

**SYSTEMS SPECIFICATIONS**

...covers etc. and coordinate with them to ensure that all necessary conduits, back boxes

**4.03 Products Installed but not Supplied Under This Section**

- All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work or Conduit for pathways shall have no more than two 90 degree sweeps and no continuous section over 100'.
- All core holes and poke through devices in the floor for the installation of cabling.
- All core holes and EMT sleeves between floors for the routing of cabling.
- Back boxes for the mounting of Devices.
- Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Cabling.

**4.04 References**

- NFPA-70 National Electrical Code 2008 edition
- NFPA-72 National Fire Alarm Code
- UL 1666 - Standard for Safety of Flame Propagation Height
- NFPA 262 - Flame Travel and Smoke of Wires and Cables
- Local Authority Having Jurisdiction

**4.05 Definitions**

AWG - American Wire Gauge  
 BICSI - Building Industry Consulting Service International  
 EIA - Electronics Industry Alliance  
 FCC - Federal Communications Commission  
 NECA - National Electrical Contractors Association  
 NFPA - National Fire Protection Agency  
 UL - Underwriters Laboratory

**4.06 Delivery, Storage, and Protection**

- Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Contractor is responsible for all materials, tools and vehicles left on the job site.
- Follow Manufacturer's recommendations for handling of materials.

**4.07 Project Conditions**

**4.07.1 Environmental Requirements**

- Contractor shall ensure that any pollutants produced during the Work are disposed off according to local, state or national regulations. Follow the most stringent guidelines.
- It is preferred that the Contractor recycle any used or un-used components during the course of the construction project.

**4.07.2 Field Measurements**

- Contractor shall coordinate with electrical engineer on project that the main electrical service ground has a resistance to earth of less than 5 ohms.
- Contractor shall ensure that all field testers have been calibrated from the Manufacturer within 1 year.
- All field test results will be documented and submitted to Moore Public Schools, Technology Department.

**4.08 Sequencing**

- Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project.

**4.09 Scheduling**

- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

**4.10 Warranty**

- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure. ( 1 year warranty shall begin at job completion)

**4.11 Source Quality Control**

- Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components.

**Part 5 -**

**5.01 Field Quality Control**

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

**5.02 Adjusting**

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

**5.03 Cleaning**

- Contractor shall sweep and mop the floors of all equipment rooms or connection point closets prior to turnover to the Owner.

**5.04 Protection**

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

**5.05 Schedules**

- Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project manager.
- It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is met.
- Contractor bidding will work closely with the electrical and or masonry contractors to ensure conduit, back boxes, door frame access conduit, etc. are in the proper locations and accessible.

**Fire System Specifications**

**Part 1 - General**

**2.01 Manufacturers**

- Fire System Manufacturer shall be Silent Knight. (No Substitutions)
- Notification appliance Manufacturer shall be System Sensor. (No Substitutions)
- Device Manufacturer shall be as specified in equipment description. (No Substitutions)
- Cable Manufacturer shall be Genesis. (Or Equivalent)

