SECTION 27 10 00
DATA COMMUNICATION NETWORK EQUIPMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Security Operation Center (SOC)

B. Low Voltage Center (LVC)

C. Wireless Access Point Server Rack (APSR)

D. Gigabit Ethernet Wireless Communication

1.02 REFERENCE STANDARDS

A. 47 CFR 15 - Radio Frequency Devices; current edition.

B. IEEE 802.1Q - IEEE Standard for Local and Metropolitan Area Networks – Bridges and Bridged Networks; 2018.

C. IEEE 1588 - IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems; 2019.

D. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.

E. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. NFPA 101 - Life Safety Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

G. TIA-568.2 - Balanced Twisted-Pair Telecommunications Cabling and Components Standards; 2018d, with Addenda (2020).

H. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2015.

I. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

J. 47 CFR 15 - Radio Frequency Devices; current edition.

K. Federal Communication Commission (FCC); Wireless Telecommunications Requirements.

L. Appendix A: “NYCHA Developments: Inter-Building Fiber Networks”

1.03 ADMINISTRATIVE REQUIREMENTS:

A. Coordination:
   1. Notify Architect/Engineer in writing of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.
   2. Coordinate final layout of all network equipment racks with NYCHA IT for approval.
   3. If wireless communication is required for new work, contractor shall submit written request to NYCHA requesting the use of wireless communication. Wireless communication shall only be approved for use where conduit trenching is not feasible. Wireless communication letter shall include:
      a. Reason that conduit trenching is not feasible.
      b. All locations of proposed wireless equipment.
      c. Orientation of all antennas.

B. Preinstallation Meeting:
   1. Conduct meeting with facility representative and NYCHA IT to review equipment locations.

C. Confidentiality Agreement:
   1. Sign NYCHA IT confidentiality agreement which is required for contractor remote access to NYCHA network.

1.04 SUBMITTALS

A. Submit product data under provision of Section 013300.

B. Shop Drawings: Include plan views indicating locations of system components and proposed size, type, and routing of conduits and/or cables. Include elevations and details of proposed equipment arrangements. Include system interconnection schematic diagrams. Include requirements for interface with other systems.

C. Product Data: Provide manufacturer's standard catalog pages and data sheets for each system component. Include ratings, configurations, standard wiring diagrams, dimensions, finishes, service condition requirements, and installed features.

D. Design Data: Standby battery/UPS calculations.

E. Certify that proposed system design and components meet or exceed specified requirements.

F. Evidence of qualifications for manufacturer.

G. Evidence of qualifications for installer.

H. Evidence of qualifications for maintenance contractor (if different entity from installer).

I. Manufacturer's Installation Instructions: Indicate application conditions and limitations of use examination, preparation, installation, and operation of product.

J. Manufacturer’s detailed field testing procedures.

K. Field quality control test reports.

L. Maintenance contracts.

M. Project Record Documents: Record actual locations of system components and installed wiring arrangements and routing.

N. Operation and Maintenance Data: Include detailed information on system operation, equipment programming and setup, replacement parts, and recommended maintenance procedures and intervals.
   1. Include contact information for entity that will be providing contract maintenance and trouble call-back service.

O. Warranty: Submit sample of manufacturer's warranty and documentation of final executed warranty completed in Owner's name and registered with manufacturer.

P. Refer to NYCHA Turn Over Checklist for additional requirements.

1.05 QUALITY ASSURANCE

A. Comply with the following:
   1. NFPA 70.
   2. NFPA 101 (Life Safety Code).
   3. The requirements of the local authorities having jurisdiction.
   4. Applicable TIA/EIA standards.
   5. New York City Building Code.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

C. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

D. Installer Qualifications: company specializing in performing the work of this section with minimum three years documented experience with access control systems of similar size, type, and complexity and providing contract maintenance service as a regular part of their business; authorized manufacturer's representative.
   1. Contract maintenance office located within [100] miles of project site.

