates which provide options of mounting the PC Board that conform to a depth of 1.825” or 2.200 “.
      c. Finish: Stainless Steel #4 brushed satin finish on all exposed surfaces.
   2. Controller Power and Environmental Specifications: Controller shall meet the following power and environmental requirements:
      a. Voltage Input: 12VDC (optional standby power) +/- 10%
      b. Current Draw: Less than 1.5 amp.
      c. Power Consumption: Nominal 18 watts
      d. Operating Temperature: 0° - 140° F (-18° - 60° C)
   3. Input and Output Specifications - Controller shall meet the following minimum Input and Output specifications:
      a. Outputs:
         1) Three nonprogrammable, DTMF driven SPDT Dry Circuit Closures.
         2) Four auxiliary programmable SPDT Dry Circuit Closures.
         3) Closure contact Rating: 5 amp at 125 VAC.
      b. Inputs:

1) Programmable inputs, normally used for Door Switch and Request To Exit functions but capable of reassignment for other uses.

P. Keypad Specifications: Keypad design shall be a mechanical, vandal resistant, impact resistant and weatherproof water sealed 4 X 4 keypad designed for use in the most demanding public and outdoor environments. Operational life of the keypad shall be a minimum of four million cycles per key. Specification must meet the following minimum standards and features:
1. Weatherproof, water sealed to class IP-67 standard.
2. Ten numeric push-button keys.
3. Scroll key (2) for directional scrolling of the LCD display of the tenant enrollment list.
4. A call key for initiating calls to the tenant.
5. Clear (Clr) key to re-start a command.
6. An asterisk (*) function key.
7.
8. Built-in ESD (voltage surge) protection.

Q. Operational Specifications: The telephone entry controller shall have, as a minimum requirement, a visual message and directory display with a directory scrolling.
1. LCD Display:
   a. Four line, 80 characters, soft white Supertwist display.
   b. Three programmable 80 alpha-numeric characters, 20 alpha-numeric characters per line revolving message screen.
   c. Up and down scrolling keys with cursor indicator for pointing to apartment number.
   d. Apartment number displayed by scrolling or direct dial code input
   e. Fifteen-character name truncated to thirteen characters with a six-digit dial code.
2. Audio Control:
   a. Adjustable, linear volume control.
   b. Circular control volume key.
   c. Speaker vandal protection hole grid.
   d. Two Mylar, marine grade speakers with superior sound quality.
   e. Programmable talk time.
   f. Adjustable microphone gain.

R. Feature Set - The telephone entry module shall have as standard the minimum feature set:
1. Solely PC programmable. For enhanced security, no means for local, on board programming shall be possible irrespective of password control.
   a. Nonvolatile memory for storing 3,640 telephone entry related events on a first-in, first-out basis.
   b. Capacity to manage 750 tenant dial codes.
   c. Programmable dial codes from one to six digits.
   d. Programmable telephone numbers up to 15-digit numbers.
   e. PBX compatible operation.
   f. Built-in surge protection.
   g. Code breaking protection.
   h. Tone dialing.
   i. Alarm shunt and alarm output
   j. 32 time zones, each with four start/stop intervals with a "Do Not Disturb" function.
   k. At least three holiday schedules for each time zone, each with 32 definable holiday dates.

2.02

A. Access Control Module for Entraguard Steel: The access control module shall have the capability to control and monitor all doors, exit devices, locking hardware, Readers and security detectors. The Controller shall be fully compatible with all equipment specified and installed as part of the Global NYCHA Layered Access Initiative with only minor modifications.

B. Scope of Control: There shall be several types of control devices Modules:

1. Reader Modules: The system shall consist of a 3-reader module. The modules will operate in a 'stand-alone' mode or within a network of other like modules. All decisions regarding the User access, alarms, and automatic timed functions are made at the module, independent of any computer. It shall also have RS-485 communication buses to provide additional system functionality to expansion boards or modules and high security proximity readers.
2. Expansion Modules: There shall be modules that allow a module to expand the number of I/O points it can monitor and control. The number and type are described in the next section.
3. Input Types and Number: Inputs shall be User definable to accept 2, 3, or 4 state supervision. The 3-reader module shall be expandable to at least 18 inputs. Inputs on the module shall default to a standard door configuration but shall be re-assignable to monitor devices such as (but not limited to) a Door Contact Switch, Request to Exit, Bond Sensor, PIR or any other general purpose dry contact device.
4. Tamper Input: All Modules and Expansion Modules shall have dedicated tamper Inputs.
5. Output Types and Number: Outputs shall be 5 amp, (125VAC max.) dry circuit, single pole, double throw relays for application of power to an electric locking device, automatic gate, door operator, annunciator, shunting an alarm, or other general purpose function triggered by a relay. The 3-Reader module shall be expandable to at least 12 outputs.