**1.03 Fire Systems Equipment Description**

- note:** contractor shall use sk protocol devices on all new installations. contractor shall replace all existing sd protocol devices connected to existing system with sk protocol.
- fire alarm control shall be silent knight model # 6820. (no substitutions)
- fire alarm distributed power module nac expansion shall be silent knight sk-ps6 / sk-ps10 or fire-lite model #'s fl-ps6 / fl-ps10. (no substitutions)
- fire alarm intelligent power supply shall be silent knight model # 585x1. (no substitutions)  
 NOTE: the 585x1 nac circuits will not sync with the main control panels nac circuits. if new nac circuit synchronization is required with existing nac circuits, use the sk-ps6/fl-ps6 or sk-ps10/fl-ps10
- fire alarm remote annunciator shall be silent knight model # 5860 (grey) and surface mount trim ring 5860tg (grey) shall be used if surface mounted. (no substitutions)
- fire alarm signaling line circuit expander shall be silent knight model # 5815x1. (no substitutions)  
 sk protocol devices shall be
- fire alarm addressable manual pull station shall be silent knight model # sk-pull-da. (no substitutions)
- fire alarm addressable photoelectric smoke detector shall be silent knight model # sk-photo-w. (no substitutions)
- fire alarm addressable heat detector shall be silent knight model # sk-heat-w. (no substitutions)
- fire alarm base shall be silent knight model # b300-6. (no substitutions)
- smoke detectors in areas that require a co detector shall be sk-fire-co-w. (no substitutions)
- fire alarm addressable input module shall be silent knight model # sk-monitor or sk-monitor-2. (no substitutions)
- fire alarm addressable relay module shall be a silent knight model # sk-relay. (no substitutions)
- fire alarm sic line isolator shall be silent knight model # sk-iso. (no substitutions)
- fire alarm duct detectors and duct detector remote test stations shall be silent knight model #'s sk-duct and rts151key. if a form-c relay is required, please add an sk-relay. (no substitutions)
- fire alarm horn / strobe signaling device shall be system sensor model # p2wl. (model pc2wl can be substituted if mounted on non-stainable ceiling tile. no other substitutions)
- fire alarm strobe signaling device shall be system sensor model # swl. (model scwl can be substituted if mounted on non-stainable ceiling tile. no other substitutions)
- fire alarm strobe synch module shall be system sensor model # mdl3. (not needed on version 9 panels or newer) (no substitutions)
- fire alarm outdoor strobe signaling device shall be system sensor model # p2rk. (no substitutions)
- fire alarm speaker / strobe signaling device shall be system sensor model # spswl. (model spswcl can be substituted if mounted on non-stainable ceiling tile. no other substitutions)
- fire alarm speaker signaling device shall be system sensor model # spwl. (no substitutions)
- fire alarm 50-watt voice evac system shall be as needed silent knight ske-450 (single zone), ske-450-zn4 (4 zone) or ske-450-zr6 (6 zone). (no substitutions)

**1.01 Systems Installation**

- All fire alarm junctions and or splices shall be soldered and insulated.
- All Ceiling mounted devices shall be mounted on non-stainable ceiling tiles.
- All circuits and wiring shall be labeled at all terminating ends.
- All fire system wiring shall be RED in color and non-shielded.
- All devices shall be mounted according to the manufactures specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All fire pulls shall be dual action.
- All Initiating Devices shall be labeled with their corresponding module and point number. Smoke detector label shall be on smoke detector and smoke detector base and be clearly visible from the finished floor.
- All Each Initiating Device Circuits (IDC) shall have Line Isolator Modules installed at the SLC Head End.
- All Initiating Device Circuits (IDC) shall be wired Class B (NFPA Style B).
- All Initiating Device Circuits (IDC) shall be wired with minimum 18 AWG gauge red NON Shielded cable.
- All duct detectors shall be connected to fire system and shall have remote test stations installed accessible and visible from the finished floor. They shall be labeled with their corresponding module and point number.
- All duct detector ARM / AIM shall be installed adjacent to the remote test stations and accessible and visible from the finished floor. They shall be labeled with their corresponding module and point number. (ARM/AIM should not be needed when using SD505-DUCTR duct det.)
- Each CO 1224T detectors shall have an SD500 AIM installed (No doubling). All CO1224T & SD500 AIM shall be labeled with their corresponding module and point number.
- All modules shall have their corresponding module number.
- All notification devices shall be wall mounted where possible. Where wire is exposed decorative wire molding shall be installed from the ceiling to the device. If ceiling mount devices are used they shall be mounted on a non-stainable ceiling tile
- All notification devices shall be labeled with their corresponding module, circuit number and device number. Label shall be on the base and be clearly visible from the finished floor. EOL Device shall be labeled as such.
- All horn / strobes and strobes shall be synchronized.
- All Notification Appliance Circuits (NAC) shall be wired Class B (NFPA Style Y).
- All Notification Appliance Circuits (NAC) shall be wired with minimum 16 AWG gauge red NON Shielded cable.
- Protective grommets shall be installed on all conduits to protect wire.
- All SBUS and SLC circuits shall be wired with red NON shielded cable.
- All wire shall be run in J hooks above ceiling with a minimum space of 4" from ceiling deck. All wire shall be in separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and roof deck.
- Main control panel shall have a CAT 6 cable ran between the main control and the phone company DMARC for monitoring purposes.
- All wire ran between building shall be in conduit and shall be non shielded direct burial cable. It shall be a minimum of 4 conductor 16 AWG copper.
- Installer shall have a commercial fire technician on the job site at all times during the installation.
- Installer shall supply the electrical and or masonry contractors with specialty back boxes such as remote