E. Maintenance Contractor Qualifications: Same entity as installer.

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

G. Please note: NYCHA reserves the right to update and modify design in accordance with new products and updated design requirements.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Store products in manufacturer's unopened packaging, keep dry and protect from damage until ready for installation.

1.07 FIELD CONDITIONS

A. Maintain field conditions within manufacturer's required service conditions during and after installation.

1.08 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. Provide minimum one year manufacturer warranty covering repair or replacement due to defective materials or workmanship.

PART 2 - PRODUCTS

2.01 SECURITY OPERATION CENTER (SOC)

A. Server Rack Enclosure
   1. Basis of Design: APC NetShelter SX 42U or NYCHA approved equal. Cabinet shall include the following standard features or NYCHA approved equal:
      a. 42U capacity.
      b. 19” standard rack width.
      c. Lockable from door and side panel (keyed alike).
      d. Caster wheels.
      e. Roof fans and tray.
      f. Cable management rings.
      g. UL 60950 and EIA-310E certification.
   2. Basis of Design: Dell NetShelter SX 24U or NYCHA approved equal. Cabinet shall include the following or NYCHA approved equal:
      a. 24U capacity.
      b. 19” standard rack width.
      c. Lockable from door and side panel (keyed alike).
      d. Caster wheels.
      e. Cable management rings.
      f. UL 60950 and EIA-310E certification.

B. Rack Mounted Power Supply
   1. 1. Basis of Design: Dell Smart-UPS model DLT1500RM2U or NYCHA approved equal. Power supply shall include the following standard features or NYCHA approved equal:
      a. Power Capacity: 1,000 W / 1,440 VA
      b. Surge Energy Rating: 495J

C. Output Connections: (6) 5-15R
      a. Input Connection: 5-15P, 8-ft cord
      b. Nominal input / output voltage: 120V

c. LCD display screen, backlit

D. Server Storage
   1. Basis of Design: Dell PowerVault ME5 model ME5012 or NYCHA approved equal. Server storage shall include the following standard features or NYCHA approved equal:
      a. Form Factor: 2U
   2. Capacity: 12 x 3.5” drive bays
   3. Max Raw Capacity: 2.40PB (with 9xME412 expansion)
      a. Host Interface: FC, iSCSI (optical or BaseT), SAS
      b. RAID support: RAID 1, 5, 6, 10, or ADAPT RAID

E. Rack Server (Directory, Failover, Achiever)
   1. Basis of Design: Dell PowerEdge model R740 or NYCHA approved equal. Rack server shall include the following standard features or NYCHA approved equal:
      a. Form Factor: 2U
      b. Storage: 12 x 3.5” SAS/SATA (HDD)
      c. Security: Cryptographically signed firmware, Secure Boot, Secure Erase, Silicon Root of Trust
      d. Memory: DDR4: Up to 24 x DDR4 RDIMM (3TB), LRDIMM (3TB), bandwidth up to 2933 MT/S, AMD Secure Memory Encryption (SME), AMD Secure Encrypted Virtualization (SEV)
      e. Front Ports: 1 x Dedicated iDRAC micro-USB, 2 x USB 2.0, 1 x VGA
      f. Read Ports: 1 x Dedicated iDRAC network port, 1 x Serial, 2 x USB 3.0, 1 x VGA

F. Hard Drive (HDD)
   1. Basis of Design: Dell 12TB 3.5in Hot-plug Drive or NYCHA approved equal. Hard drive shall include the following standard features or NYCHA approved equal:
      a. Form Factor: 3.5in
      b. Capacity: 12TB
      c. Interface: SAS 12Gb/s
      d. Data Transfer Rate: 1.2 GBps
      e. Spindle Speed: 7,200 rpm
      f. Advanced Format (AF) 512e
   2. Basis of Design: Dell 8TB 3.5in Hot-plug Drive or NYCHA approved equal. Hard drive shall include the following standard features or NYCHA approved equal:
      a. Form Factor: 3.5in
      b. Capacity: 8TB
      c. Interface: SAS 12Gb/s
      d. Data Transfer Rate: 1.2 GBps
      e. Spindle Speed: 7,200 rpm
      f. Advanced Format (AF) 512e
   3. Basis of Design: Dell 300GB 3.5in Hot-plug Drive or NYCHA approved equal. Hard drive shall include the following standard features or NYCHA approved equal:
   4. Form Factor: 3.5in
      a. Capacity: 300GB
      b. Interface: SAS 12Gb/s
      c. Data Transfer Rate: 1.2 GBps
      d. Spindle Speed: 15,000 rpm

