## STRUCTURED CABLING LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| *# | WALL MOUNTED NETWORK OUTLET<br>D#: NUMBER OF DATA DROPS IN OUTLET<br>AP: WIRELESS ACCESS POINT | +18" AFF, UNLESS OTHERWISE NOTED | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| V# | COMMUNICATIONS OUTLET | FIELD COORDINATE | FIELD COORDINATE | |
| W | WALL MOUNTED NETWORK OUTLET | +44" AFF | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| B | WALL MOUNTED BOX FOR FUTURE USE. | +18" AFF UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| D# | FLOOR MOUNTED NETWORK OUTLET | N/A | COORDINATE WITH ELECTRICAL CONTRACTOR | FINISHED HARDWARE PROVIDED BY DIV 27 |
| D# | CEILING MOUNTED NETWORK OUTLET<br>D#: NETWORK OUTLET | ABOVE CEILING | CEILING BRACKET WITH BISCUIT BLOCK | |
| AP D# | CEILING MOUNTED NETWORK OUTLET FOR ACCESS POINT<br>D#: NETWORK DROP QUANTITIY | ABOVE CEILING | CEILING BRACKET WITH BISCUIT BLOCK | |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. CONDUIT STUB UP AND SLEEVES SHALL HAVE A SOLID UNCUT PLASTIC PROTECTIVE BUSHING.
5. NO CONDUITS SHALL EXCEED FOR 40% MAXIMUM FILL RATIO. CONTRACTOR TO PROVIDE ADDITIONAL CONDUITS REQUIRED.

## AUDIO/VIDEO LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| AV-1 | WALL MOUNTED AUDIO/VIDEO INPUT OUTLET | +18" AFF UNO | 4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C | NOTE #6 |
| FSD-1 | WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VISUAL OUTPUT OUTLET | REFERENCE FLOOR PLAN | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | NOTE #5 |
| FSD-2 | WALL MOUNTED FLAT SCREEN DISPLAY AUDIO/VISUAL OUTPUT OUTLET ASSOCIATED WITH AV-1 INPUT OUTLET | REFERENCE FLOOR PLAN | 4 11/16"X4 11/16"X2-1/8" BACK BOX WITH DOUBLE GANG RING, TWO(2) 1.25"C | NOTE #5 |
| CP | AV CONTROL PANEL | +48" AFF TO TOP | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| | STREAMING CAMERA | CEILING UNO | N/A | NOTE #5 |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK
6. REFERENCE DETAIL SHEETS FOR ADDITIONAL INSTRUCTIONS.

## LOCAL SOUND SYSTEM LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| LS | LOCAL SOUND SYSTEM SPEAKER | CEILING MOUNT UNO | CONTRACTOR PROVIDED BACK BOX OR 4"X4"X2 1/8" J BOX WITH COVER, 1"C | |
| MI | MICROPHONE INPUT | +18" AFF UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| MA | COMBINATION OUTLET CONSISTING OF ONE (1) MICROPHONE INPUT AND ONE (1) AUXILIARY INPUT | +18" AFF UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| AI | 3.5MM STEREO AUDIO AUXILIARY INPUT | +18" AFF UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| WA | WIRELESS ANTENNA | WALL MOUNT UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| ALA | ASSISTED LISTENING ANTENNA | WALL MOUNT UNO | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

## INTERCOM LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| ICS | INTERCOM COMMUNICATIONS SYSTEM HEAD END UNIT. | FLOOR MOUNTED | COORDINATE WITH EC | COORDINATE POWER WITH EC |
| S | CEILING MOUNT INTERCOM SPEAKER, LAY-IN CEILING | CEILING | CONTRACTOR PROVIDED | |
| S2 | CEILING MOUNT INTERCOM SPEAKER, HARD CEILING. | CEILING | CONTRACTOR PROVIDED | |
| S3 | WALL MOUNT INTERIOR INTERCOM SPEAKER | REFERENCE FLOOR PLANS | CONTRACTOR PROVIDED | |
| S4 | WALL MOUNT EXTERIOR INTERCOM SPEAKER | +10' AFF UNO | CONTRACTOR PROVIDED | |
| S5 | PENDANT MOUNT INTERCOM SPEAKER | REFERENCE FLOOR PLANS | CONTRACTOR PROVIDED | |
| S6 | SURFACE MOUNT INTERCOM SPEAKER, MOUNT TO STRUCTURE | CEILING | CONTRACTOR PROVIDED | |
| S7 | CEILING MOUNTED EXTERIOR INTERCOM SPEAKER. | CEILING | CONTRACTOR PROVIDED | |
| # IP | IP BASED SPEAKER. '#' TO BE REPLACED WITH S, S2, S3, S4 INDICATING THE SPECIFIC TYPE OF SPEAKER. | REFERENCE FLOOR PLANS | CONTRACTOR PROVIDED | NOTE #5 |
| # IP AMP | SPEAKER CONNECTED TO IP MODULE AND AMPLIFIER. '#' TO BE REPLACED WITH S, S2, S3, S4 INDICATING THE SPECIFIC TYPE OF SPEAKER. | REFERENCE FLOOR PLANS | CONTRACTOR PROVIDED | |
| VC | WALL MOUNTED VOLUME CONTROL | +48" AFF | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| CB | INTERCOM CALL BUTTON | +48" AFF | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| C | SINGLE FACE CLOCK | 90" AFF UNO. | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| C2 | DOUBLE FACE CLOCK | 90" AFF UNO. | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| RPS | REMOTE PROGRAM SOURCE | DESK TOP | COORDINATE WITH EC | NOTE #5 |
| ACS | ADMINISTRATIVE CALL STATION. | DESK TOP | N/A | NOTE #5 |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

## ACCESS CONTROL LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| ACP | ACCESS CONTROL SYSTEM, CONTROL PANEL. | +60" AFF TO CENTER | AS REQUIRED | COORDINATE POWER. NOTE #4. |
| CR *# | ACCESS CONTROL PROXIMITY CARD READER. DEFAULT SYMBOL INDICATES WALL MOUNTED<br>*M - INDICATES MULLION MOUNTED READER | +42" A.F.F. | 1-G, 3/4" C | |
| CR | DOOR MOUNTED ACCESS CONTROL PROXIMITY CARD READER THAT IS INTEGRATED INTO THE DOOR HARDWARE. | +42" AFF | N/A | |
| DS *# | 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION. *DEFAULT INDICATES WALL MOUNTED<br>*M - INDICATES MULLION MOUNTED DEVICE | +42" AFF | *W: 1-G, 3/4" C<br>*M: 3/4"C | COORDINATE POWER. NOTE #4 & #5. |
| DS | DOOR MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION. | +42" AFF, FIELD COORDINATE | | COORDINATE POWER. NOTE #4 |
| MS | 2-WAY AUDIO/VIDEO INTERCOM MASTER STATION. | DESK MOUNTED UNO | | COORDINATE POWER. NOTE #4 |
| DR | DOOR RELEASE BUTTON | COORDINATE WITH GC | 1-G, 3/4" C | |
| DH | PIR MOTION REQUEST TO EXIT DEVICE, DOOR CONTACT AND ELECTRIC STRIKE. | | | ACCESS CONTROL ONLY DOOR SHALL BE SPST. DOOR WITH BOTH ACCESS CONTROL AND INTRUSION SHALL BE DPDT. ONLY 1 DOOR CONTACT PER DOOR IF DH AND DC SYMBOL ARE SHOWN |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK
5. AVIGILON PART #3.0C-H4VI-ROI-IR

## VIDEO SURVEILLANCE LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| | WALL/CORNER MOUNT 4-SENSOR CAMERA | REFERENCE FLOOR PLANS | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | NOTE #5 AND 6 |
| | CEILING MOUNTED 4-SENSOR CAMERA | CEILING | | NOTE #5 |
| | 3-SENSOR CAMERA | CEILING UNO | | NOTE #5 AND 6 |
| | 2-SENSOR CAMERA | REFERENCE FLOOR PLANS | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | NOTE #5 |
| | 1-SENSOR CAMERA | REFERENCE FLOOR PLANS | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | NOTE #5 |
| | SYMBOL ADDED TO CAMERA TO INDICATE WALL MOUNT. | | | |
| | SYMBOL ADDED TO CAMERA TO INDICATE CORNER MOUNT. | | | |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. THE SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE REQUIREMENTS PRIOR TO ROUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

## INTRUSION LEGEND

| SYMBOL | DESCRIPTION | ELEVATION | BACK BOX/RACEWAY | NOTES |
|---|---|---|---|---|
| IDP | INTRUSION DETECTION SYSTEM CONTROL PANEL | +60" AFF | TWO(2) - 1"C TO CONTRACTOR PROVIDED BACK BOX | COORDINATE POWER WITH EC. NOTE #5 |
| KP | INTRUSION DETECTION SYSTEM KEYPAD. | +48" AFF TO TOP | 4"X4"X2 1/8" BACK BOX WITH 1-G MUD RING, 1"C | |
| M *# | WALL MOUNTED MOTION DETECTOR<br>*# = LR IF LONG RANGE | REFERENCE FLOOR PLAN | N/A | |
| GB | CEILING MOUNTED GLASS BREAK DETECTOR | CEILING | N/A | |
| DC | DOOR CONTACT | FLUSH MOUNTED IN DOOR FRAME | N/A | INTRUSION ONLY DOOR SHALL BE SPST. DOOR WITH BOTH ACCESS CONTROL AND INTRUSION SHALL BE DPDT. ONLY 1 DOOR CONTACT PER DOOR IF DH AND DC SYMBOL ARE SHOWN |
| ODC | OVERHEAD DOOR MOUNT MAGNETIC DOOR CONTACT. | SURFACE MOUNTED ON DOOR FRAME | N/A | NOTE #4 |
| WHU | WIRELESS HOLD UP BUTTON & TRANSMITTER | | N/A | |
| SS | SECURITY SIREN | +9' AFF | SINGLE GANG BACKBOX | |

NOTES:
1. #-G INDICATES BACK BOX SIZE.
2. #-C INDICATES CONDUIT SIZE.
3. UNO: UNLESS NOTED OTHERWISE
4. WHU REQUIRES RECIEVER. REFERENCE SECURITY SHEET SPECIFICATIONS FOR PART NUMBERS.
5. PROVIDE AND INSTALL ONE (1) CATEGORY CABLE TO CONNECT DEVICE TO NETWORK

## FIRE ALARM LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| FACP | FIRE ALARM CONTROL |
| FAA | FIRE ALARM ANNUNCIATOR PANEL |
| NAC | NOTIFICATION APPLIANCE |

NOTES:

1. REFERENCE SHEET SPECIFICATIONS
2. A LICENSED FIRE ALARM PLANNING SUPERINTENDENT CERTIFIED TO A MINIMUM LEVEL 3, IN THE SUBFIELD OF FIRE ALARM SYSTEMS THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET), SHALL PROVIDE PLANS AND CALCULATIONS FOR A MANUAL AND AUTOMATIC FIRE DETECTION AND ALARM SYSTEM TO COMPLY WITH THE BUILDING SPACE LAYOUT, BUILDING OCCUPANCY, CURRENT NFPA 72, LOCAL AND STATE CODE REQUIREMENTS, AND THE FIRE ALARM AND DETECTION SYSTEM SPECIFICATIONS.

## SUBSCRIPTS AND ABBREVIATIONS

| TEXT | DESCRIPTION |
|---|---|
| 'WP' | DEVICE SHALL BE WEATHER PROOF AND RATED FOR EXTERIOR CONDITIONS |
| • | NEXT TO ANY SYMBOL INDICATES DEVICE ROUGH-IN SHALL BE ABOVE COUNTER. FINAL ROUGH-IN FIELD COORDINATION TO BY CONTRACTOR WITH ARCHITECTURAL MILLWORK DRAWINGS AND OTHER TRADES. |
| AFF | ABOVE FINISHED FLOOR |
| 'UC' | DEVICE IS TO BE MOUNTED ON THE UNDERSIDE OF THE ELEVATED CANOPY. |
| 'WM' | DEVICE IS TO BE WALL MOUNTED. |
| 'WG' | WIRE GUARD TO BE PROVIDED AND INSTALLED TO PROTECT ASSOCIATED DEVICE. |

## SUBSCRIPTS LEGEND - EXISTING DEVICES

| TEXT | DESCRIPTION |
|---|---|
| 'E' | EXISTING TO REMAIN. |
| 'D' | DEVICE IS EXISTING AND IS TO BE REMOVED. CONTRACTOR TO REMOVE THE DEVICE AND RETURN TO OWNER. |
| 'R' | REMOVE EXISTING DEVICE AND RELOCATE TO A LOCATION INDICATED ON THE DRAWINGS. |

## NOTES TO CONTRACTOR

1. EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS.
2. SYSTEM INSTALLERS SHALL COORDINATE LOCATIONS AND CONNECTIONS WITH THE PROJECT'S ELECTRICAL CONTRACTOR.
3. CONTRACTOR TO PROVIDE PROPERLY GROUNDED LIGHTING PROTECTION ON ALL CABLING ENTERING AND EXITING THE BUILDING.
4. REFERENCE DETAIL SHEETS FOR ADDITIONAL INSTRUCTIONS.

## RESPONSIBILITY MATRIX

| SCOPE ITEM | RESPONSIBILITY | | | NOTES |
|---|---|---|---|---|
| **COMMUNICATIONS - DIVISION 27** | OFOI | CFCI | OFCI | |
| CATEGORY 6 STRUCTURED CABLING SYSTEM (SCS) | | ✓ | | |
| INTERACTIVE VIDEO DISPLAYS | ✓ | | | |
| BUILDING INTERCOM/PA, BELL, AND CLOCK SYSTEM | | ✓ | | |
| →NETWORK SWITCHES | ✓ | | | |
| NETWORK EQUIPMENT | | | | |
| → MDF/IDF NETWORK EQUIPMENT | ✓ | | | |
| → VOIP TELEPHONES | ✓ | | | |
| → WIRELESS ACCESS POINTS | ✓ | | | |
| → UNINTERRUPTIBLE POWER SUPPLIES (UPS) | | ✓ | | |
| RACEWAY: CONDUIT, BACK BOXES, ETC. | | ✓ | | SEE NOTE 1. |
| ELECTRICAL POWER | | ✓ | | SEE NOTE 1. |
| **LIFE SAFETY AND SECURITY - DIVISION 28** | OFOI | CFCI | OFCI | |
| ACCESS CONTROL SYSTEM(ACS) | | ✓ | | |
| INTRUSION DETECTION SYSTEM | | ✓ | | |
| DOOR ACCESS VIDEO INTERCOM SYSTEM | | ✓ | | |
| VIDEO SURVEILLANCE SYSTEM (VSS) | | | | |
| →VSS SERVERS | | ✓ | | |
| →VSS CAMERAS | | ✓ | | |
| →VSS PROGRAMMING | | ✓ | | |
| →VSS CABLING | | ✓ | | SEE NOTE 2. |
| FIRE ALARM SMOKE DETECTION WITH VOICE EVACUATION | | ✓ | | |
| RACEWAY: CONDUIT, BACK BOXES, SLEEVES, ETC. | | ✓ | | SEE NOTE 1. |
| ELECTRICAL POWER | | ✓ | | SEE NOTE 1. |

OFOI - OWNER FURNISHED AND OWNER INSTALLED
CFCI - CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED
OFCI - OWNER FURNISHED AND CONTRACTOR INSTALLED

RESPONSIBILITY MATRIX NOTES:
1. BY DIVISION 26.
2. BY DIVISION 27.