etc. are installed in the proper locations.

- Follow and adhere to installation practices specified by the applicable NFPA 72 standards.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008.
- Follow and adhere to installation practices specified by the Manufacturers.

**1.02 Products Installed but not Supplied Under This Section**

- All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work area. EMT or Conduit for pathways shall have no more than two 90 degree sweeps and no continuous section over 100'.
- All core holes and poke through devices in the floor for the installation of Fire cabling.
- All core holes and EMT sleeves between floors for the routing of Fire cabling.
- Back boxes for the mounting of Fire Devices.
- Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Fire Cabling.

**1.03 Quality Assurance**

**1.03.01 Qualifications**

- Install all components as directed by Manufacturer's installation guidelines.
- All products shall bear the mark of UL or ETL for performance level.
- System installation shall meet all applicable Local/State codes and safety requirements where project is located.
- All products shall be new and un-used in original packaging.

**1.03.02 Bidder/Installer Qualifications**

- Bidding contractor shall be a local licensed Commercial Fire Alarm Company with licensed Commercial Fire Alarm technician(s) on staff.
- Bidding contractor shall have a minimum of one year experience installing Silent Knight Addressable fire panels.
- Bidding contractor shall have a minimum of 5 years experience installing commercial fire alarms.
- Bidding contractor shall be able to provide insurance at the request of the owner.
- Bidding contractor shall have a commercial fire technician on the job site at all times during the installation.

**1.04 Sequencing**

- Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project.

**1.05 Scheduling**

- Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables, terminations and testing once scheduling sequence has been determined to the Owner's Project Manager.

**1.06 Warranty**

- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure. ( 1 year warranty shall begin at job completion)

**Part 2 - Products**

**2.02 Source Quality Control**

- Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components.

**Part 3 -**

**3.01 Field Quality Control**

- Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative.
- Contractor shall replace all defective components.

**3.02 Adjusting**

- No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative.

**3.03 Protection**

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with appropriate materials.
- Remove all protective covers and protective materials from equipment prior to turnover to Owner.

End of Section

**Fire System Installation Completion Check List**

**Part 1 - General**

**1.01 Section Includes**

- Fire System Completion Check List

**1.02 Completion Check List**

- A map of the entire system showing device numbers and wire routes has been left inside the main control panel and a copy has been given to Rodney Cobb with MPS.
- All panel programming has been checked and is correct.
- Panel(s) has been tested for proper operation.
- All zones have been tested to verify proper reporting to the monitoring station.
- All points have been tested to verify proper description at the keypad.
- All horn/strobes and strobes have been tested for proper operation.

- All smoke detectors have been tested and dust covers removed.
- All devices have been tested for proper operation.
- All cabinets are labeled on the outside with module numbers and point numbers.
- All cabinets are labeled on the inside with module numbers by the corresponding module and point descriptions.
- The monitoring station has the correct account information such as call list, zone descriptions, etc.