G. Firewall Appliance
   1. Basis of Design: Juniper SRX340 Service Gateway or NYCHA approved equal. Appliance shall include the following standard features or NYCHA approved equal:
      a. Protocols: IPv4, IPv6, ISO Connectonless Network Service (CLNS)
      b. Routing and Multicast: Static routes, RIPv2 +v1, OSPF/OSPFv3, BGP, BGP Router Refector, IS-IS,

c. Onboard ports: 16x1GbE, four Mini PIM (WAN) slots, one USB 3.0, Console (1 RJ-45 + 1 miniUSB)
d. Firewall: Stateful and stateless firewall, Zone-based firewall, Screens, and distributed denial of service (DDoS) protection, Protection from protocol and traffic anomaly,
e. Network Address Translation (NAT): Source NAT with Port Address Translation (PAT), Bidirectional 1:1 static NAT, Destination NAT with PAT, Persistent NAT, IPv6 address translation

H. Central Server Switch
1. 1. Basis of Design, Management / Aggregation switch for up to 3 building development: Juniper E4300-48MP Network Switch + 4 port SFP module or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. 24-port 10/100/1000BASE-T and 24-port 100/1000/2500/5000/10000BASE-T
b. up to 4 40GbE ports, up to 2 100GbE ports
c. Form Factor: 1U
d. Power supply rating: 1400W AC
e. Routing Protocol: IGMP, RIP-1, RIP-2
f. Remote Management Protocol: HTTP, HTTPS, RMON
g. Compliant Standards: IEEE 802,1ab, IEEE 802.1D, IEEE 802.1p, IEEE 802.1Q
2. Basis of Design, Management switch for developments over 3 buildings: Juniper E4300-48MP Network Switch + 4 port SFP module or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. a. 24-port 10/100/1000BASE-T and 24-port 100/1000/2500/5000/10000BASE-T
b. up to 4 40GbE ports, up to 2 100GbE ports
c. Form Factor: 1U
3. Power supply rating: 1400W AC
a. Routing Protocol: IGMP, RIP-1, RIP-2
b. Remote Management Protocol: HTTP, HTTPS, RMON
c. Compliant Standards: IEEE 802,1ab, IEEE 802.1D, IEEE 802.1p, IEEE 802.1Q

I. Fiber Aggregation Switch
1. 1. Basis of Design: Juniper EX4600-40F Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. 2 expansion module slots
b. Form Factor: 1U
c. up to 72 wire-speed 10GbE small form-factor SFP/SFP+ ports
d. up to 12 wire-speed 40GbE quad SFP+ transceiver (QSFP+) ports
e. Data Transfer speed: 1.44 Tbps of Layer 2 and Layer 3 connectivity to networked devices
2. Basis of Design: Juniper EX4650-48Y Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. Form Factor: 1U
b. up to 48 wire-speed 10GbE/25GbE small form-factor SFP/SFP+/SFP28 ports
c. up to 8 wire-speed 40GbE/100GbE quad SFP+ transceiver (QSFP+/QSP28) ports
d. Data Transfer speed: 4 Tbps of Layer 2 and Layer 3 connectivity to networked devices