C. Communication
1. Communication to Laptop: All communication from the Modules to a mobile Laptop shall be via a 2 ea. TCP/IP 10/100 bus.
2. Communication between Modules: Supported Network Type: The Modules shall have Ethernet hardware and TCP/IP protocols embedded built in. There shall be no single point of failure within the Access Control hardware where communication or all decision-making is compromised for the system. There shall be no master-slave between card access controllers.
3. Response Time: On a dedicated TCP/IP network without other network traffic, the response time between inputs and outputs on different modules shall not exceed one second communication between other modules and the Server.
4. Communication to Expansion modules and High Security Proximity Readers
   a. Supported Network Type: All communication between a host controller and its Expansion modules used for a variety of functions, and the high security Proximity Readers shall be via a supervised, 9 bit RS-485 bus. The expansion modules can be placed up to 1000 feet (300m) away from the main access control module.
   b. Capacity: Different module types (input/output boards, or other products that may be developed) can be connected to an RS-485 bus on each Module.
   c. Response Time: The response time when linking inputs and outputs within any specific module shall not exceed one second.

D. Reader Interface and Format
1. The access control module will directly support a high security 64 Bit format that also provides for Reader supervision.
2. The reader shall be fully compatible with all equipment specified and installed as part of the Global NYCHA Layered Access Initiative

E. Credential Type - Key Fob
1. The credential shall be fully compatible with all equipment specified and installed as part of the Global NYCHA Layered Access Initiative.
2. The credentials shall be of a key tag/fob type and shall be guaranteed to be included within the numerical sequence reserved for the NYCHA Layered Access Initiative.
3. The maximum dimensions for the key tag/fob shall be 1.53”X1.16”X.117” and shall be tear dropped in shape.

F. Memory Type

1. The module's memory shall be non-volatile (supported by a lithium battery) with an expected life of 5 years. The module will send a notification to the Server Software when the lithium battery power approaches a state where it can no longer back up the memory.
2. Cardholders: The modules must have the capacity to store up to 48,000 individual Credentials/PINs.
3. Events: The module shall store up to 10,000 events should communication fail between it and the Server. The system will automatically send events to the Server during normal communication. The module shall be configurable such that only events designated by a system administrator are stored. Should the event buffer become full, each module will delete events only as needed on a first in, first out basis. Each module's memory shall operate independently of all other modules.

G. Surge Protection
1. Power Protection: The module and expansion modules shall be protected by a self-resetting, thermal fuse as well as diode protection. The Reader shall have reverse voltage diode protection.
2. Network Protection: The RS-485 network shall be protected by diodes and gas discharge tubes on all communication ports.
3. Input Protection: All inputs shall be protected against power surges by diodes.
4. Output Protection: All outputs shall be protected against power surges by MOVs and resistor snubber circuits.

H. Reader Power Requirements: The primary high security reader types' current draw shall not exceed 120 mA at 12VDC and shall be powered from the module. They can optionally be powered locally. The reader shall be powered and communicate on shielded CAT5e/6 cable

I. Indicators
1. Communication Buses
a. There shall be LED indicators for RS-485 network activity between modules.
b. All TCP/IP networking lines shall have LEDs to indicate network speed and activity (10 or 100 mb).
c. There shall be a power fault LED for over voltage and reverse voltage.
d. There shall be a reset LED to indicate when the module memory is in the process of being cleared that turns off when the process is complete.
e. All relays shall have status LEDs indicating when they are energized.

J. Operating Temperature: The operating temperature range of the module shall be no less than 32° F to 150°F (0° C to 65° C) at 0% to 90% relative humidity, non-condensing.

K. Connections - I/O, Power and RS-485: These shall be made via quick disconnect connectors. TCP/IP connections shall be made with an RJ-45 connector or optionally with the quick disconnect connector

2.03 SOFTWARE REQUIREMENTS

A. Not Part of Contract (part of Master Intelligent Controller System)

B. The Intercom unit shall be capable of supporting the features of the Master Intelligent Controller System described herein.