## TECHNOLOGY SHEET INDEX



| | |
|---|---|
| T000 | TECHNOLOGY NOTES AND LEGENDS |
| T001 | TECHNOLOGY SITE PLAN |
| T101 | TECHNOLOGY FLOOR PLAN |
| T201 | TECHNOLOGY DETAILS |
| T202 | TECHNOLOGY DETAILS |
| T203 | TECHNOLOGY DETAILS |
| T301 | SHEET SPECIFICATIONS |
| T302 | SHEET SPECIFICATIONS |
| T303 | SHEET SPECIFICATIONS |
| T304 | SHEET SPECIFICATIONS |
| T305 | AUDIOVISUAL BOM |




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BUILDING

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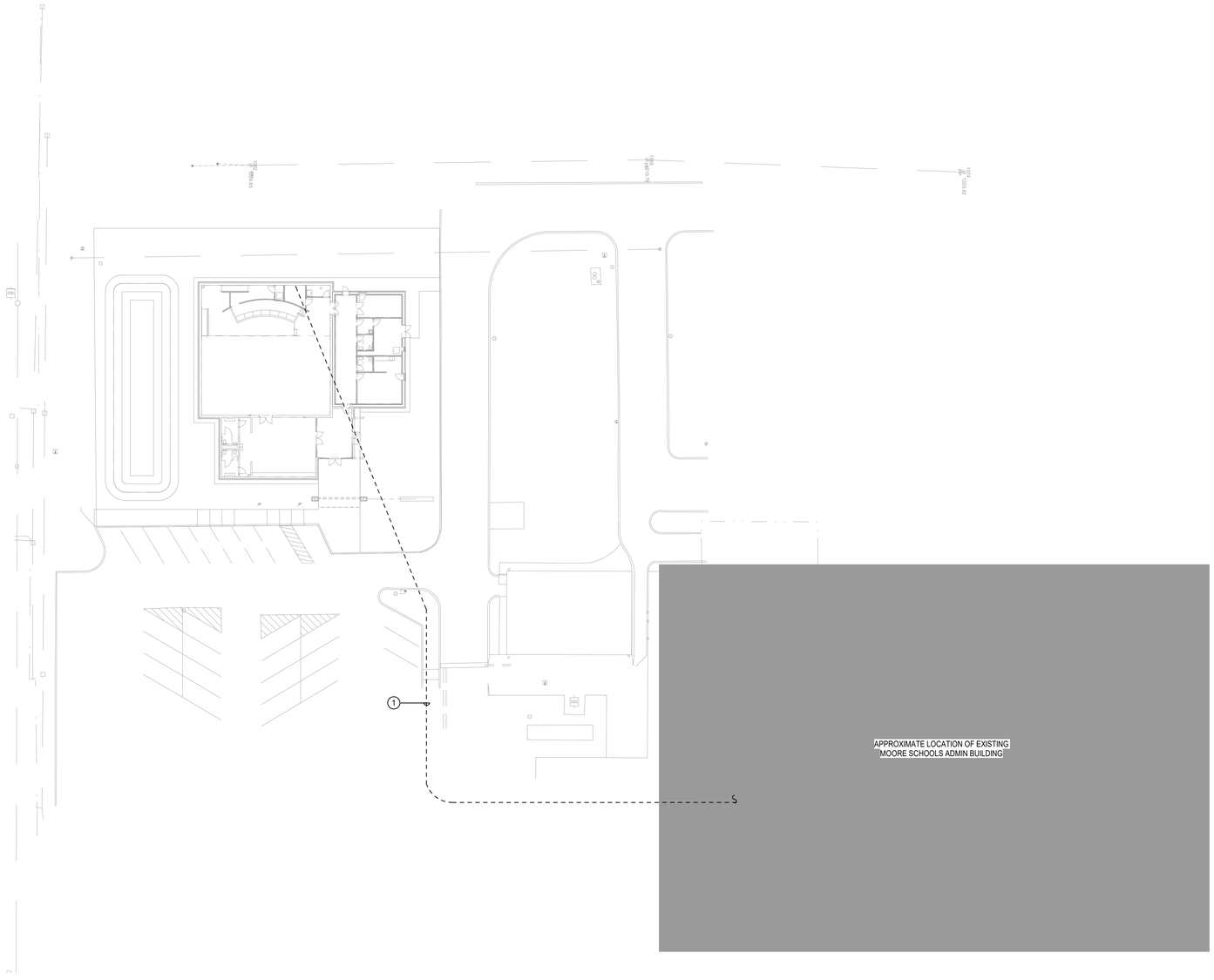


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## TECHNOLOGY SITE KEYED NOTES

1. LOCATION OF (3) 2" CONDUITS AND FIBER CABLE RAN TO MDF LOCATED ON 2ND FLOOR OF THE EXISTING ADMINISTRATION BUILDING. FIELD COORDINATE EXACT ENTRY POINT INTO THE ADMIN BUILDING AND THE IDF LOCATION WITH OWNER PRIOR TO CONSTRUCTION. COORDINATE EXACT ROUTE WITH ARCHITECT. SEE NETWORK SPECIFICATIONS FOR FIBER CABLING INFORMATION.




N 1 **TECHNOLOGY SITE PLAN**
Scale: 1" = 30'-0"


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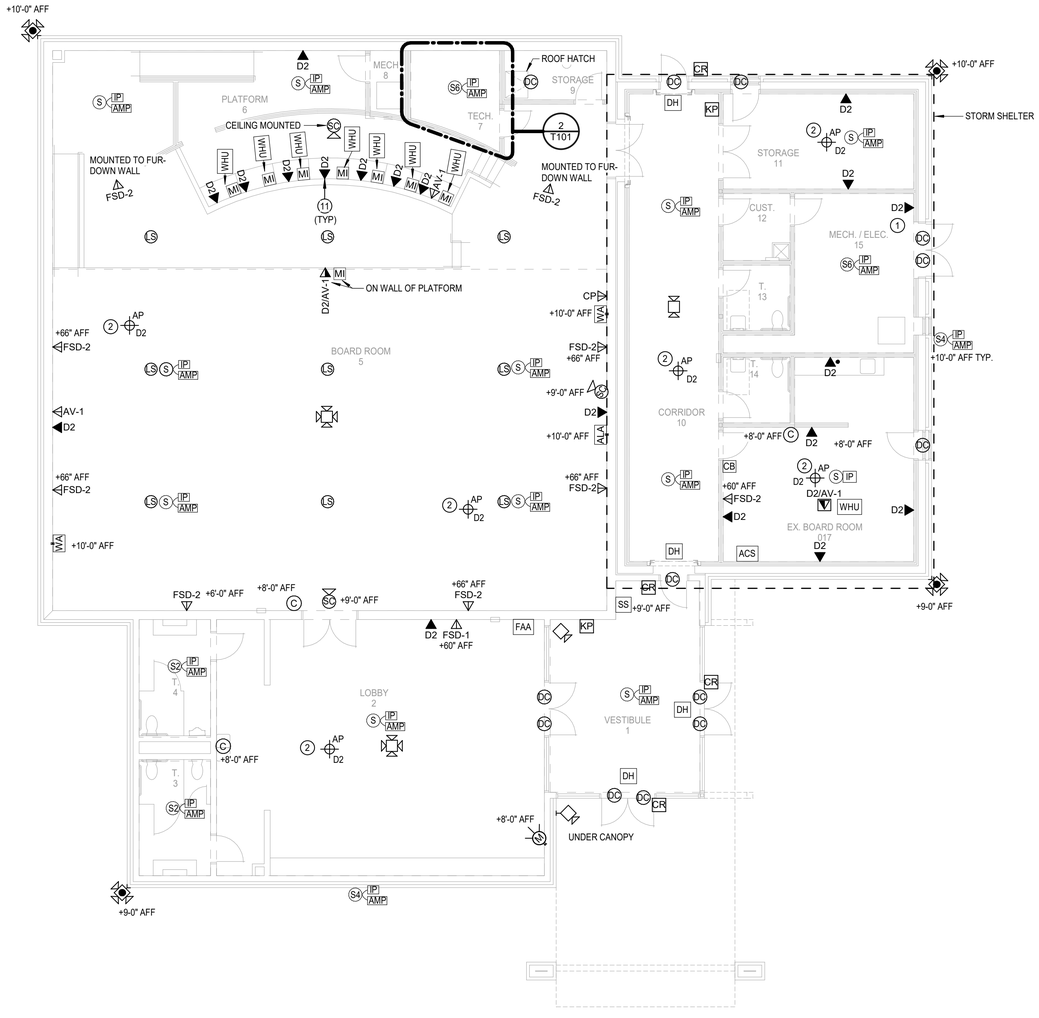
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## 1 TECHNOLOGY FLOOR PLAN

Scale: 1/8" = 1'-0"

## TECHNOLOGY SCS NOTES

A. ALL RACK LOCATIONS SHALL BE COORDINATED WITH THE PROJECT'S TECHNOLOGY CONSULTANT AND OWNER PRIOR TO INSTALLATION. NO RACKS AND/OR ASSOCIATED CABLE TRAY SYSTEM SHALL BE PERMANENTLY INSTALLED PRIOR TO DOCUMENTED ACCEPTANCE.

B. PATCH PANEL QUANTITY SHALL BE DETERMINED BY STATION CABLE DROP COUNTS SHOWN ON TECHNOLOGY PLANS AND THE ASSOCIATED PROJECT MATRIX. ENSURE PATCH PANEL QUANTITY IS SUFFICIENT TO SUPPORT THE NUMBER OF PORTS REQUIRED BY TECHNOLOGY PLANS PLUS AN ADDITIONAL 25% FOR FUTURE GROWTH.

C. CONTRACTOR SHALL NOT EXCEED MORE THAN A 50% RACK FILL RATIO ON ANY RACK.

D. REFERENCE SPECIFICATIONS FOR MATERIALS AND METHODS

ALL RACKS, LADDER TRAYS, LIGHTNING PROTECTION ENCLOSURES AND ANY OTHER DEVICES, PART OF THE STRUCTURED CABLING SYSTEM, SHALL BE GROUNDED TO A GROUND BUS BAR LOCATED IN THE TELECOMMUNICATIONS ROOM WITH A #6AWG GROUND CABLE. DAISY CHAINING WILL NOT BE ACCEPTED. ALL ITEMS SHALL HAVE A DEDICATED GROUND CABLE TO BUS BAR. GROUND CABLE SHALL BE GREEN IN COLOR.

## TECHNOLOGY GENERAL NOTES

A. A FIRE ALARM: CONNECT NEW FIRE ALARM DEVICES TO NEW SILENT KNIGHT 6820EVS. SUPPLY 6820EVS PANEL AND ALL NAC PANELS, POWER SUPPLIES, ETC. NEEDED TO MAKE A COMPLETE AND CODE-COMPLIANT SYSTEM. SYSTEM SHALL USE SK PROTOCOL DEVICES ONLY. SEE SPECIFICATIONS FOR APPROVED PART NUMBERS.

B. SECURITY ALARM: CONNECT ALL NEW SECURITY ALARM DEVICES TO NEW DMP SECURITY ALARM PANEL. SUPPLY DMP PANEL AND ALL ZONE EXPANDERS, POWER SUPPLIES, ETC. NEEDED TO MAKE A COMPLETE SYSTEM. SYSTEM SHALL BE WIRED WITH 2 ZONES PER SINGLE DOOR OR DOUBLE DOOR: ONE ZONE FOR SECURITY ALARM AND ONE ZONE FOR DOOR HOLD-OPEN ALERTS. SEE SPECIFICATIONS FOR APPROVED PART NUMBERS.

C. ACCESS CONTROL: CONNECT ALL NEW ACCESS CONTROL DEVICES TO NEW KEYSCAN CONTROLLERS. SUPPLY KEYSCAN CONTROLLERS AND ALL POWER SUPPLIES, READERS, STRIKES, ETC. NEEDED TO FURNISH A COMPLETE SYSTEM. SEE SPECIFICATIONS FOR APPROVED PART NUMBERS.

D. CAMERA: CONNECT ALL NEW CAMERAS TO NEW IDF. CAMERA SYSTEM IS AVIGILON. CONTRACTOR TO PROVIDE DELL AVIGILON SERVER IN MDF ROOM LOCATED ON 2-POST RACK. CONTACT JACK PHILLIPS WITH MOORE PUBLIC SCHOOLS AT 405-473-5225 FOR EXACT CAMERA MOUNTING LOCATIONS AND SPECIFICATIONS. SEE SPECIFICATIONS FOR APPROVED PART NUMBERS.

E. CONNECT NEW DATA, WIFI AND CAMERA DROPS TO NEW IDF. CONNECT NEW IDF TO EXISTING MDF LOCATED ON 2ND FLOOR OF ADMINISTRATION BUILDING VIA FIBER AND CAT 6. COORDINATE EXACT REQUIREMENTS

F. CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE AND FUNCTIONAL DAS SYSTEM IN THE STORM SHELTER ROOM. CONTRACTOR SHALL PROVIDE AND INSTALL CEL-FI QUATRA 4000C SYSTEM BY NEXTIVITY.

G. COORDINATE AUDIO/VIDEO SYSTEM FUNCTIONALITY, PROGRAMMING AND ANY ADDITIONAL REQUIREMENTS WITH OWNER PRIOR TO CONSTRUCTION.