J. Workstation
1. Basis of Design: Dell Precision R5500 workstation or NYCHA approved equal. Workstation shall include the following standard features or NYCHA approved equal:
a. Form Factor: 2U
b. Chipset: Intel 5520
c. Memory: Up to 192GB of 1066MHz or 96GB of 1333MHz ECC Registered DIMM memory
d. Hard Drives: up to five 2.5” SATA hard drives
e. Rear I/O: 4 - USB 2.0, 1 – Serial, 1 - Audio in, 1 - Audio out, 2 - RJ-45

f. Front I/O: 2 - USB 2.0

K. Console
1. Basis of Design: Dell KMM Console model FPM185 or NYCHA approved equal. Console shall include the following standard features or NYCHA approved equal:
   a. Form Factor: 1U
   b. Display Type: 18.5” LED-backlit a-Si TT LCD module
   c. Panel Technology: 1366 x 768 WXGA screen with VGA connection
   d. Input Device: Integrated keyboard and touchpad

L. Network Switch Modules and Accessories:
1. Basis of Design: Hummingbird Networks Juniper Compatible 10Gbase SFP+ SMF Transceiver model EX-SFP-10GE-LR-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Connector: LC duplex connector
   b. Installation: Hot-swappable, compatible with SPF+ ports
   c. Data Rate: 10Gbps
   d. Laser: 1310nm
   e. Cable Type: Single Mode Fiber
2. Basis of Design: Hummingbird Networks Juniper Compatible Copper SFP 1000Base-T Transceiver model EX-SFP-1GE-T-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Connector: RJ-45
   b. Installation: Hot-swappable, compatible with SPF ports
   c. Data Rate: 1.25Gbps
   d. Cable Type: Universal Twisted Pair (UTP) Ethernet Cable
3. Basis of Design: Hummingbird Networks Juniper Compatible Copper SFP 10GE Transceiver model EX-SFP-10GE-T-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Connector: RJ-45
   b. Installation: Hot-swappable, compatible with SPF ports
   c. Data Rate: 10Gbps
   d. Cable Type: Universal Twisted Pair (UTP) Ethernet Cable
4. Basis of Design: Juniper Compatible 4x10GBASE-LR QSFP+ Transceiver Module model JNP-QSFP-4X10GE-LR-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Connector: MTP/MPO-12 Male
   b. Installation: Hot-swappable, compatible with QSPF+ ports
   c. Data Rate: 44.4Gbps
   d. Laser: 1310nm
   e. Cable Type: Single Mode Fiber
5. Basis of Design: Single mode fiber breakout cable model HN-MPA4LCDS2Y2-3M or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
6. Connector: MTP-F to 4xLC connectors
   a. Rating: OFNP Plenum Rated
   b. Cable Type: Single Mode Fiber, OS2 9/125
7. Basis of Design: Juniper 4x10GB SFP+ Switch Module for Juniper EX4300-48MP model EX-UM-4SFPP-MR or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Description: 4-port 1-Gigabit Ethernet/10-Gigabit Ethernet SFP+ uplink module
   b. Compatibility: Juniper EX4300-48MP
8. Basis of Design: Juniper 2x40GB QSFP+ Switch Module for Juniper EX4300-48MP switch model EX-UM-2QSFP-MR or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:

a. Description: 2-port 40-Gigabit Ethernet QSFP+ uplink module
b. Compatibility: Juniper EX4300-48MP

9. Basis of Design: Juniper 4-port QSFP+ expansion module for EX4600 switch model QFX-EM-4Q or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Description: 4-port 40-Gigabit Ethernet QSFP+ uplink module
   b. Compatibility: Juniper EX4600
10. Basis of Design: Juniper 8-port SPF+/SFP expansion module for EX4600 switch model EX4600-EM-8F or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Description: 8-port 10-Gigabit Ethernet SFP+ uplink module
   b. Compatibility: Juniper EX4600
11. Basis of Design: Juniper 10GBase-BX SFP+ BIDI 1330nm Transceiver Module model JNP-SFP-10G-BX10D-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:
   a. Form Factor: SFP+-BIDI
   b. Rate Category: 10GBase
   c. TX Wavelength: 1330nm
   d. Reach: 20kw
12. Connector: Single-LC
13. Basis of Design: Juniper 10GBase-BX SFP+ BIDI 1270nm Transceiver Module model JNP-SFP-10G-BX10U-HN or NYCHA approved equal. Module shall include the following standard features or NYCHA approved equal:

M. Form Factor: SFP+-BIDI
   a. Rate Category: 10GBase
   b. TX Wavelength: 1270nm
   c. Reach: 20kw
   d. Connector: Single-LC

2.02 LOW VOLTAGE CENTER (LVC)

A. LVC Enclosure
   1. Basis of Design: Hubbell Rebox model IDF32 or NYCHA approved equal. Junction box shall include the following standard features or NYCHA approved equal:
      a. Capacity: 5U
      b. Rail Type: #12-24 threaded
      c. Construction: 16 gauge cold rolled steel
      d. Load Capacity: 100 lbs

B. LVC Power Supply
   1. Basis of Design: CyberPower EC750G or NYCHA approved equal. Power supply shall include the following standard features or NYCHA approved equal:
      a. Power Capacity: 450 W / 750 VA
      b. Surge Suppression: 526 Joules
      c. Output Connections: (12) 5-15R
      d. Input Connection: 5-15P, 5-ft cord
      e. Nominal input / output voltage: 120V

C. Network Switch
   1. Basis of Design: Juniper EX2300-24P/48P Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
      a. 24 or 48 10/100/1000BASE-T Gigabit Ethernet ports
      b. 4 built-in SFP uplink ports
      c. Form Factor: 1U
      d. Routing Protocol: IGMP, RIP-1, RIP-2

e. Remote Management Protocol: HTTP, HTTPS, RMON1, RMON2, RMON9
f. Compliant Standards: IEEE 802,1ab, IEEE 802.1D, IEEE 802.1p, IEEE 802.1Q

D. Patch Panel
1. Basis of Design: Leviton model 69270-U24 or NYCHA approved equal. Patch Panel shall include the following standard features or NYCHA approved equal:
a. a. Configuration: 24-port with cat 6 connectors.
b. Form Factor: 1U
c. Mounting: 19” standard equipment rack
d. Compliance: ANSI/TIA-568.2-D, ISO/IEC 11801, ANSI/TIA-1096-A, cULus Listed
2. Basis of Design: Hammond Manufacturing RB-WR Fixed Depth 2U Wal Mount Bracket or NYCHA approved equal. Patch Panel bracket shall include the following standard features or NYCHA approved equal:
a. Form Factor: 2U
3. b. Overall Depth: 6.00”
a. Weight Capacity: 70 lbs
b. Approvals: RoHS Compliant

E. Intermediate Switch
1. Basis of Design: Juniper EX4600-40F Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. 2 expansion module slots
b. Form Factor: 1U
c. up to 72 wire-speed 10GbE small form-factor SFP/SFP+ ports
d. up to 12 wire-speed 40GbE quad SFP+ transceiver (QSFP+) ports
e. Data Transfer speed: 1.44 Tbps of Layer 2 and Layer 3 connectivity to networked devices.
2. Basis of Design: Juniper EX4400-24x Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
a. 2 expansion module slots
b. Form Factor: 1U
c. up to 24 wire-speed 10GbE small form-factor SFP/SFP+ ports
d. up to 2 wire-speed 40GbE quad SFP+ transceiver (QSFP+) ports

2.03 WIRELESS ACCESS POINT SERVER RACK (APSR)

A. APSR Enclosure
1. 1. Basis of Design: Middle Atlantic Products CWR-18-26PD or NYCHA approved equal. Junction box shall include the following standard features or NYCHA approved equal:
a. 18U capacity.
b. 19” standard rack width.
c. Locking swing open center section for front and rear access.
d. 200 lbs. weight capacity.
e. 11-gauge steel construction.