C. The system software shall provide for configuration and setup of door position switches, request to exit (REX) devices, and all associated door hardware.

D. The system software shall provide for the configuration of door strike times, help open times, and ADA timing by allowing the operator to type in the exact time in hours, minutes, and seconds.

E. Through the door configuration interface, the User shall be able to set up, monitor, and control the security hardware components in the software for any door or access-control point in the system. The interface shall also allow the User to see doors that have been configured, edit existing door configurations, and delete door configurations from the system.

F. It shall be possible to individually assign input points and relays through the software to readers to permit door monitoring and door-lock control. "Autolock" shall be software-selectable on a per-reader basis, and when activated shall cause the pulse time of the corresponding relay and the shunt time for the door-position input to reset when the door closes, overriding the programmed relay pulse time and input point shunt time and re-securing the door. Systems that are not capable of "Autolock" shall be unacceptable.

G. It shall be possible through the software's User Interface to add, edit, activate, deactivate, and/or delete individual tenant, Key Fob or Key Fob holder records.

H. A Key Fob holder entry screen shall provide tabbed pages to allow a system user to:
   1. Capture a photo using a digital camera or retrieve a stored photo file for inclusion in individual new or existing Key Fob or Key Fob holder records. Photos shall be displayable in the Key Fob holder record and printable on a photo ID badge, and they shall be made part of the Key Fob and Key Fob holder record.
   2. Configure and assign virtually unlimited access groups, which consist of a time schedule and a reader group.
   3. Provide separate drop-down calendar controls for use in assigning Key Fob-activation and Key Fob-expiration dates.
   4. Enter Key Fob holder names, user group membership, access level information; a personal identification number (PIN), company information, and user defined custom data fields.
   5. Set Key Fob holder ADA information.
   6. View data concerning the recent transaction for the Key Fob holder in the system.
   7. Enable PIN Exempt override.

2.04 INTERCHANGEABILITY AND MAINTENANCE

A. The Telephone Entry controller shall be designed such that a replacement unit can be exchanged in less than 5 minutes with no mechanical modification to either the unit or the building.
   1. There shall be no more than one (1) quick disconnect connector per door controlled by the controller.
   2. There shall be one (1) 4-terminal quick disconnect connector per reader.
   3. There shall be one (1) quick disconnect power connector.
   4. There shall be one (1) RJ-45 connector used for Ethernet connectivity.
   5. There shall be one (1) RJ-11 connector for the telephone line for placing calls to tenant units.

B. The unit shall be designed such that all modules within the controller can be easily unplugged and replaced by an untrained technician.

2.05 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers of access-control systems include: Keri Systems, Inc. type EGT-STL-750-STX Entraguard Steel Telephone Entry / Card Access System or equal.
   1. The exterior intercom panel shall be "hands free" design as indicated on the drawings. Trim cover shall be stamped or engraved with the manufacturer's name, as well as "NYC Housing Authority". Panels shall have standard 16-button keypad. Buttons to be made of stainless steel, same finish as the panel face.
   2. Intercom housing shall be located within the stainless steel entrance frame, as shown on the Architectural drawings.
   3. Intercom panels shall be fully gasketed and waterproof. Method of waterproofing shall allow for routine maintenance without breaking weather seal.
   4. Intercom mounting plate shall be of 14 gauge minimum, non-magnetic, stainless steel alloy #304, per ASTM AI 67, AI 76, A480, and A484. The mounting plate shall be fastened to the framing members at 4" o.c. maximum. All exposed screws shall be stainless steel, tamper-proof Pin-in-Head "torx" type. Panel shall be flush mount type, satin finish to match stainless steel entrance frame.

5. The intercom system shall function to permit voice communication with those persons requesting entry into the facility.
6. The intercom equipment shall be for continuous duty, internally protected to prevent damage to the equipment due to any overload resulting from any fault condition.
7. All wiring to the entrance framing shall be run in conduits. Refer to Sections 087153 "Security Door Hardware (EMPLS)", 26 Electrical Section for wiring, cable and conduit requirements and 281300.1 Access Control System. All other wiring shall be located within the stainless steel entrance framing. No conduit shall be applied to the interior or the exterior of the new stainless steel entrance frames.
8. The panels shall be as manufactured by Keri Systems, Inc., 2305 Bering Drive, San Jose, CA 95131, (800) 260-5268 or equal.
9. All component of this system except generic items such as line voltage panel letters, fuses/circuit breakers, wire, conduit, connectors, boxes, and outlets shall be from the same manufacturer. See Section 26 for requirements.
10. Interface Relay, Selector Switch and Enclosure for Intercom.
    a. All wires to and from each device shall be terminated on a terminal block. Terminal blocks shall accept spade lugs for wires ranging from #18 AWG to #22 AWG.
    b. The interface relay, terminal block and selector switch and all intercom power supplies and door unit controller shall be mounted in the same NEMA 1 gasketed watertight enclosure fabricated from 12 gauge steel with baked enamel finish over a rust inhibiting primer. The enclosure cabinet shall be provided with a cylinder lock and 3 keys. Cabinet shall have laminate label.