End of Section

**IP camera Specifications**

**Moore Public Schools  
IP camera Specifications**

**IP CAMERA MANUFACTURE IS AVIGILON (NO SUBSTITUTIONS).**

**AVIGILON EQUIPMENT**

**INDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST**

4.0C-H5A-D1-IR  
 ACC7-ENT LICENSE - 1 per camera

**INDOOR MULTI-HEAD 3 HEAD CAMERA REQUIRED EQUIPMENT LIST**

9C-H4A-3MH-180 (3x3MP)  
 POE-INJ2-60W-NA Power Injector  
 ACC7-ENT LICENSE - 1 per camera  
 H4AMH-AD-CEIL1  
 H4AMH-DC-COVR1

**INDOOR MULTI-HEAD 4 HEAD CAMERA REQUIRED EQUIPMENT LIST**

12C-H4A-3MH-360 (4x3MP)  
 POE-INJ2-60W-NA Power Injector  
 ACC7-ENT LICENSE - 1 per camera  
 H4AMH-AD-CEIL1  
 H4AMH-DC-COVR1

**OUTDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST**

6.0C-H5A-D01-IR  
 ACC7-ENT LICENSE - 1 per camera

**OUTDOOR MULTI-HEAD 3 HEAD CAMERA CORNER MOUNT REQUIRED EQUIPMENT LIST**

15C-H4A-3MH-270 (3x5MP)  
 POE-INJ2-60W-NA Power Injector  
 ACC7-ENT LICENSE - 1 per camera  
 H4AMH-AD-PEND1  
 H4AMH-DO-COVR1  
 H4AMH-AD-IRIL1  
 H4-MT-CRNR1

**OUTDOOR MULTI-HEAD 3 HEAD CAMERA WALL MOUNT REQUIRED EQUIPMENT LIST**

15C-H4A-3MH-180 (3x5MP)  
 POE-INJ2-60W-NA Power Injector  
 ACC7-ENT LICENSE - 1 per camera  
 H4AMH-AD-PEND1  
 H4AMH-DO-COVR1  
 H4AMH-AD-IRIL1  
 IRPTZ-MNT-WALL1

**INSTALLATION**

- Install single head cameras on adjacent walls were possible. If it must be mounted on ceiling, it shall be on a water-resistant non-stainable ceiling tile. **MPS to have final determination of camera location and field of view) (Call Jack Phillips for final location and view phone 473-5225)**
- Any cameras installed on ceiling shall be mounted on a water-resistant non-stainable ceiling tile.
- Each installed camera needs a camera license.
- All network drops shall be connected with patch cords to a switch at each rack location.
- No Substitutions.

**Horizontal Cabling Requirements**

- See MPS Structured Cabling Specifications for camera network cabling installation, labelling and testing requirements.

**Warranty**

- Communications Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure.
- Communications Contractor shall execute a Lifetime Applications Assurance Warranty for parts and labor to support stated applications from the connectivity Manufacturer.

End of Section

**Audio Visual Systems for Instructional Spaces Specifications**

**Part 1 - General**

**1.01 Instructional Spaces**

- Reference technology drawings and detail sheet T504 for classroom configuration and part numbers.

**1.02 Special Spaces**

- Reference technology drawings and one line diagrams.

**1.03 Flat Panel Displays**

- All non interactive Flat Panel displays shall be 43" Samsung BE Series.
- Bio Lab 37 displays shall be ceiling mounted.
- Career Tech 12 and Career Tech 15 displays shall be wall mounted 55" AFF to center of display.

End of Section



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SALAS O'BRIEN  
 MECHANICAL / ELECTRICAL

NY  
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 checked by  
 APRIL 2023  
 date  
 revisions

MOORE PUBLIC SCHOOLS  
 BOARD OF EDUCATION  
 MOORE, OKLAHOMA



OFFICE  
 ADDITION -  
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 ELEMENTARY SCHOOL

sheet no:

T503

**Salas O'Brien**  
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 Expiration Date: 6/30/2023  
 Salas O'Brien Project Number: 2023-01140-00

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