B. Rack Mounted Power Supply
1. Basis of Design: Tripp Lite Smart UPS model SU1500RTXL2UN or NYCHA approved equal. Power supply shall include the following standard features or NYCHA approved equal:
a. Power Capacity: 1,200 W / 1,500 VA
b. Surge Energy Rating: 600J
c. Output Connections: (6) 5-15R
d. Input Connection: 5-15P, 10-ft cord
e. Nominal input / output voltage: 120V
f. LCD display screen, backlit

C. Firewall Appliance
   1. Basis of Design: Fortinet FortiGate 61F Firewall or NYCHA approved equal. Firewall appliance shall include the following standard features or NYCHA approved equal:
      a. IPS Throughput: 1.4 Gbps
      b. NGFW Throughput: 1 Gbps
      c. Threat Protection Throughput: 700 Mbps
      d. Firewall Throughput (1518 / 512 / 64 byte UDP packets): 10/10/6 Gbps
      e. Interfaces: 1x USB Port, 1x console port, 2x GE RJ45 WAN Ports, 1x GE RJ45 DMZ Port, 2X GE RJ45 FortiLink Ports, 5x GE RJ45 Internal Ports

D. Network Switch
   1. Basis of Design: Fortinet FortiSwitch FD-448E-FPOE Network Switch or NYCHA approved equal. Network switch shall include the following standard features or NYCHA approved equal:
      a. 48 power over ethernet ports (802.3af/at)
      b. 4 10GE SFP+ ports
      c. Form Factor: 1U
      d. Switching Capacity: 176 Gbps
      e. Quality of Service: IEEE 802.1p Based Priority Queuing, IP TOS/DSCP Based Priority Queuing, IEEE 1588 PTP (Transparent Clock), Explicit Congestion Notification
      f. Management: IPv4 and IPv6 Management, Telnet / SSH, HTTP / HTTPS, SNMP v1/v2c/v3, SNTP, Standard CLI and Web GUI Interface, RMON Group 1

2.04 GIGABIT ETHERNET WIRELESS COMMUNICATION

A. Point-to-point Wireless Communication Radio
   1. Basis of Design: Siklu EtherHaul-8010FX or NYCHA approved equal. Radio shall include the following standard features or NYCHA approved equal:
      a. Throughput: 10Gbps full duplex, point-to-point
      b. Frequency / Duplexing: 71-76GHz / 81-86GHz, FDD
      c. Channel Bandwidth, Modulation & Adaptive Rate: 500/1,250/2,000MHz Adaptive bandwidth, coding and modulation - boost gain over 20dB
      d. Tx Power: BPSK: +18dBm, QAM128: +14dBm
      e. Certifications: CE, Federal Communications Commission - Part 15.101, ETSI – EN 302 217-2 V3.1.1 (2017-05), EN 302 217-2 V3.2.0 (draft v102 2018-01)
      f. Point-to-point Wireless Communication Antenna
   2. Basis of Design: Siklu EtherHaul-8010FX 2’ antenna model number EH-ANT-2ft or NYCHA approved equal. Radio shall include the following standard features or NYCHA approved equal:
      a. Compatibility with Siklu EtherHaul 8010FX radio
      b. 1.7/2.3 mile @ 99.95% availability (rain zone K/E, 2f ANT.

PART 3 - EXECUTION

3.01 VERIFICATION

A. Verify that ratings and configurations of system components are consistent with the indicated requirements.

B. Verify that mounting surfaces are ready to receive system components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install all equipment in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Provide grounding and bonding in accordance with Section 260526.

D. Identify system wiring and components in accordance with Section 260553.

E. Register all new network switches with manufacture as required to maintain manufactures warranties. First registration of all network equipment shall be to New York City Housing Authority.

F. Register all new gigabit ethernet wireless communication hardware as in compliance with Federal Communications Commission (FCC) requirements.

G. Network Switch Installation:
   1. 40GbE QSFP ports provided with switches shall not be used unless specifically noted otherwise by NYCHA IT.

H. SOC Installation:
   1. Server quantity, storage capacity, and configuration shall be configured with Genetec, based on the total numbers of IP cameras, prior to installation.
   2. Refer to “SOC Installation Phasing” on drawings for additional information on SOC installation.
   3. Installation location of SOC shall be coordinate with and approved by NYCHA OFSS.
   4. SOC equipment shall be provided with all required licenses including but not limited to: camera licenses, server licenses, plan manager, and failover.
   5. All uninterruptable power supplies ‘UPS’ installed in SOC shall be configured with network enabled functionality as required to allow for networking monitoring of UPS.