H. COORDINATE EXACT DISPLAYS AND AV OUTLET HEIGHTS WITH OWNER PRIOR TO CONSTRUCTION.

I. INTERCOM: INTERCOM DEVICES SHALL BE RAULAND. CONNECT ALL NEW INTERCOM DEVICES TO EXISTING RAULAND TELECENTER U IP. SUPPLY ALL MASTER CONSOLES, AMPLIFIERS, POWER SUPPLIES, MODULES, CALL BUTTONS, CONTROLLER, ETC. NEEDED TO MAKE A COMPLETE SYSTEM. SEE SPECIFICATIONS FOR APPROVED PART NUMBERS.

## TECHNOLOGY KEYED NOTES

1. THE DESIGNATED TECHNOLOGY OUTLET IS INTENDED FOR THE BUILDING AUTOMATION SYSTEM (BAS) NETWORK INTERFACE. COORDINATE EXACT MOUNTING LOCATION AND TERMINATIONS WITH THE BAS INSTALLER.
2. WIRELESS ACCESS POINT INTENDED TO PROVIDE CONNECTIVITY TO OWNER FURNISHED AND INSTALLED CENTEGIX GATEWAY.
3. PROVIDE AND INSTALL PLYWOOD AND ALL REQUIRED MOUNTING HARDWARE. PLYWOOD SHALL BE PAINTED WHITE WITH FIRE RETARDANT PAINT. TYPICAL FOR ALL SHOWN ON DRAWING.
4. INDICATES THE LOCATION OF A NEW WALL MOUNTED TELECOMMUNICATION GROUND BUSBAR (TGBB). CABLING CONTRACTOR TO PROVIDE BUSBAR AND ALL REQUIRED MATERIAL TO MOUNT AT THE LOCATION SHOWN. TGBB TO BE MOUNTED AT +93" A.F.F.
5. PROVIDE AND INSTALL ONE (1) 7'X6", FRONT AND REAR MANAGED, VERTICAL CABLE MANAGER (BLACK IN COLOR).
6. PROVIDE AND INSTALL ONE (1) 2-POST, FLOOR MOUNTED, 7' RELAY RACK (BLACK IN CONNECTED LOCATIONS OF THE RACK TO ENSURE THAT ALL PIECES OF THE RACK ARE COMPLETELY BONDED. SCRAPING PAINT FROM RACKS TO MAKE A BOND WILLNOT BE ACCEPTED.
7. PROVIDE AND INSTALL RACK-TO-RUNWAY MOUNTING PLATE FOR ALL LOCATIONS WHEN ASSOCIATED WITH A 2-POST OR 4-POST BACK RACK. MOUNTING PLATE SHALL BE BLACK IN COLOR.
8. INDICATES THE LOCATION OF A 12" LADDER TRAY WALL ANGLE SUPPORT BRACKET, BLACK IN COLOR.
9. PROVIDE AND INSTALL A MINIMUM OF THREE (3) EZ-PATH THRU-WALL PENETRATION SLEEVES WITH MULTI-GANG WALLPLATE BRACKET SYSTEM AT INDICATED LOCATION. PROVIDE ADDITIONAL AS REQUIRED TO MAINTAIN A MAXIMUM OF 40% FILL RATIO, PLUS ONE (1) ADDITIONAL FOR SPARE.
10. LOCATION OF (3) 2" CONDUITS RAN TO MDF LOCATED ON 2ND FLOOR OF THE EXISTING ADMINISTRATION BUILDING. SEE NETWORK SPECIFICATIONS FOR FIBER AND CAT 6 CABLING SPECIFICATIONS.
11. ALL BOARD MEMBERS DATA DROPS SHALL BE UNDERNEATH COUNTER.

## ACTIVE DAS HYBRID SYSTEM NOTE

A. CONTRACTOR TO PROVIDE AND INSTALL A COMPLETE AND FUNCTIONING DAS SYSTEM IN THE STORM SHELTER PORTION OF THE BUILDING.

B. CONTRACTOR SHALL PROVIDE AND INSTALL A CEL-FI QUATRA 4000c SYSTEM BY NEXTIVITY.

C. REFERENCE SHEET SPECIFICATIONS FOR PRODUCTS, INSTALLATION INSTRUCTIONS AND ADDITIONAL INFORMATION.

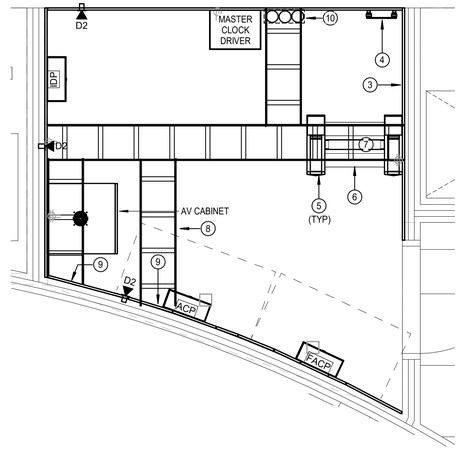
## SAFEROOM NOTES

PER ICC 500-2014, 309.1:

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE THAT ARE LARGER THAN:

3.5" SQUARE INCHES IN AREA FOR RECTANGULAR OPENINGS, OR
2 1/16" IN DIAMETER

SHALL BE CONSIDERED AN OPENING AND SHALL BE PROVIDED WITH AN OPENING PROTECTIVE DEVICE (SHROUD). REFERENCE STRUCTURAL DRAWINGS FOR A SAMPLE SHROUD DETAIL. THIS INCLUDES PENETRATIONS FOR BUNDLES OF CONDUIT.




## 2 TECHNOLOGY ENLARGED PLAN - TECH 7

Scale: 1/2" = 1'-0"


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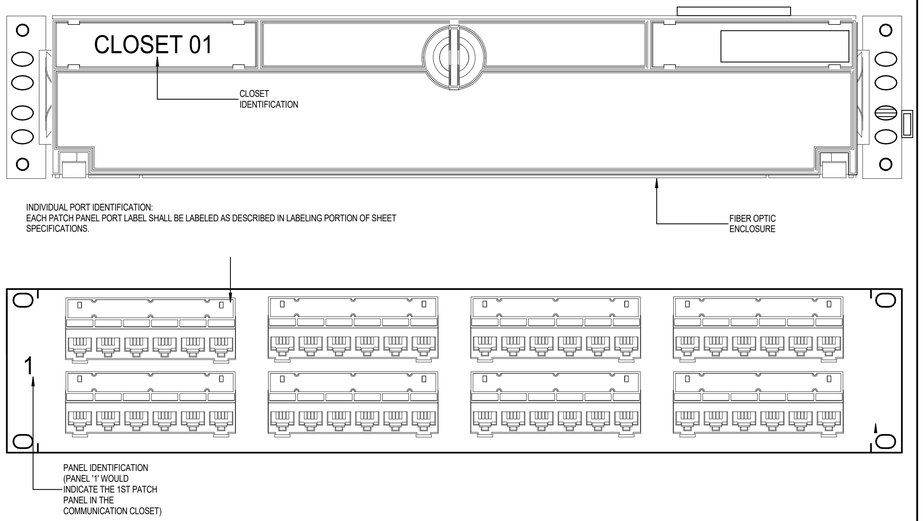
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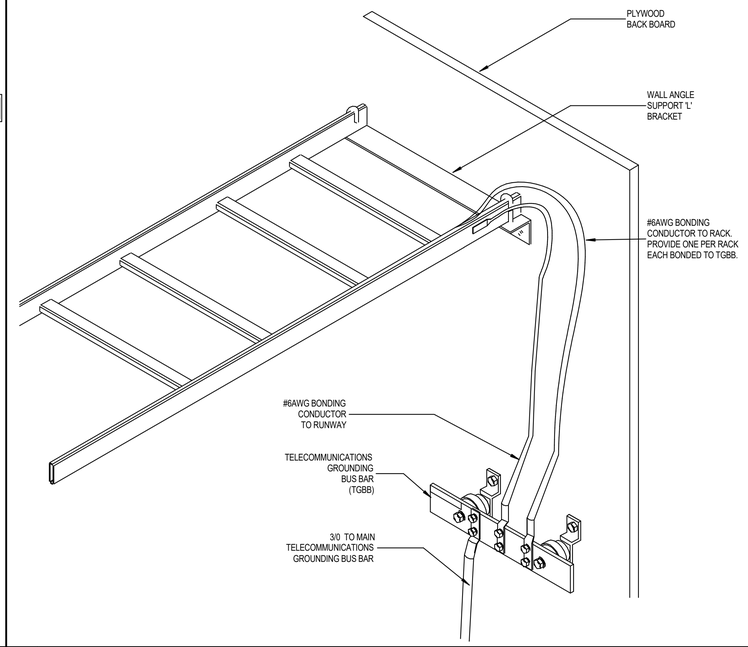


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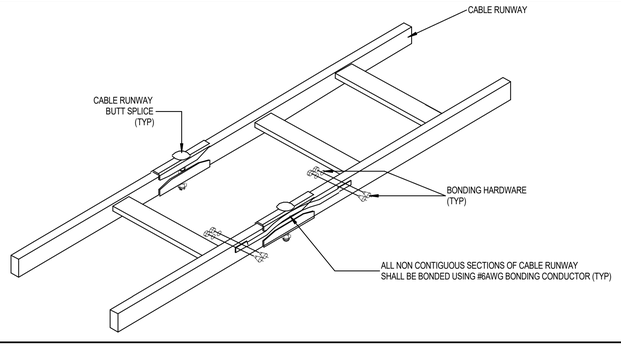
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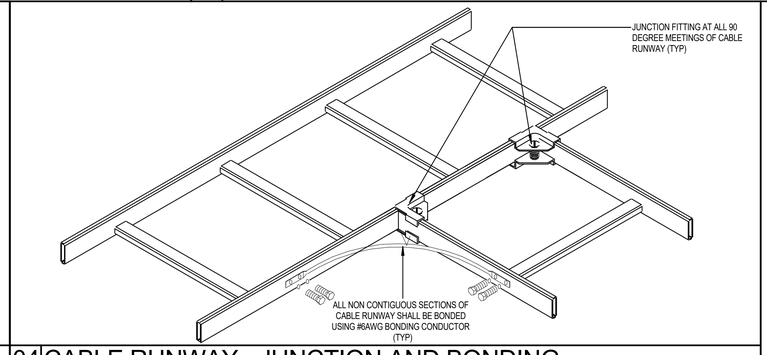

01 FIBER ENCLOSURE/ COPPER PATCH PANEL LABELING DETAIL NOT TO SCALE



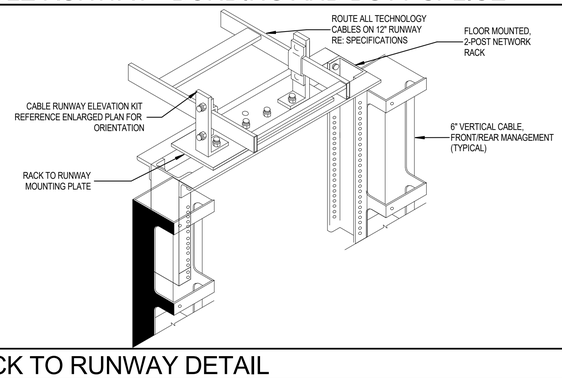

02 CABLE RUNWAY - GROUNDING AND BONDING NOT TO SCALE



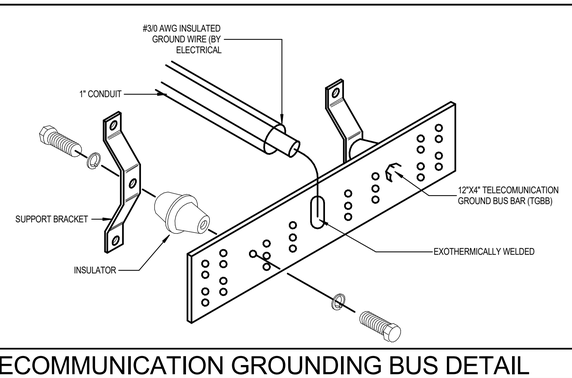

03 CABLE RUNWAY - BONDING AND BUTT SPLICE NOT TO SCALE




04 CABLE RUNWAY - JUNCTION AND BONDING NOT TO SCALE




05 RACK TO RUNWAY DETAIL NOT TO SCALE




06 TELECOMMUNICATION GROUNDING BUS DETAIL NOT TO SCALE

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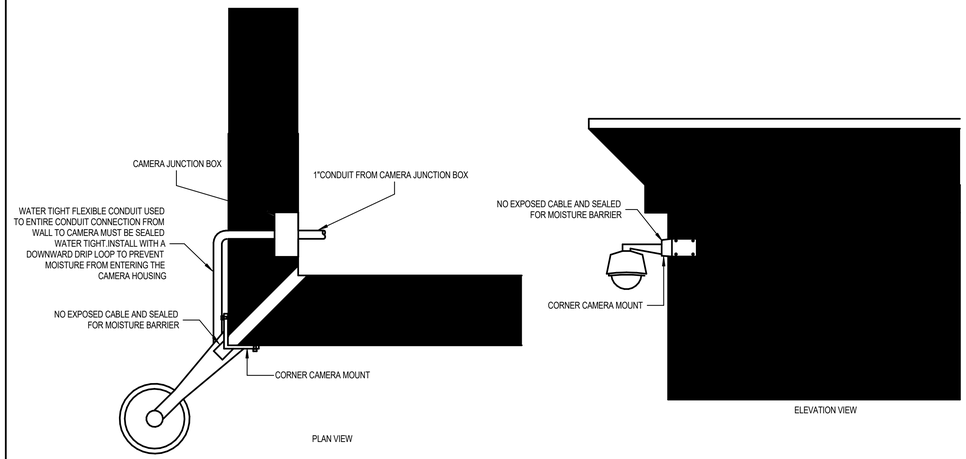
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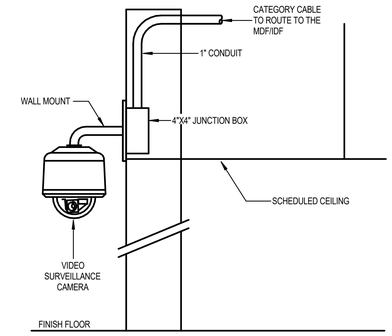
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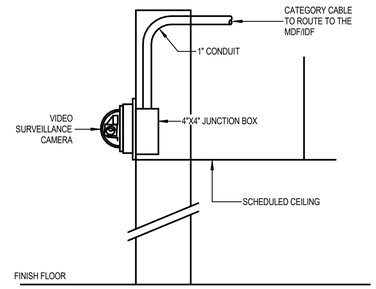

NOTE:

ELECTRICAL CONTRACTOR SHALL PROVIDE 1" CONDUIT WITH PULL STRING TO NEAREST AVAILABLE PLENUM SPACE. SECURITY CONTRACTORS SHALL PROVIDE CABLE FEED-THROUGH MOUNT FOR CAMERA. NO EXPOSED CABLE WILL BE ALLOWED. SECURITY CONTRACTOR TO COORDINATE MOUNTING HEIGHT WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.