2.06 COMPONENTS

A. Direct Connected, Keyed Master Intercom Station: Desk-mounted master intercom unit.
   1. Nominal Size: _____.
   2. Intercom Amplifier: 2 watts rated output with less than 5 percent total harmonic distortion, frequency response of 100 to 10,000 Hz plus or minus 3 dB, and minimum 60 dB signal-to-noise ratio at rated output.
   3. All-Call Amplifier: 1 watt rated output for each connected station, with less than 5 percent total harmonic distortion, frequency response of 100 to 10,000 Hz plus or minus 3 dB, and minimum 60 dB signal-to-noise ratio at rated output.
   4. Speaker Sensitivity: 92 dB.
   5. Input Sensitivity: Provide adequate input sensitivity to deliver rated amplifier output when no more than 10 dynes per square centimeter impinge on speaker/microphone.
   6. Handset: Standard molded plastic telephone handset with 5 ft long permanently coiled cord.
   7. Minimum Controls and Indicators:
      a. POWER ON-OFF selector switch and indicator lamp.
      b. Selector switch for each master remote station, all call, and each zone call.
      c. Lighted annunciator lamp for each master and speaker/microphone station.
      d. Audible signal for incoming calls.
      e. CALLED STATION BUSY indicator lamp.
      f. Speaker disconnect by lifting handset.
      g. VOLUME control for listen volume level only.
      h. PRIVACY switch.
      i. TALK/LISTEN switch.
      j. Mark each control and indicator with legible and permanent _____ nameplates.
   8. Sequence of Operation:
      a. Remote selector switches connect master directly to remote stations.
      b. Manual momentary switch sets TALK/LISTEN mode.
      c. Incoming calls are amplified without master selection of calling station.
      d. Privacy switch turns off microphone.

B. Central Control Master Intercom Station: Desk-mounted master intercom unit.

1. Nominal Size: _____.
2. Speaker Sensitivity: 92 dB.
3. Handset: Standard molded plastic telephone handset with 5 ft long permanently coiled cord.
4. Minimum Controls and Indicators:
    a. POWER ON-OFF selector switch and indicator lamp.
    b. Ten digit, silent operating touch key pad.
    c. Lighted annunciator lamp for each master and speaker/microphone station.
    d. Audible signal for incoming calls.
    e. CALLED STATION BUSY indicator lamp.
    f. SYSTEM BUSY indicator lamp.
    g. Speaker disconnect by lifting handset.
    h. VOLUME control for listen volume level only.
    i. PRIVACY switch.
    j. Mark each control and indicator with legible and permanent _____ nameplates.

C. Intercom Control Unit: Surface wall-mounted intercom control unit.
1. Nominal Size: _____.
2. Construction: _____.
3. Finish: _____.
4. Intercom Amplifier: 2 watts rated output with less than 5 percent total harmonic distortion, frequency response of 100 to 10,000 Hz plus or minus 3 dB, and minimum 60 db signal-to-noise ratio at rated output.
5. All-Call Amplifier: 1 watts rated output for each connected station, with less than 5 percent total harmonic distortion, frequency response of 100 to 10,000 Hz plus or minus 3 dB, and minimum 60 dB signal-to-noise ratio at rated output.
6. Sequence of Operation:
    a. Intercom Control Unit connects calling station to remote stations.
    b. Manual momentary switch with sustained TALK position sets TALK/LISTEN mode.
    c. Incoming calls actuate annunciator lamp at called station.
    d. Privacy switch turns off microphone.