I. LVC Installation:
   1. Server quantity and configuration shall be configured with Genetec, based on the total numbers of IP cameras, prior to installation.
   2. A maximum of 2 network switches shall be permitted to be installed inside a single LVC, including an intermediate switch (if required).
   3. A maximum of 5 LVC’s are permitted to be installed in a single building.
   4. Refer to “LVC Installation Phasing” on drawings for additional information on SOC installation.
   5. Installation location of all LVCs shall be coordinated with and approved by NYCHA OFSS.
   6. All uninterruptable power supplies ‘UPS’ installed in LVC shall be configured with network enabled functionality as required to allow for networking monitoring of UPS.

J. Wireless Communication Installation:
   1. Contractor shall submit request to NYCHA IT for installation of wireless communication. At a minimum, wireless communication request shall consist of:
      a. Report outlining need for wireless communication.
      b. Coordinated of proposed antenna installation locations.
      c. Site photos of existing conditions. Photos should show proposed view of both antennas.
      d. Proposed wiring diagram
   2. Wireless communication shall only be permitted where physical connection between buildings via physical fiber connection and conduit trenching is not feasible.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Provide services of a manufacturer's authorized representative to observe installation and assist in inspection and testing. Include manufacturer's detailed testing procedures and field reports with submittals.

C. Prepare and start system in accordance with manufacturer's instructions.

D. Program system parameters according to requirements of Owner.

E. Test for proper interface with other systems.

F. Correct defective work, adjust for proper operation, and retest until entire system complies with Contract Documents.

G. Submit detailed reports indicating inspection and testing results and corrective actions taken.

3.04 CLEANING

A. Clean exposed surfaces to remove dirt, paint, or other foreign material and restore to match original factory finish.

3.05 CLOSEOUT ACTIVITIES

A. See Section 017800 - Closeout Submittals, for closeout submittals.
   1. Network equipment shop drawings and elevation drawings shall be incorporated into final as-built drawing submission.

B. See Section 017900 - Demonstration and Training, for additional requirements.

C. Demonstration: Demonstrate proper operation of system to Owner, and correct deficiencies or make adjustments as directed.

D. Training: Train Owner's personnel on operation, adjustment, and maintenance of system.
   1. Use operation and maintenance manual as training reference, supplemented with
   2. additional training materials as required.
   3. Provide minimum of four hours of training.
   4. Instructor: Manufacturer's authorized representative.
   5. Location: At project site.

E. Network Switch Validation: Coordinate with NYCHA IT as required for NYCHA IT to validate installation of all new network switches remotely. Contractor shall provide NYCHA IT with remote access to all new network switches and coordinate virtual meeting to review installation of new switches.

F. Network Equipment Registration: Contractor shall provide NYCHA IT with proof of manufacturer’s registration of all new network switches, power supplies, servers, and all other applicable SOC/LVC equipment as part of closeout submittal. Equipment shall be registered with “NYCHA IT Engineer, 90 Church Street 9th Floor, New York, NY 10007” as designee.

3.06 PROTECTION

A. Protect installed system components from subsequent construction operations.

3.07 MAINTENANCE

A. See Section 017000 - Execution and Closeout Requirements, for additional requirements relating to maintenance service.

B. Provide to Owner, a proposal as an alternate to the base bid, a separate maintenance contract for the service and maintenance of access control system for two years from date of Substantial Completion; Include a complete description of preventive maintenance, systematic examination, adjustment, cleaning, inspection, and testing, with a detailed schedule.

C. Conduct site visit at least once every three months to perform inspection, testing, and preventive maintenance. Submit report to Owner indicating maintenance performed along with evaluations and recommendations.

D. Provide trouble call-back service upon notification by Owner:
   1. Include allowance for call-back service during normal working hours at no extra cost to Owner.

2. Owner will pay for call-back service outside of normal working hours on an hourly basis, based on actual time spent at site and not including travel time; include hourly rate and definition of normal working hours in maintenance contract.

END OF SECTION 27 10 00