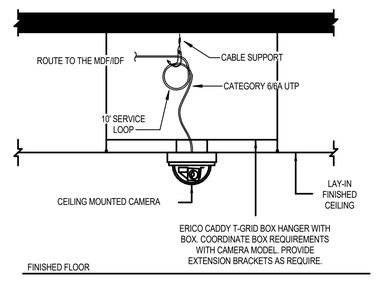
01 CORNER MOUNTING DETAIL — NOT TO SCALE



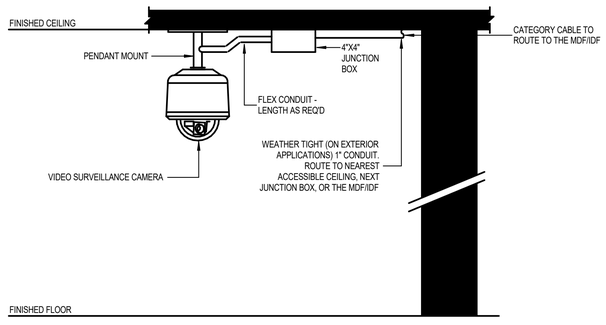

03 INTERIOR WALL MOUNTED DOME CAMERA — NOT TO SCALE



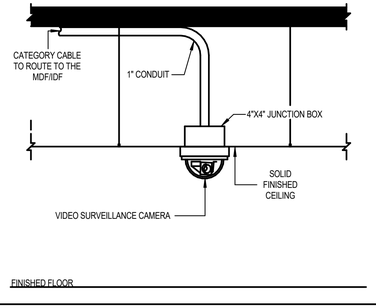

02 INTERIOR WALL MOUNT CAMERA-VERTICAL — NOT TO SCALE



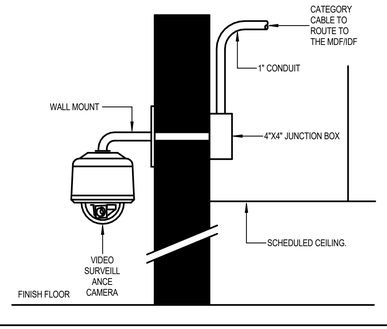

04 INTERIOR LAY-IN CEILING MOUNTED CAMERA — NOT TO SCALE




05 EXT./INT. PENDANT MOUNTED DOME CAMERA — NOT TO SCALE




06 EXTERIOR/INTERIOR SOLID CEILING MOUNT CAMERA — NOT TO SCALE




07 EXTERIOR WALL MOUNTED DOME CAMERA — NOT TO SCALE

GENERAL NOTES:

A. ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUITS AND BACK BOXES. CONDUITS SHALL ROUTE TO THE NEAREST, ACCESSIBLE PLENUM SPACE.

B. ALL WALL, CORNER, PENDANT, AND UNDER CANOPY MOUNTING HEIGHTS SHALL BE COORDINATED WITH THE OWNER AND SECURITY CONSULTANT PRIOR TO ROUGH-IN.

C. SECURITY CONTRACTOR SHALL PROVIDE CAMERAS, MOUNTING HARDWARE, AND ANY OTHER COMPONENTS AND/OR HARDWARE REQUIRED FOR A COMPLETE INSTALLATION.

D. REFERENCE VIDEO SURVEILLANCE CAMERA SCHEDULES, FLOOR PLANS, AND SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS.

E. CABLE FEED-THROUGH MOUNT FOR CAMERA. NO EXPOSED CABLE WILL BE ALLOWED. SECURITY CONTRACTOR TO COORDINATE MOUNTING HEIGHT WITH ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN.

08 NOTES — NOT TO SCALE

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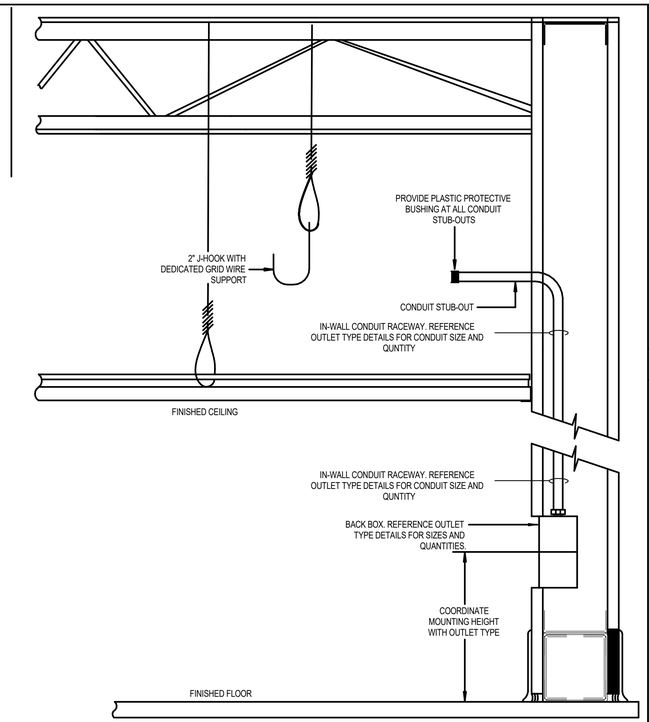
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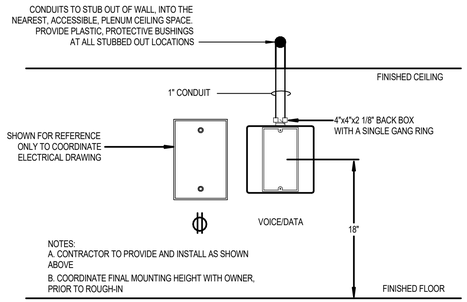
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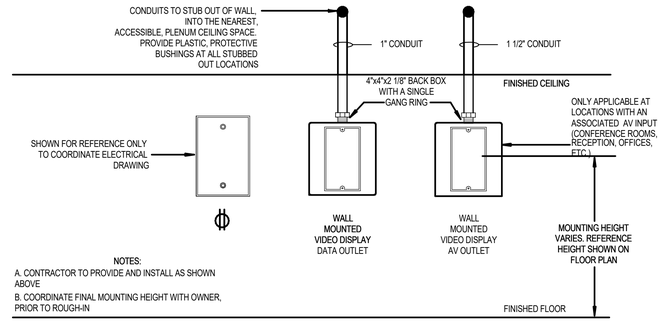
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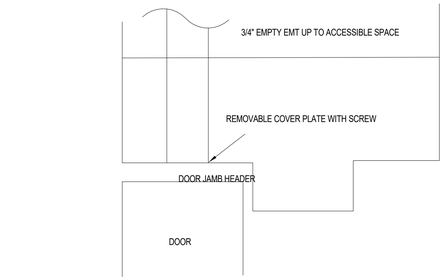

01 LOW VOLTAGE ELEVATION - IN-WALL RACEWAY NOT TO SCALE



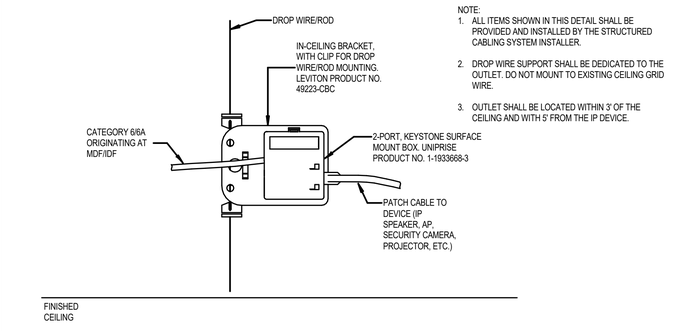

02 RACEWAY DETAIL - TYPICAL VOICE/DATA OUTLET NOT TO SCALE



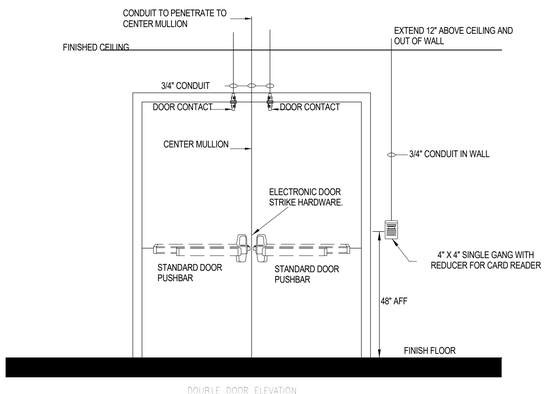

03 RACEWAY DETAIL - WALL MOUNTED DISPLAY NOT TO SCALE



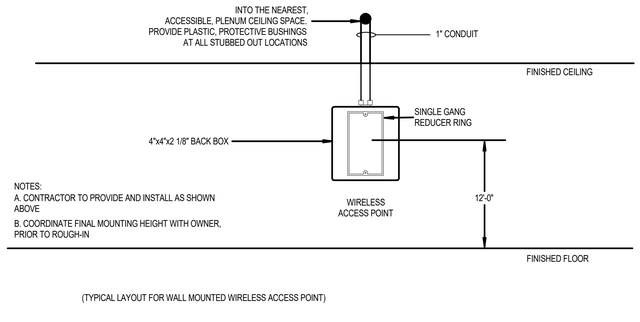

04 SECURITY CONDUIT DOOR JAMB HEADER NOT TO SCALE




05 ABOVE CEILING STAND ALONE OUTLET NOT TO SCALE

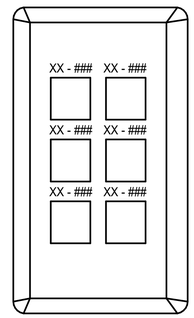



06 DOUBLE DOOR SECURITY & ACCESS CONTROL



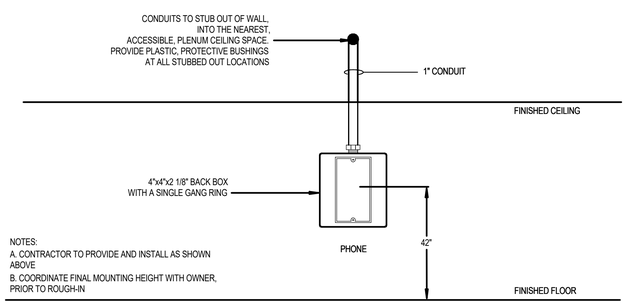

(TYPICAL LAYOUT FOR WALL MOUNTED WIRELESS ACCESS POINT)

07 RACEWAY DETAIL - WALL MOUNTED WIRELESS AP NOT TO SCALE




1. FACEPLATE LABELING SHALL BE MACHINE GENERATED AND SHALL NOT BE LESS THEN 1/4" IN HEIGHT
2. PROVIDE BLANK INSERTS FOR ANY UNUSED PORTS
3. COORDINATE EXACT LABELING SCHEME WITH OWNER AND ENGINEER.
4. XX = CABINET ID, ### = DROP NUMBER.

08 FACEPLATE LABEL DETAIL NOT TO SCALE




09 RACEWAY DETAIL - WALL MOUNTED TELEPHONE NOT TO SCALE

REFERENCE SHEET SPECIFICATIONS FOR CABLE LABELING INSTRUCTIONS.

10 CABLE LABEL DETAIL NOT TO SCALE


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# STRUCTURED CABLING SYSTEM SPECIFICATIONS

**Horizontal Cabling**

**Requirements**
- Copper cable shall be Category 6 plenum rated cable (blue in Color) for all work station drops.
- Copper cable shall be Category 6 plenum rated cable (White in Color) for all Security camera drops.
- Copper cable shall be Category 6 plenum rated cable (Yellow in Color) for all Wifi drops.
- Approved Category 6 cables are as follows.

| | |
|---|---|
| Superior Essex Cat6 Plenum Part #'s | 77-240-2B blue<br>77-240-4B white<br>77-240-6B yellow<br>77-240-5B green |
| Mohawk Cat6 Plenum Part #'s | M58281B Blue<br>M58280B white<br>M58283B yellow<br>M58288B green |
| Berk-Tech Cat6 Plenum Part #'s | 10136226 blue<br>10136230 white<br>10136749 yellow<br>10136748 green |
| General Cat6 Plenum Part #'s | 7131800 blue<br>7131841 white<br>7131802 yellow<br>7131806 green |

- Connector shall be Leviton part # 61110-RO6 eXtreme 6 connector for all workstation drops.
- Connector shall be Leviton part # 61110-RW6 eXtreme 6 connector for all Security camera drops.
- Connector shall be Leviton part # 61110-RY6 eXtreme 6 connector for all Wifi drops.
- Contractor shall provide Moore Public Schools, Technology Department, one 5' category 6 patch cord, (blue in color) for each category 6 work station cable installed. To be installed by contractor at the network cabinet.
- Contractor shall provide Moore Public Schools, Technology Department, one 10' category 6 patch cord, (blue in color) for each category 6 work station cable installed. Leave in box at network cabinet. To be installed by MPS Technology Dept.
- Contractor shall provide Moore Public Schools, Technology Department, one 5' category 6 patch cord, (White in color) for each category 6 Security Camera cable installed. To be installed by contractor at the network cabinet.
- Contractor shall provide Moore Public Schools, Technology Department, one 10' category 6 patch cord, (White in color) for each category 6 Security Camera cable installed. Leave in box at network cabinet. To be installed by MPS Technology Dept.
- Contractor shall provide Moore Public Schools, Technology Department, one 5' category 6 patch cord, (Yellow in color) for each category 6 Wifi cable installed. To be installed by contractor at the network cabinet.
- Contractor shall provide Moore Public Schools, Technology Department, one 10' category 6 patch cord, (Yellow in color) for each category 6 Wifi cable installed. Leave in box at network cabinet. To be installed by MPS Technology Dept.
- Each cable shall be terminated on the patch panel in data closets.
- All Category 6 connectors shall be placed into QuickPort faceplates at the workstation end.
- Faceplate shall be Leviton part # 41080-6wp
- No substitutions.

**Communications Backbone Cabling**

**Requirements - Optical fiber**
- 1 Optical fiber cable shall be run from the MDF to each IDF.
- Fiber shall be terminated with LC connectors.
- Optical fiber cable shall be plenum rated Laser Optimized 50 micron Multi Mode distribution fiber.
- Optical fiber cable shall be an OM3 rated cable guaranteed to support 10 Gigabit Ethernet for 300 meters using 850 nm wavelength.
- Optical fiber cable shall have 24 strands using industry standard color coding.
- Optical fiber cable shall have a flame retardant and low smoke FEP jacket.
- Optical fiber cable shall support 10GBase-SX applications for the life of the system.
- Optical fiber cable shall be armor jacketed or protected inside plenum rated plastic inner duct orange or aqua in color.