D. Speaker/Microphone Intercom Units: Desk-mounted unit.
1. Nominal Size: _____.
2. Construction: _____.
3. Finish: _____.
4. Sensitivity: 92 dB at one W input, 4 ft on axis of speaker.
5. Handset: Standard molded plastic telephone handset with 5 ft permanently coiled cord.
6. Controls and Indicators:
    a. POWER ON-OFF selector switch and indicator lamp.
    b. Call in switch for one master station.
    c. Lighted annunciator lamp for incoming call.
    d. Recurring audible signal for incoming call.
    e. CALLED STATION BUSY indicator lamp.
    f. Speaker disconnect by lifting handset.
    g. VOLUME control for listen volume level only.
    h. PRIVACY switch.
    i. TALK/LISTEN switch.
    j. Mark each control and indicator with legible and permanent _____ nameplates.
7. Sequence of Operation:
    a. Master selector switches connect unit directly to master stations.
    b. Manual momentary switch with sustained TALK position sets TALK/LISTEN mode.
    c. Incoming calls actuate annunciator lamp.
    d. Privacy switch turns off microphone.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Verify field measurements are as shown on Drawings.

C. Verify that required utilities are available, in proper location, and ready for use.

D. Beginning of installation means installer accepts conditions.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. All intercom panels shall be properly wired and plugged in, tested and left ready for operation.

C. Contractor shall provide mockup demonstrating successful implementation and operation at a designated building before proceeding installation of other intercoms at other buildings. NYCHA shall provide written approval and notice to proceed at other buildings.

D. Note any existing obstructions that prevent installation of the intercom panels as shown on the drawings to the Architect prior to installation. Any field changes made by the Contractor without prior approval of the NYCHA will be changed at the discretion of NYCHA at no cost to the Authority.

3.03 FIELD QUALITY CONTROL

A. Operate each intercom after installation and connection. Inspect for proper connection and operation. All equipment, including keypads, voice system, housings, mounting hardware, and other system components shall be tested prior to final acceptance and shall demonstrate that such equipment is fully functioning and complies with Contract documents

B. If any equipment fails, while under test, to meet the Contract requirements or to function properly, the defects shall be rectified by re-adjusting, or by removing and replacing the faulty equipment unit until the Contract requirements are met.

C. Prior to final inspection the Contractor shall repair or replace any intercom that is not in perfect working order, leaving all intercom panels in good operating condition. Any damage prior to the final inspection shall be repaired or replaced at no additional cost to NYCHA.

D. The Contractor is responsible for maintaining and protecting all equipment and components installed during construction until Contract closeout.

E. Contractor shall perform continuity and signal integrity testing of all communication (phone, LAN, control) and power wiring. Furnish written test report that will become part of Contract records. Testing shall be witnessed and signed off by NYCHA.

F. See Section 01 40 00 - Quality Requirements, for additional requirements.

G. Provide the services of the manufacturer's technical representative to make final connections to units, prepare and start systems, and perform field inspection and testing.

H. Perform operational test on completed installation to verify proper operation.

I. Replace equipment, components, and wiring to eliminate audible noise, clicks, pops, or hum when system is in standby or operation.

3.04 ADJUSTING

A. Adjust controls and configuration switches for operation as indicated.

3.05 DEMONSTRATION

A. Provide systems demonstration and instructions. Allow minimum of 4 hours.

B. Provide demonstration of units (stand alone testing) and as integrated/ Global system.

C. Employ manufacturer's field representative to demonstrate system operation to designated NYCHA personnel

D. Provide the services of the manufacturer's field representative to demonstrate system operation to designated Owner personnel.

E. Conduct walking tour of Project and briefly describe function, operation, and maintenance of each component.

F. Use submitted operation and maintenance manual as reference during demonstration and training.

3.06 MAINTENANCE

A. See Section 01 70 00 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

B. Provide a separate maintenance contract for specified maintenance service.

C. Provide service and maintenance of intercom system for one year from Date of Substantial Completion.

3.07 CLEANING

A. Clean electrical parts to remove conductive and deleterious materials.

B. Remove dirt and debris from enclosure.

C. Clean finishes and touch up damage.

3.08 GUARANTEES AND WARRANTEES

A. Guarantee: The Contractor shall guarantee all hardware under this Section for a period of two (2) years from date of the Certificate of Final Acceptance of the Work. The Contractor shall replace without additional cost items which prove defective due to improper materials, workmanship or installation.

B. The product Manufacturer(s) shall warrantee all installed components against defects in material and manufacturer's workmanship for a period of two (2) years from date of delivery from the Manufacturer to the Contractor.

C.

END OF SECTION