MIC Tight-buffered 024T88-33180-A3

- No substitutions.

**Requirements - Copper backbone**
- 6 Cat 6 cables shall be run from the MDF to each IDF.
- 3 Cat 6 cables shall be run from the phone Dmark to the MDF.
- Copper cable shall be Category 6 cable. Green in color
- Connector shall be Leviton part # 61110-RV6 eXtreme 6 connector.
- Each cable shall be terminated on the patch panel in data closets.
- Each cable end shall be terminated using the T568B pin/pair assignment.
- No substitutions.

**Cable Installation**

- Properly support horizontal cables in ceiling every 4'-5' using J-Hooks or cable tray only. ( no slings, pouches, or D rings.)
- Place horizontal cables in pathways and spaces dedicated for communications cables. No pathways shall be in or above the red iron. Data cable will be run in separate pathways from all other cables.
- Provide 30' of slack at station end in ceiling and not inside wall.
- Slack shall be rolled neatly in a 2' loop and hanging from a j-hook in ceiling above drop location.
- Cat 6 data cables are to be terminated using the T568B standard.
- Leviton face plates that support 6 snap in jacks will be used with Leviton snap in blanks in unused slots.
- Ensure terminations are at 180 degrees to the jack with no more than ¼" un-twisting and no more than ½" un-jacketing and are in accordance with manufacturer's recommendations.
- Ensure terminations have no un-twisting and that tower separators are utilized to separate pairs.
- Ensure pulling tensions of cables are not exceeded.
- Maintain proper cable bend radius of 4 times the cable's outer diameter during placement.
- No splices are permitted.
- No link shall exceed 90 meters. Contractor is responsible for verifying proper footages.
- Pull one additional "Mule Tape" or ¼" Nylon rope when pulling cables through any conduit utilizing existing pull string.
- Mule Tape or Nylon rope is to be pulled into conduit separately and after all other cables have been installed.
- Install sleeves when puncturing walls.
- Cable shall not be installed between cinder block walls and roof decking.
- Cable shall not be installed between red iron and roof decking.
- Firestop all sleeves and conduit openings after cable installation.
- Terminate all pairs and conductors at all ends according to manufacturer's instructions following color code sequence.
- No splices are permitted in any fiber optic cable except when terminating connectors
- Terminate all Fiber pairs.
- All optical fiber cable shall be installed in the fiber panels in accordance with the manufacturer's instructions.
- Optical fiber Back bone cable length shall not exceed 300 meters.
- Copper backbone cable length shall not exceed 90 meters.
- All back bone cables (Fiber and Copper) shall have 20' of slack at both ends.
- Corning rack mount fiber patch panels are to be used where applicable.
- Outdoor rated fiber will be used for all outdoor fiber runs.
- Stress relief cable and the appropriate building fastener will be used on all aerial runs.
- All aerial cables will be fastened to the stress relief cables.
- 3" conduit is to be used for all buried runs, accessible at each end, with a pull string inside.
- A trace wire and warning tape will be buried with all buried runs
- All bends in conduit will be made with sweeps.
- Back bone cabling shall utilize a star topology with no more than 2 levels of backbone.
- Utilize Velcro ONLY in all closets.
- Install all components in a neat and workmanlike manner.
- Install all horizontal cables and termination frames in accordance with manufacturer's recommendations.

**Labeling**
- Label shall be a rap type with number printed multiple times enabling print to be legible from any angle.
- Machine label all termination panels and face plates with cabinet and cable number.
- Termination panels shall be labeled in numerical order.
- A single drop will be labeled a total of four times. The labels will be located on the patch panel in the rack, on both ends of the cable, and on the face plate at the work station end. The labels are to read exactly the same in all four locations.
- All 5' patch cables will be labeled at both ends. 5' cables will be installed at the cabinet.
- Numbering scheme will be 00-000 where the first two digits are the cabinet number and the last three are the drop number. Example, drop number 75 in cabinet 2 will read, 02-075.
- Camera drop labels numerically start at 500 in each cabinet. If camera drops already exist in said cabinet the next available consecutive number will be used.
- WiFi drop labels numerically start at 800 in each cabinet. If WiFi drops already exist in said cabinet the next available consecutive number will be used.

Example for cabinet 1:
Data (blue cable orange jacks) 01-001 to 01-499
Camera (white cable white jacks) 01-500 to 01-799
WiFi (yellow cable yellow jacks) 01-800 to 01-999

- Label all fiber optic cables at both ends on the cable and in the break out box

**Test**
- Test results for all Category 6 copper and fiber optic cables shall be provided to Moore Public Schools, Technology department.

**Communications Equipment Room Fittings**

**Equipment rack**
- Free standing equipment rack shall be Chatsworth #55053-703.
- Free standing racks shall be sized to accept 19" spaced equipment and handle a total weight load of 1, 000 pounds.
- Free standing racks shall have 3" side rails tapped on both sides with universal hole patterns for threaded 12-24 screws.
- No substitutions.

**Copper Patch panels**
- Patch panel shall be a Leviton #49255-H24 Quick Port 110 panel with cable management bar.
- Patch panel shall have 24 ports taking up 1 rack mount unit.
- No substitutions.

**Horizontal cable management**
- Horizontal cable manager shall be a 2 RU Chatsworth part #30130-719.
- No substitutions.

**Vertical cable management**
- Vertical cable manager shall be Chatsworth part #30095-703.
- No substitutions.

**Optical fiber patch panel / enclosure**
- Optical fiber enclosure shall be Corning LC loaded rack mount panel.

CCH-04U
CCH-01U
CCH-CP24-E4
SOC-LC-900-OM4

- No substitutions.

**Ladder racking**
- Ladder racking shall be Chatsworth #10250-718.
- The appropriate Chatsworth mounting hardware shall be used.
- No substitutions.

**Power protection power strips**
- PDU's are to be placed in all data racks.
- PDU shall have overload protection and easy to reset circuit breaker.
- PDU shall be rack mountable.
- PDU shall be constructed from 18 AWG steel.
- PDU shall have light emitting diodes to indicate "Power On" and "Ground/Polarity OK" feature.
- PDU shall be rated for 20 Amps and have a 12' L5-20P plug and ten 5-20R receptacles.
- No substitutions.

**Uninterruptible Power Supply (UPS)**
- Contractor shall furnish and install a Cyber Power UPS in each new MDF/IDF.
- UPS manufacturer shall be Cyber Power. Model OL1500RTXL2UN

**Installation**

**Free standing racks**

- Assemble free standing racks according to manufacturer's instructions. Verify that equipment mounting rails are sized properly for rack-mount equipment before attaching the rack to the floor.
- All racks must be attached to the floor in four places using appropriate floor mounting anchors. When placed over a raised floor, threaded rods should pass through the raised floor tile and be secured in the structural floor below.
- All rack must be secured to the adjacent wall using ladder rack to stabilize the top of the rack and provide a cable pathway from the ceiling to the rack.
- Racks shall be grounded to the telecommunications bus bar using #6 AWG green insulated solid copper wire and any necessary attachment hardware provided by the Communications Contractor.
- Mount rack mount power strips on rack where active equipment will be placed.

**Ladder rack**

- Ladder rack shall be attached to the top of the rack to deliver cables to the rack. The rack should not be drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer.
- Ladder racking shall be supported every 5' with 3/8" threaded rod anchored and secured to permanent ceiling structure.
- Loading of cable rack shall not exceed 6" depth and should have retainers every 12" to prevent cables from spilling over the sides.
- Where ladder racking butts up against wall the appropriately sized wall mount bracket shall be utilized.
- Ladder rack shall extend vertically up wall and through drop ceiling to gain access to cavity above drop ceiling.
- Ladder racking shall utilize all appropriate radius drop stringers, corner bends and other devices to maintain cable bend radius when entering and exiting racks, cabinets and drop ceilings
- Mating pieces of ladder racking together shall utilize appropriate butt splice and junction splice kits.
- All cut and exposed sharp ends shall utilize a plastic end cap to prevent injury.

**Cable management**

- Vertical cable manager shall be installed on every rack vertical rail. Where two rack rails will be butted together there shall be two vertical wire managers between the racks.
- Horizontal wire managers shall be utilized above and below every copper and fiber patch panel.
- All cables shall sweep in and out of any cable management product without a deformation of cable jacket.
- Ensure cables are properly supported when using cable management to ensure cables do not sag.
- Utilize Velcro ONLY for securing of cables on cable management.

**Copper and Fiber patching panels**
- Route all cables to backside of termination panels in an asymmetrical orientation to ensure cable bundles are split evenly.
- Utilize rear wire management bars for supporting cables into point of termination.
- Secure all cables on all panels using Velcro ONLY to prevent cables from pulling away.

**Quality Assurance**

- 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.
- Follow and adhere to installation practices specified by the applicable Telecommunications Industry Association standards.
- Follow and adhere to installation practices specified by BICSI Information Transport System Installation.
- Follow and adhere to installation practices specified by BICSI Telecommunications Distribution Methods.
- Follow and adhere to installation practices specified by NFPA-70 National Electric Code.
- Follow and adhere to installation practices specified by the Manufacturers.
- 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.

**Bidder/Installer Qualifications**
- Bidding Contractor shall be a licensed to install telecommunications systems in the state where work will be performed.
- Bidding Contractor shall be Leviton certified for at least one year
- Bidding Contractor shall have a minimum of 5 years experience installing structured cabling for telecommunications.
- Bidding Contractor shall have the capability to bond project in its entirety.
- Bidding Contractor shall be able to provide insurance at the request of the owner.
- Installer shall have an onsite supervisor and one technician who are certified by the Manufacturer to install the Manufacturer's telecommunications products.
- Communications Contractor shall have an RCDD on staff for at least one year, to certify that the Communications System can support the required applications on the various cabling media.
- Installer shall have obtained Leviton certification from the Manufacturer within 1 year prior to performing the Work.

**Delivery, Storage, and Protection**
- Communications Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager responsible for materials distribution to all trades.
- Communications Contractor is responsible for all materials, tools and vehicles left on the job site.
- Communications Contractor shall coordinate a disposal bin for the removal of all trash produced by the Communications Contractor personnel during the project.
- Communications Contractor shall ensure materials are stored in an environmental area where:
- Temperature does not exceed 120 degrees Fahrenheit nor below 32 degrees Fahrenheit.
- Humidity does not exceed 80 %.
- No direct exposure to sunlight.
- Follow Manufacturer's recommendations for handling of materials.

**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**

# INTERCOM SYSTEM SPECIFICATIONS

**Part 1 - Equipment**
***1.01 System Manufacture***
- Intercom System Manufacturer shall be Telecor or Rauland Telecenter U IP. (Match existing system)
- Cable Manufacturer shall be Belden or Equivalent

Locations where Telecor equipment is required. It may be purchased from the following authorized Telecor dealers
Advanced Cabling, Inc - 405-418-4322
High-Tech Tronics, Inc - 405-495-0215

Locations where TelecenterU equipment is required. It may be purchased from the following authorized TelecenterU dealer
Endex of Oklahoma Inc - 405-602-0001

***1.02 Intercom Systems Equipment***
***1.02.a Telecor Intercom Equipment***
- Intercom call in button shall be momentary close and compatible with existing intercom system
- Intercom ceiling speakers shall be Manufacture Clarity Model # S-522. (Or equivalent approved by MPS must have volume control accessible from the floor)
- Intercom outside paging horn shall be Manufacture Rauland Borg 3601. (Or equivalent approved by MPS)
- Locations where Telecor equipment is required. It may be purchased from the following authorized Telecor dealers

Advanced Cabling, Inc - 405-418-4322
High-Tech Tronics, Inc - 405-495-0215

***1.02.b Rauland Telecenter U IP Intercom Systems Equipment***
- Classroom Intercom Equipment
§ Call button shall be Part # 603302 Dual Level call switch.
§ Ceiling speakers shall be Part # BAFKIT2X2L8RJ - 8 Ohm ceiling tile replacement speaker with RJ45 connector.
§ IP Classroom Module shall be TCC2011 IP Module (*Module required for each classroom, *Requires POE network drop)
- Hallway/Commons/Outside Intercom Equipment
§ TCC2022-IP Zone page module (*Requires POE network drop)
§ Appropriate size amp for quantity of speakers.
§ BAFKIT2X2L- 25 volt ceiling tile replacement paging speaker (For all classroom & hallway locations)
§ Rauland Borg 3601 - Loud paging horn (For all outside & large area locations such as gymnasiums, etc.)

Locations where TelecenterU equipment is required. It may be purchased from the following authorized TelecenterU dealer
Endex of Oklahoma Inc - 405-602-0001

**Part 2 - Installation**
***2.01 Systems Installation***
- All non-IP cabling shall be **shielded** and have a minimum of 5 conductors.
- All network IP cabling shall be Cat6 & Purple in color (See Structured Cabling System Specifications for cabling information)
- In Daycare projects each room with a call button shall have a status light mounted above the room door on the hallway side. (Rauland Telecenter U IP sites only)
- All circuits and cabling shall be labeled at all terminating ends.
- All Ceiling mounted devices shall be mounted on non-stainable ceiling tiles
- All devices shall be mounted according to the manufacture's specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All non-IP room circuits shall run from the intercom system to the call button then to the room speaker.
- All extra speaker wire taps shall be insulated.
- All rooms shall be individually wired and terminated at the intercom system on individual points. (No Doubling)
- All rooms shall be tested to verify proper room number programming and operation.
- All call buttons shall be labeled with their corresponding system point number.
- Protective grommets shall be installed on all conduits to protect wire.
- 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.
- All wire ran between building shall be in conduit and shall be direct burial cable. It shall be a minimum of 5 conductor 18 AWG copper. Lighting suppression shall be installed at entry points.
- Installer shall supply the electrical and or masonry contractors with specialty back boxes and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.
- 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.

***2.02 Quality Assurance***
- 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.

***2.03 Bidder/Installer Qualifications***
- Bidding contractor shall have a minimum of 5 years experience installing school intercom systems.
- Bidding contractor shall be able to provide insurance at the request of the owner.

***2.04 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.

***2.05 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.

***2.06 Warranty***
- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure.

**Part 3 - Execution**
***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.

**3.04 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 supply the electrical and or masonry contractors with any specialty back boxes such as clock recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.

***3.05 Submittals***
***1.03.01 Prior to installation***
- Show compete map of system design for approval by Owner.

***3.06 System Requirements***
Intercom system shall be capable of communicating to all rooms and shall have adequate number of room points as to not double up on any given point.

**Intercom System Installation**
**Completion Check List**

**Part 4 - Check List**
***4.01 Section Includes***
- Intercom System Completion Check List

***4.02 Completion Check List***

- Main control panel has a map of the entire system inside and a copy has been given to Jack Phillips with MPS.
- All intercom programming such as bell times, tornado drill alert, etc has been checked and is correct.
- Intercom has been tested for proper operation.
- All rooms have been tested to verify proper description at console.
- All speakers have been tested to verify proper operation and volume.
- All extra speaker wires have been tapped or insulated
- All call buttons are labeled and have been tested for proper operation.

**End of Section**


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FLAT LAND
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KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL


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REVISIONS

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MOORE PUBLIC SCHOOLS

MPS ASC
BOARDROOM
BUILDING

sheet no:

**T301**


Salas O'Brien
Salas O'Brien Inc. - Oklahoma City
2900 S. Telephone Road, Suite 120
Moore, OK 73160
CA#: 9820 Expiration Date: 06/30/27
Salas O'Brien Project Number: 2650-00986-00



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# CLOCK SYSTEM SPECIFICATIONS

**Part 1 - General**

***1.01 System Manufacture***

- Clock Equipment shall be Telecor, Rauland, Sapling or Primex. See plans for the specific manufacturer required. (No Substitutions)

***1.02 Intercom Clock Systems Equipment Description***

- Digital clock size & voltage shall be as follows:
  Standard size classrooms shall be 2.5 inch - 24volt.
  Larger rooms, common areas and hallways shall be 4 inch - 24volt.
- Analog Clock size and voltage shall be 12 inch - 24volt.
- Digital Clocks shall be hard wired 24volt power and may not use battery power for its primary power source.
- Analog Clocks shall be hard wired 24volt power and may not use battery power for its primary power source.
- Sapling clock part number shall be as follows:

| | |
|---|---|
| SMA-3R0-1004-1 | Transmitter |
| SBL-31S-254-4R | 2.5" Digital Clocks 24volt |
| SBL-31S-404-4R | 4" Digital Clocks 24volt |
| SAB-1BD-00S-0 | Metal Pole for Double Clocks |
| SAL-4BS-12R-14 | 12" Analog Clock 24volt |
| 35-MO15 | 15KVA Power Transformer |
| 35-MO20 | 25KVA Power Transformer |
| 35-MO25 | 50KVA Power Transformer |
| 35-MO30 | 75KVA Power Transformer |

- If a clock system is not specified and the site does not have an existing working clock system, stand-alone battery powered clocks shall be used.
  Stand-alone wall clock shall be - American Time E56BAQD304BP
  Stand-alone dual face hallway clock shall be - American Time E93BAQD204BP
  An 110v electric clock receptacle shall be installed at each clock location for future devices.

***1.03 Systems Installation***

- All devices shall be mounted according to the manufacture's specifications.
- All Ceiling mounted devices shall be mounted on non-stainable ceiling tiles
- All devices shall be properly adjusted and tested prior to job completion.
- All extra wire taps shall be insulated.
- Protective grommets shall be installed on all conduits to protect wire.
- 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.
- All wire ran between building shall be in conduit and shall be direct burial cable. It shall be a minimum of 5 conductor 18 AWG copper and shall have lightning suppression installed at building entry.
- Installer shall supply the electrical and or masonry contractors with specialty back boxes such as clock recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.
- 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.

***1.04 Quality Assurance***

***1.04.01 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.

***1.04.02 Bidder/Installer Qualifications***

- Bidding contractor shall have a minimum of 5 years experience installing school intercom systems.
- Bidding contractor shall be able to provide insurance at the request of the owner.

***1.05 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.

***1.06 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.

***1.07 Warranty***

- Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system component failure.

**Part 3 - Execution**

***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.

**3.04 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 supply the electrical and or masonry contractors with any specialty back boxes such as clock recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, etc. are installed in the proper locations.

***1.04 Submittals***

***1.04.01 Prior to installation***

- Show compete map of system design for approval by Owner.

**Clock System Installation Completion Check List**

**Part 1 - General**

***1.01 Section Includes***

- Clock System Completion Check List

***1.02 Completion Check List***

- All Clocks have been tested for proper operation and synchronization.

End of Section

# SECURITY SYSTEM SPECIFICATIONS

**UPDATED FEBURARY 2026**
**Part 1 - General**
***2.01 Manufacturers***

- Security System Manufacturer shall be DMP. See plans for the specific manufacturer required. (No Substitutions)
- Installer shall be certified by manufacturer to install & program the specified systems. (No Substitutions)
- Peripheral device Manufacturers shall be according to equipment list. (No Substitutions)
- Cable Manufacturer shall be Genesis. (Or Equivalent)

***Security Systems Equipment***

- Security alarm control shall be DMP Model # XR550NL-G. (No Substitutions)
- Security alarm keypad shall be DMP Model # 7873. (No Substitutions)
- Security alarm keypad for all kitchen locations shall be DMP Model # 7073. (No Substitutions)
- Security alarm 8 zone hardwire expander shall be DMP Model # 714-8. (No Substitutions)
- Security alarm 16 zone hardwire expander shall be DMP Model # 714-16. (No Substitutions)
- Security alarm power supply shall be DMP systems = Altronix Model # SMPSPMCTX. (No Substitutions)
- Security alarm cabinet locks shall be DMP Model # 301. (No Substitutions)
- Security alarm wireless receiver shall be DMP Model # 1100XH, DSC N/A
- Security alarm wireless transmitter shall be DMP Model # 1103, DSC N/A
- Security alarm 35'x35' motion detector shall be Honeywell Model # DT-8035. (No Substitutions)
- Security alarm 50'x60' motion detector shall be Honeywell Model # DT-8050. (No Substitutions)
- Security alarm window glass break sensor shall be Honeywell Model # FG-730. (No Substitutions)
- Security alarm hold-up button shall be Potter HUSK-20
- Security alarm door contact shall be GE Model # 1076D-M. Double Pole Double Throw for all doors (No Substitutions)
- Each single door or double door shall be wired with 4 conductor wire.
- DMP systems shall be wired with 2 zones per single door or double door. One zone for Security alarm and one zone for "Door Held Open Alert"
- Security alarm C channel door magnets shall be GRI Model # MC180
- Security alarm surface window contact shall be Aleph Model # PS-1541. (Or equivalent approved by MPS)
- Security alarm overhead door & roof hatch contact shall be Amseco Model # ODC-59A or for rail mount applications Interlogix GE2315AL. (No Substitutions)
- Security alarm indoor siren shall be Ademco Model # Wave2EX. (No Substitutions)
- Security alarm outdoor siren shall be ATW Model # DS301SET. (No Substitutions)
- Security alarm outdoor strobe shall be Amseco Model # SL401C. (No Substitutions)

***1.01 Systems Installation***

- Keypad zones shall not be used. All zones shall wire to the main control or zone expanders.
- Installer shall be certified by manufacturer to install & program the specified systems.
- Installer shall perform all programming required to complete the installation. Moore Public Schools shall not be required to assist in any part of the installation or programming.
- All alarm junctions and or splices shall be soldered and insulated.
- All circuits and wiring shall be labeled at all terminating ends.
- All devices shall be mounted according to the manufacture's specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All DMP 714-8 & 714-16 zone expanders shall be installed with a power supply Altronix Model # SMP3PMCTX keyed with DMP Model # 301.
- All cabinets shall be labeled outside with their corresponding module and zone numbers and installed with lock.
- All cabinets shall be labeled inside with module number by the corresponding module and zone list definitions.
- All new DMP main control panels shall have a Cat 6 cable ran back to the nearest IDF for network connectivity.
- Each expansion cabinets shall have two non-sheilded16 gauge 4 conductor cables ran from the main control to the expansion cabinet.
- All keypads shall be wired individually back to new power supply.
- All sirens shall be wired individually and connected to new power supply.
- All devices such as door contact (double doors wire as one), motion detectors, glass break detectors, etc. shall be hardwired individually with end of line resistors at the devices.
- All devices such as motion detectors, glass break detectors, door contacts, keypads, sirens, etc. shall be labeled with their corresponding module and or zone number. Label shall be visible from the floor.
- All motion detectors shall be sealed to prevent air and insects from entering.
- All steel doors shall have wide gap contacts installed.
- All door contacts shall be recessed, and door magnets shall be glued in place.
- All holdup buttons shall be connected via wireless.
- Protective grommets shall be installed on all conduits and enclosures to protect wire.

- All devices shall be wired with **NON-shielded** cable.

- All panels, power supplies and modules shall be grounded.
- All roof hatches shall have an alarm contact installed and connected to the alarm system.
- 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.
- All wire visible from the finished floor shall be covered in decorative wire molding.

- 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 and shall have lightning suppression installed at building entry.

- Installer shall have a commercial burglar technician on the job site at all times during installation.
- Installer 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.
- 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 Burglar Alarm Company with licensed Commercial Burglar Alarm technician(s) on staff.
- Bidding contractor shall be certified by manufacturer to install & program the specified systems.
- Bidding contractor shall perform all programming required to complete the installation. Moore Public Schools shall not be required to assist in any part of the installation or programming.
- Bidding contractor shall have at least one year experience installing DSC/DMP equipment.
- Bidding contractor shall have a minimum of 5 years experience installing commercial burglar alarms.
- Bidding contractor shall be able to provide insurance at the request of the owner.
- Bidding contractor shall have a commercial burglar technician on the job site at all times during installation.

***1.04 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.

***1.05 Project Conditions***
***1.05.01 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.

***1.06 Sequencing***

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

***1.07 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.

***1.08 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 Cleaning***

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

***3.04 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.

**3.05 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.

***1.02 Submittals***
***1.03.01 Prior to installation***

- Show compete map of system design for approval by Owner.

**Security System Installation Completion Check List**
**Part 1 - General**
***1.01 Section Includes***

- Security 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 Jack Phillips 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 description at keypad.
- All zones have been tested to verify proper reporting to the monitoring station.
- All zones have been tested to verify they are in their proper partition(s).
- All sirens and strobes have been tested for proper operation.
- All motion detectors have been adjusted for proper sensitivity and have been walk tested.
- All motion detectors have been sealed to prevent air and insects from entering.
- All glass break detectors have been adjusted for proper sensitivity and tested.
- All cabinets are labeled on the outside with module numbers and zone numbers.
- All cabinets are labeled on the inside with module numbers by the corresponding module and zone descriptions.
- All user codes have been programmed and tested for proper partition access.
- The monitoring station has the correct account information such as call list, zone descriptions etc.

***1.09 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*

***1.10 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

End of Section

# ACCESS CONTROL SYSTEM SPECIFICATIONS

**Access Control Equipment - UPDATED APRIL 2026**
**Part 1 - Manufacture**

- Access Control Manufacturer shall be Keyscan. (No Substitutions)
- Peripheral device Manufacturers shall be according to equipment list. (No Substitutions)
- Cable Manufacturer shall be Genesis. (Or Equivalent)

**1.01 Access Control Equipment Description**

- Access Control System Manufacture shall be Keyscan (No Substitutions)
- Access Control Management Software = Aurora (This software is already installed and in use. It is listed for information purposes only)

- Reader Control Panels shall be (No Substitutions)
  Keyscan CA 4500 = 4 Door
  Keyscan CA 8500 = 8 Door

- Each Reader Control Panel shall be equipped with (2) 16VAC 40VA Transformer
- Each Reader Control Panel shall be equipped with (1) 12V 7AH Battery
- One reader control panel per building shall be equipped with (1) Keyscan Netcom2p module. If the building has an existing 2,4 or 8 Door Control Panel with a Netcom2P already installed, then CIM modules shall be installed to connect the new Control Panel to the existing Control Panel.
- All Reader Control Panels shall be linked together with CIM modules.

**Card Readers shall be (No Substitutions)**

- HID 40NKS00000000 Signo Wall Mount reader (for use in all locations except where mullion mount reader size is required to fit)

- HID 20NKS00000000 Signo 20 Mullion Reader (For use on mullion mount locations where single gang reader is too large.

- ALL READERS REQUIRE 22/6 STR OAS WIRE.

**Access Control Strikes and locks shall be (No Substitutions unless approved by Moore Public Schools)**
Camden CX-EPD1299L ½ inch Rim Strike (ONLY USE IF 3/4 INCH RIM WILL NOT FIT)
Camden CX-EPD1289L ¾ inch Rim Strike
Camden CX-ED1579L RECESSED ALL-IN-ONE STRIKE (For use on all doors with mortise lockset hardware)
All doors with cylindrical lockset hardware shall use the following appropriate strike & faceplate:
CX-EPD-2010L - ANSI Square, 4-7/8" x 1-1/4", Stainless Steel Faceplate
CX-EPD-2020L - ANSI Square, 4-7/8" x 1-1/4", Stainless Steel Faceplate
CX-EPD-2030L - Hollow Metal Door 6-7/8" x 1-1/4", Stainless Steel Faceplate
CX-EPD-2040L - Wood Door, 7-15/16" x 1-7/16", Stainless Steel Faceplate

- Where storm doors are installed, install compatible power motor and power supply to activate door hardware unless installed by door contractor.

- Egress Motions shall be (No Substitutions)
  BOSCH DS160 OR HONEYWELL IS310

- Door Contacts shall be GE Model # 1076D-M Double Pole Double Throw (To be utilized for Access Control and Security Alarm) (See security alarm specs)

- DOOR LOCK RELEASE BUTTON SHALL BE (NO SUBSTITUTIONS)
  RCI PART # 909S ROCKER SWITCH

- Power Supply for locking hardware
  **Power supply in Keyscan Controller is for the Control and Readers only.

- Power Supplies shall be sized to meet requirements of Strikes and locks with a maximum of 80% amp load.
- Power Supply shall have form "C" contacts for supervision that is connected to Keyscan Control Aux Input.
- 24 VDC Securitron- AccuPower- ACM20-8CI16C, ACD5-8C or equal.
- Each Power supply shall have a minimum of 7*ah* battery installed

**2.01 Systems Installation**

- All junctions and or splices shall be soldered and insulated.

- All circuits and wiring shall be labeled at all terminating ends.

- All devices shall be mounted in accordance to the manufactures specifications.

- All devices shall be properly adjusted and tested prior to job completion.

- All controllers shall be labeled outside with their corresponding modules and installed with lock.

- All controllers shall have a Cat 6 network cable Blue in color ran from the nearest network cabinet and labeled with drop number.

- All card readers shall be labeled with their corresponding reader number.

- All doors with access control shall have contacts installed for door status indication. Steel doors shall have wide gap door contacts installed.

- All doors with access control shall have egress motions installed to allow system to detect proper egress. (including doors with panic exit hardware.)

- Protective grommets shall be installed on all conduits to protect wire.

- All panels, power supplies and modules shall be grounded.
- All wire shall be run in J hooks above ceiling with a minimum space of 6" 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.
- All wire visible from the finished floor shall be covered in decorative wire molding.
- All wire ran between building shall be in conduit and shall be direct burial cable.
- Installer shall have a licensed Access Control technician on the job site at all times during installation.
- Installer 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.
- 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.

**3.01 Bidder/Installer Qualifications**

- Bidding contractor shall be a local licensed Access Control Company with licensed Access Control technician(s) on staff.
- Bidding contractor shall have at least one year experience installing Keyscan Access Control Systems.
- Bidding contractor shall have a minimum of 5 years experience installing commercial Access Control Systems.
- Bidding contractor shall be able to provide insurance at the request of the owner.
- Bidding contractor shall have a commercial Access Control technician on the job site at all times during installation.

**3.01.1Submittals**
**3.01.2Prior to installation**

- Show compete map of system design for approval by Owner.

**3.01.3 Prior to final acceptance**

- Provide a soft CAD copy As-Built showing layout of Controller Panel, Card Readers, Power Supplies and all mounted equipment upon Substantial Completion.
- Ensure all warranties specify that the Owner is entitled to all rights guaranteed by the warranty for various components.

**3.02 Quality Assurance**

**3.02.1Qualifications**

- 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.

Access Control Installation Completion Check List
**Part 4 - General**

**4.01 Section Includes**

- Access Control System Completion Check List

**4.02 Completion Check List**

- A map of the entire system showing device numbers and wire routes has been left inside the main controller panel and a copy has been given to Rodney Cobb with MPS.
- All system programming has been checked and is correct.
- Panel(s) has been tested for proper operation.
- All card readers are labeled with reader number and have been tested to verify proper operation.
- All user card and key fobs have been programmed into system and tested to verify proper operation.
- All egress motion detectors have been adjusted for proper sensitivity and have been walk tested.
- All controllers are labeled on the outside with module numbers.
- All controllers are labeled on the inside with module numbers by the corresponding module.

**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 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 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**
**4.07.1Environmental 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.

**4.07.2Field Measurements**

- Contractor shall coordinate with electrical engineer on project that the main electrical service ground has aresistance 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.

End of Section


Salas O'Brien

Salas O'Brien Inc. - Oklahoma City
2900 S. Telephone Road, Suite 120
Moore, OK 73160
CA#: 9820 Expiration Date: 06/30/27

Salas O'Brien Project Number: 2650-00986-00



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FLAT LAND
CIVIL

KFC ENGINEERING
STRUCTURAL

SALAS O'BRIEN
MECHANICAL / ELECTRICAL

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MOORE PUBLIC SCHOOLS

MPS ASC
BOARDROOM
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OWNERSHIP USE OF DOCUMENTS:

AGP EXPRESSLY RESERVES ITS COPYRIGHT AND OTHER PROPERTY RIGHTS OF ALL PLANS AND DRAWINGS DESIGNED AND/OR PRODUCED. PLANS AND DRAWINGS ARE NOT TO BE REPRODUCED IN ANY FORM OR MANNER WITHOUT THE EXPRESSED WRITTEN CONSENT OF AGP.

# FIRE ALARM SPEICIFCATIONS - SK PROTOCOL ONLY

**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 Manufacture 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. If location has existing SD Protocol devices, contractor shall replace all SD Protocol devices with SK Protocol devices. Contractor shall not combine SD & SK protocol devices to one system.
- Fire alarm control shall be Silent Knight Model # 6820XL or 6820EVS (If voice evac is required). (No Substitutions) If location has an existing 5820XL, contractor shall replace with a 6820XL or 6820EVS.
- Fire Alarm signaling line circuit expander shall be Silent Knight Model # 6815. (No Substitutions) If location has existing 5815XL, contractor shall replace with 6815 to support SK Protocol devices. Contractor shall not combine SD & SK protocol devices to one system.
- 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 # 5895XL. (No Substitutions)

NOTE: The 5895XL 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 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 SLC 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 SPSCWL 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 expansion system shall be as needed Silent Knight SKE-450 (Single Zone), SKE-450-ZN4 (4 Zone) or SKE-450-ZN6 (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 manufacture's 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.
- 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 shall be 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.)
- 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 6" 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. Wire shall have lightning suppression installed where it enters building.
- 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 annunciator recessed back boxes etc. and coordinate with them to ensure that all necessary conduits, back boxes, 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.

***1.04 Submittals***

***1.04.01 Prior to installation***

- Show compete map of system design for approval by Owner.

***1.04.02 Prior to final acceptance***

- Provide a soft CAD copy As-Built showing layout of panel, initiating devices, notification devices and all mounted equipment upon Substantial Completion.
- Ensure all warranties specify that the Owner is entitled to all rights guaranteed by the warranty for various components.

**Fire System Installation Completion Check List**

**Part 1 - General**

- Fire System Completion Check List

***1.01 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 Jack Phillips 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 description at keypad.
- 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.
- A list of all zone numbers and zone descriptions have been provided to Moore Public Schools for alarm monitoring purposes.

**End of Section**

# IP CAMERA SYSTEM SPECIFICATIONS

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

**AVIGILON EQUIPMENT**

**INDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST**
4.0C-H6A-D1-IR
ACC7-ENT LICENSE - 1 per camera

**INDOOR MULTI-HEAD 2 HEAD CAMERA REQUIRED EQUIPMENT LIST**
10.0C-H5DH-DO1-IR
ACC7-ENT LICENSE - 1 per camera

**INDOOR FISHEYE CAMERA REQUIRED EQUIPMENT LIST**
12.0C-H6A-FE-360-DO1-IR
ACC7-ENT LICENSE - 1 per camera

**INDOOR MULTI-HEAD 3 HEAD CAMERA REQUIRED EQUIPMENT LIST**
9C-H5A-3MH (3x3MP)
Axis T8134 Midspan 60W Power Injector
ACC7-ENT LICENSE - 1 per camera
H5AMH-AD-DOME1
H5AMH-DC-COVR1
H4AMH-AD-IRIL1

**INDOOR MULTI-HEAD 4 HEAD CAMERA REQUIRED EQUIPMENT LIST**
12C-H5A-3MH (4x3MP)
Axis T8134 Midspan 60W Power Injector
ACC7-ENT LICENSE - 1 per camera
H5AMH-AD-DOME1
H5AMH-DC-COVR1

**OUTDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST**
6.0C-H6A-DO1-IR
ACC7-ENT LICENSE - 1 per camera

**OUTDOOR MULTI-HEAD 2 HEAD CAMERA REQUIRED EQUIPMENT LIST**
16.0C-H6ADH-DO1-IR
NPTA-1201
WLMT-1021
ACC7-ENT LICENSE - 1 per camera

**OUTDOOR MULTI-HEAD 3 HEAD CAMERA CORNER MOUNT REQUIRED EQUIPMENT LIST**
15C-H5A-3MH (3x5MP)
Axis T8134 Midspan 60W Power Injector
ACC7-ENT LICENSE - 1 per camera
H5AMH-AD-PEND1
H5AMH-DO-COVR1
H5AMH-AD-IRIL1
WLMT-1001
CRNMT-1001

**OUTDOOR MULTI-HEAD 3 HEAD CAMERA WALL MOUNT REQUIRED EQUIPMENT LIST**
15C-H5A-3MH (3x5MP)
Axis T8134 Midspan 60W Power Injector
ACC7-ENT LICENSE - 1 per camera
H5AMH-AD-PEND1
H5AMH-DO-COVR1
H5AMH-AD-IRIL1
WLMT-1001

**CAMERA SERVER INFORMATION, CONTRACTOR TO PROVIDE, INSTALL AND CONFIGURE THE FOLLOWING AT NEW BUILDINGS OR AS NEEDED TO ACCOMMODATE ADDITIONAL CAMERAS TO EXISTING SYSTEM:**

1 - Dell Server part# NVR6-PRM-FORM-D-72TB-S22
1 - SFP fiber connector, part# NVR6-AINVR2-FORM-D-SFPPLUS-SR
1 - Cyber Power UPS Model OL1500RTXL2UN in the MDF dedicated for each new camera server

The contractor shall be responsible for the complete installation, configuration, and programming of the video surveillance system, including all cameras and the video surveillance server. The contractor shall ensure the system is fully operational, integrated, and tested prior to project closeout. The contractor responsible for installing the video surveillance cameras shall also perform all system programming, including configuration of the video surveillance server. No secondary subcontractors or sub-tiers shall be used for any portion of the installation or programming work.

**INSTALLATION**

- Install 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. (BIDDING CONTRACTOR SHALL PROVIDE NON-STAINABLE 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 sheets 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.


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SALAS O'BRIEN
MECHANICAL / ELECTRICAL


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MOORE PUBLIC SCHOOLS

MPS ASC
BOARDROOM
BUILDING

sheet no:

**T303**


Salas O'Brien

Salas O'Brien Inc. - Oklahoma City
2900 S. Telephone Road, Suite 120
Moore, OK 73160
CA#: 9820 Expiration Date: 06/30/27

Salas O'Brien Project Number: 2650-00986-00



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# DAS - DISTRIBUTED ANTENNA SYSTEM

**PART 1 – GENERAL**

**1.1 SUMMARY**

A. Section includes products and execution requirements pertaining to systems for internal cellular and antenna systems. System components and support systems are covered under this document.

B. Internal cellular and antenna systems are commonly referred to as a Neutral-Host Distributed Antenna System (DAS) for supporting Wireless Service Providers (WSP)

C. System components include, but are not limited to Network Units, Coverage Units, Fiber Hubs, Fiber Range Extenders, Donor Antennas. Ceiling Omni Antennas, Directional Antennas, Smart Server Antennas, RF and Horizontal Coax Cabling, Category 6/6A Structured Cabling, and Optical Fiber Structured Cabling

D. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities for all internal cellular and antenna system products shall be provided as required to complete the project as shown on floor plans per the design.

**E. The DAS shall provide coverage for the WSP's listed below.**
- **a. AT&T**
- **b. Verizon**
- **c. T-Mobile**

F. Substitutions: No substituted products shall be installed except with written approval by Owner.

G. The project design and system component installation shall be performed or managed by a Nextivity certified system integrator (SI).

H. **Contractor to provide and install a complete and functioning DAS system in the storm shelter portion of the building with three donor antennas for boosting AT&T, VERIZON, and T-MOBILE.**

**1.2 CONTRACT WORK REQUIREMENTS**

A. General:

1. **Provide the following pre-deployment surveys upon award:**
   - **A. Rooftop macro survey of all available brands and operators, to include:**
     - **a. Signal Strength**
     - **b. SINR**
     - **c. QoS**
   - B. Indoor coverage survey of existing cellular performance of all operators
2. Furnish all labor, materials, tools, equipment and services for the installation in accordance with general provisions of specifications and the Contract Drawings.
3. Report percentage of work completed on a monthly basis.
4. Completely coordinate with work of all other trades.
5. Provide all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation, whether or not specifically indicated in the Contract Documents.
6. Provide all floor penetrations, floor sleeves, conduit raceways, wall penetrations, etc. not shown on the electrical plans but needed for the routing of cabling provided herein.
7. Provide fire stopping.
8. Provide labor for installation, testing, and commissioning of system components.
9. Confirm that the site has the necessary space and power to support the DAS as well as RF Sources.
10. **Contractor shall provide and install a CEL-FI QUATRA 4000c system by NEXTIVITY.**
11. **Provide post installation signal testing report to owner.**
12. **Contractor shall provide and install the required lightning arrestors for all donor antennas per NEXTIVITIY's recommended installation practices**
13. **Contractor shall provide and install three donor antennas for signal boosting of AT&T, VERIZON, and T-MOBILE services. Antennas shall be mounted to the parapet wall with a minimum spacing of twelve (12) to sixteen (16) inches between antennas. Conduit pathway route shall avoid roof penetrations. Contractor shall mount antennas on the back side of building so the antennas cannot be seen from the front of the building. All mounting hardware shall be designed to withstand wind loads of not less than ninety (90) miles per hour. Contractor shall coordinate with the electrical contractor to ensure all required conduit pathways and supporting hardware are provided and installed as necessary.**

**1.3 SUBMITTALS**

A. Submittals shall be submitted in one single package. Partial submittals will not be considered.

B. Material lists, schedule of values, lists of subSystem Integrators, and proof of System Integrator (SI) qualifications shall be provided to Owner and/or Engineer - upon request and shall follow the guidelines as stated in the General Requirements (Division 1 of the specification).

C. Performance bonds, payment bonds, and insurance certifications shall be submitted by the System Integrator prior to the execution of the contract.

D. Shop drawings shall be submitted to Owner and Engineer. All communication system shop drawings shall include:
1. Manufacturer's data (specifications, "cut sheets").
2. Wiring diagrams for all installed cabling.
3. Equipment rack/cabinet layouts.
4. Proposed labeling schemes and labeling method.
5. Submit copies of certifications for all technicians and the project manager who will support this project.
   a. A list of managers and technicians certified
   b. Approved manufacturer classes satisfactorily completed.
6. System Integrator shall submit a test plan with the submittal package that defines the tests required to ensure that the system meets technical, operational, and performance specifications. The test plan must also meet manufacturer's certification requirements.
7. Work shall not proceed without the Owner – Engineer approval of the submitted items.

E. Drawings & Inspection of Site:
1. Communications floor plan drawings are to scale and typically are not dimensioned. The System Integrator shall not scale drawings for equipment placement and clearances. Dimensions given on drawings shall always take precedence over scaled drawings.
   2. Any existing wires, utilities, or equipment shown on the drawings are shown for general information and to the best knowledge of the Owner – Engineer. The System Integrator shall verify all existing wires, utilities, or equipment.
3. The System Integrator shall verify distances and equipment placements coordinating locations with other trades, construction managers, and general System Integrator prior to installation.
4. The System Integrator shall review all site conditions prior to submitting a bid on this project. Any obvious discrepancies between the site conditions and bidding documents shall be brought to the attention of the Owner – Engineer at the time of bidding so clarification can be made by addendum.
   5. Change order requests for additional costs related to the System Integrators' misunderstanding related to the amount of work involved and lack of knowledge related to the site conditions will not be allowed.
   6. Convene pre-installation meeting 2 weeks prior to start of installation of horizontal communications cabling. This meeting will review the installation timeline and allow for coordination with additional System Integrators on site.

**1.4 QUALITY ASSURANCE**

A. Installation Reference Standards (all codes and standards compliance will be to the most current revision available, including applicable addendums): Installation shall comply with the following:
1. NFPA 70: National Electric Code®, current edition or as specified per local codes and Authority Having Jurisdiction (AHJ).
2. ANSI/TIA-568.0-D - Generic Communications Cabling for Customer Premises.
3. ANSI/TIA -568.1-D Commercial Building Telecommunications Cabling Standard. Part 1: General Requirements
4. ANSI/TIA-568.2-D: Commercial Building Telecommunications Cabling Standard
5. ANSI/TIA-568.3-D: Commercial Building Telecommunications Cabling Standard, Part 3: Optical Fiber Cabling Components Standards
6. ANSI/TIA-569-D: Commercial Building Standard for Telecommunications Pathways and Spaces
7. ANSI/TIA-606-B. The Administration Standard for the Telecommunications infrastructure of Commercial Building
8. ANSI/TIA-607-C. Commercial Building Bonding and Grounding (Earthing) Requirements for Telecommunications
9. BICSI-TDMM, Building Industries Consulting Services International, Telecommunications Distribution Methods Manual (Revision 12 or most current revision)

B. Materials:
1. All materials shall be listed with UL or ETL and shall be marked as such.
2. Products shall be regularly catalogued items of the manufacturer and shall be supplied as a complete unit in accordance with the manufacturer's standard specifications with any +optional items required for proper installation unless otherwise noted.
3. Material shall be delivered to the site in the original packing.
4. Alternates are to be considered based on the bidding requirements and as approved "as equal".
5. Approved Products: (Basis of Design)

| | |
|---|---|
| 6. Network Units: | Nextivity |
| 7. Coverage Units: | Nextivity |
| 8. Fiber Hubs: | Nextivity |
| 9. Fiber Range Extenders: | Nextivity |
| 10. Donor Antennas: | Nextivity |
| 11. Ceiling Omni Antennas: | Nextivity |
| 12. Directional Antennas: | Nextivity |
| 13. Smart Server Antennas: | Nextivity |
| 14. Category 6 Cabling: | Leviton or Equal |
| 15. Optical Fiber Cabling: | Leviton or Equal |
| 16. RF Coax: | CommScope of Equal |
| 17. Horizontal Coax Cabling: | CommScope or Equal |
| 18. Accessories: | Nextivity or System Integrator Supplied |
| 19. Scanner Tool for Site Surveys | Nextivity Compass XR |

C. System Integrator Qualifications:
1. The System Integrator shall have experience in the installation and testing of similar systems as specified herein and shall have completed at least two projects of similar size and scope within the last 24 months. The System Integrator shall provide references upon request (including the project name, address, date of implementation, client name, title, telephone number, and project description.)
2. The System Integrator bidding on communication systems specified herein shall be an Nextivity Certified System Integrator. The awarded System Integrator must be able to install, service, and warrant the specified product prior to the time of bid and throughout the duration of the installation; or, the bidding System Integrator shall utilize a sub-System Integrator(s) certified by Nextivity to install, service, and warrant the specified product. The awarded System Integrator must be eligible to support the Nextivity warranty. Manufacturer certifications shall not be project specific and should be valid for any and all projects completed by System Integrator.
3. The System Integrator must meet all training requirements from Nextivity. The System Integrator must be in good standing with a minimum of 30% of the technicians on site and at least one manager current with the required training.
4. The System Integrator is responsible for workmanship and installation practices in accordance with Section 1.4.A Installation Reference Standards.
5. The System Integrator must maintain a state System Integrator's license as required by the state.
   6. The System Integrator shall provide copies of certificates for proof of manufacturer's training, manufacturer's certified installer, authorized distributor in the shop drawing submittal and at the request of the Owner – Engineer to verify compliance with specification prior to recommendations for awarding bid.

**1.5 MAINTENANCE**

A. All materials used on this project shall be new. Used and refurbished equipment is not permitted. Provide equipment to site in original packaging whenever practical.

B. The System Integrator is responsible for scheduling all deliveries and providing proper receipt, handling, and storage of all materials. Protect all equipment from physical damages (dents, scratches, dust, water, paint, chemicals, and temperature extremes) and vandalism, or theft. The System Integrator shall replace any damaged or stolen equipment. The System Integrator is responsible for all equipment until final project acceptance by Owner.

**1.6 WARRANTY**

A. Nextivity Limited Warranty: warrants each Nextivity Product against defects in materials and workmanship when used in accordance with Nextivity's published guidelines for the Warranty Period.

B. The foregoing Limited Warranty does not apply to (i) damage or loss during shipment for replacement or repair; (ii) Products that have been subjected to accident, abuse, misuse, neglect, shipping or other physical damage, improper installation or operation, improper testing or use contrary to the instructions given by the Nextivity; or (iii) Products that have been repaired, altered, or modified by anyone other than Nextivity.

C. The warranty period is 24 months with an option to extend the warranty coverage in 12-month or 36-mont increments up to a maximum of 60 months from the time of purchase.

**PART 2 – PRODUCTS**

**2.1 MANUFACTURES**

A. Specified manufacturer: Nextivity
B. Others per section 1.4.B.
C. Alternatives not permitted unless approved by Nextivity

**2.2DESCRIPTION - DAS SYSTEM**

A. The system shall consist of the following:
1. The system shall obtain the signal off-air and requires roof mounted antenna/s
2. Location of antennas will be determined as part of the pre-deployment survey
3. The donor antenna will connect to the system via coaxial cable
4. The signal shall be distributed through the 'required improvement area
5. Options for remote monitoring

B. Intelligent and Dynamic Channelization
The system shall be intelligent and dynamically channelized to ensure:
1. Each MNO and individual band shall be optimized independently and dynamically to adapt with network changes
2. Such individual and dynamic optimization shall ensure continuous, optimal and equal coverage performance of each MNO and band
3. Remove interference associated with traditional repeaters
4. Dynamically adjust both uplink and downlink independently per band per MNO for optimal performance
5. Dynamically adjust to the changing outdoor macro parameters to constantly optimize indoor performance independently for each MNO and band
6. Implement advanced echo cancellation to ensure optimal system and cellular QoS
7. Such automated and dynamic self-configuration and optimization shall at all times protect the MNO networks from interference and harm

C. Digital Signal Distribution
The selected solution shall provide digital signal distribution throughout the 'required improvement area'. This is important to ensure:
1. Conformance with the standard Category and fiber cabling infrastructure as defined by the building owner/enterprise
2. Existing cabling infrastructure can be used, where available
3. Connection between active components of the solution is lossless and utilizes power-over-Ethernet (PoE)
4. Existing cable management and cable trays can be used between active components
5. Any existing new infrastructure cabling required to be installed between active components is fast to deploy and gives minimal disruption to the building, the business and its employees
6. Existing communications rooms and IDFs can be used with existing patch panels and cables used to distribute signal and power

D. Remote Monitoring
The system shall have remote monitoring to enable the contractor to provide proactive maintenance support:
1. On-premises LAN connection or LTE modem option should be available
2. Remote monitoring should be via an online portal.

E. Live Monitoring, Alerts, and Alarms Monitoring
The system shall be monitored live and provide alerts and alarms to contractor's support team. These shall include:
1. Monitoring of NU current status
2. Monitoring of CU current status
3. Monitoring of macro signal status
4. Detailed drill down option to enable remote investigation
5. Trend information over selectable timeframe
6. Reports
7. Undertake remote maintenance activities, e.g., recycling CU power

**2.3 MATERIALS / COMPONENTS**

A. Network Unit (NU)
1. Neutral-Host active DAS hybrid cellular coverage Network Unit
   a. Specifications per Data Sheet
   b. Capability to be wall or 19-inch rack mounted
   c. Have intelligent operation that adapts to changes in the outdoor macro network to ensure dynamically and consistently optimized indoor coverage performance, as set out in Section 2.2.C
   d. RJ45 and fiber ports to support up to 12 Coverage Units/radio units per NU
   e. RJ45 management port for live monitoring and maintenance
   f. Each MNO shall have a dedicated high performance N-type donor port. This ensures the MNOs are individually and automatically optimized to provide the appropriate gain and to ensure each MNO has equal indoor coverage
   g. FCC Part 15, 20, 22, 24, 27, 90, and 96 per DAS design
   h. Four donor ports to support AT&T, Verizon, T-Mobile, and Private Networking
   i. Connection via ethernet or LTE modem to Nextivity WAVE Platform for remote monitoring
   j. Manufacturer: Nextivity part number Q44-1M34CNU

B. Coverage Unit (CU)
1. Neutral-Host active DAS hybrid cellular coverage Coverage Unit
   a. Specifications per Data Sheet
   b. Power via PoE
   c. Connect to the NU via Category cabling to provide lossless RF distribution
   d. Have an option for PoE extension to increase distance between devices
   e. A high performance 4.3-10 RF antenna port for quality of connection to the passive antenna/s
   f. Various mounting options for wall, ceiling, rack
   g. FCC Part 15, 20, 22, 24, 27, 90, and 96 per the DAS design
   h. Connection to NU via Category 6/6A structured cabling and Power over Ethernet
   i. Manufacturer: Nextivity part number Q41-RECU

C. Fiber Hub
1. Neutral-Host active DAS hybrid cellular coverage Expansion Solution
   a. Specifications per Data Sheet
   b. FCC Part 15 per the DAS design
   c. Connection to NU via Category 6/6A structured cabling and Power over Ethernet
   d. Manufactur
   er: Nextivity part number Q40-1234FNU

D. Fiber Range Extender
1. Neutral-Host active DAS hybrid cellular coverage Expansion Solution
   a. Specifications per Data Sheet
   b. FCC Part 15 per the DAS design
   c. Connection between Fiber Extender NU and CU via optical fiber cabling
   d. Connection to NU via Category 6/6A structured cabling and Power over Ethernet
   e. Manufacturer: Nextivity NU part number Q40-0XNU
      Nextivity CU part number Q40-0XCU

E. Donor Antennas
1. LPDA-R
   a. Specifications per Data Sheet
   b. Electrical Specifications
      1. Frequency Range: 617 – 4000 MHz
      2. Gain: 12-14 dBi
      3. VSWR: ≤ 2.0
      4. Polarization: Vertical
      5. Input Impedance: 50 Ohms
      6. Maximum Input Power: 50W
   c. Mechanical Specifications
      1. Connector: N-Female
      2. Mounting: Pole
      3. Operating Temperature: -40ºC to +65ºC
   d. Manufacturer: Nextivity part number A62-V44-201
2. Wideband Directional Antenna
   a. Specifications per Data Sheet
   b. Electrical Specifications
      1. Frequency Range: 698 – 960 MHz and 1710 - 2700 MHz
      2. Gain: 10 dBi (698-960 MHz) and 11 dBi (1710-2700 MHz)
      3. VSWR: ≤ 2.0 (698-960 MHz) and ≤ 1.5 (1710-2700 MHz)
      4. Polarization: Vertical
      5. Input Impedance: 50 Ohms
      6. Maximum Input Power: 50W
   c. Mechanical Specifications
      1. Connector: N-Female and SMA Male
      2. Mounting: Pole
      3. Operating Temperature: -40ºC to +65ºC
   d. Manufacturer: Nextivity part number A32-V32-200 or A32-V32-201

3. Wideband and Directional Panel Antennas
   a. Specifications per Data Sheet
   d. Manufacturer: Nextivity various part numbers per the spec sheets

F. Server Antennas
1. Smart Server Antenna: Low profile omnidirectional for 360º coverage and active monitoring.
   a. Specifications per Data Sheet
   b. Includes Bluetooth Low Energy connectivity
   b. FCC Part 15 per DAS design
   c. Electrical Specifications
      1. Frequency Range: 617 – 3980 MHz
      2. Average Gain: 2.2 – 3.8 dBi
      4. Polarization: Horizontal
      5. Input Impedance: 50 Ohms
      6. Maximum Input Power: 2W
   d. Mechanical Specifications
      1. Connector: N-Female
      2. Mounting: Hard ceiling mounting place
      3. Operating Temperature: 0ºC to +40ºC
   e. Manufacturer: Nextivity part number A91-JV4-C00

2. LP SISO Indoor Omni Antenna
   a. Specifications per Data Sheet
   b. FCC Part 15 per DAS design
   c. Electrical Specifications
      1. Frequency Range: 617 – 4000 MHz
      2. Average Gain: 3 – 5 dBi
      4. Polarization: Linear, Horizontal
      5. Input Impedance: 50 Ohms
      6. Maximum Input Power: 50W
   d. Mechanical Specifications
      1. Connector: N-Female
      2. Mounting: Hard ceiling mounting place
      3. Operating Temperature: -40ºC to +60ºC
   e. Manufacturer: Nextivity part number A11-H43-201

3. Indoor Omni Dome Antenna
   a. Specifications per Data Sheet
   b. FCC Part 15 per DAS design
   c. Electrical Specifications
      1. Frequency Range: 698 – 5900 MHz
      2. Average Gain: 2 – 5.5 dBi
      4. Polarization: Vertical
      5. Input Impedance: 50 Ohms
      6. Maximum Input Power: 50W
   d. Mechanical Specifications
      1. Connector: N-Female
      2. Mounting: Fix with nut
      3. Operating Temperature: -40ºC to +60ºC
   e. Manufacturer: Nextivity part number A11-V43-121 (N-Type) / A11-V43-100 (SMA)

4. Other Indoor Antennas
   a. Specifications per Data Sheet
   b. Manufacturer: Nextivity

G. Category UTP Cabling
1. Category 6 UTP Plenum 4-pair Cabling
REFERENCE STRUCTURED CABLING SPECIFICATION

2. Category 6 Patch Cords – Standard Diameter – UL Listed
REFERECE STRUCTURED CABLING SPECIFICATION

H. Fiber-Optic Requirements
a. General Specifications:
REFERENCE STRUCTURED CABLING SPECIFICATION

**PART 3 – EXECUTION**

**3.1 INSTALLATION: GENERAL**

A. DAS Active and Passive Components
1. The System Integrator shall design, install, test, and commission in DAS solution including all the active and passive components in accordance with the manufacturer's published installation instructions and training.

B. Open Cable Support installation
REFERENCE STRUCTURED CABLING SPECIFICATION

C. Cable Installation
REFERENCE STRUCTURED CABLING SPECIFICATION.

**3.2 INSTALLATION: COMMUNICATIONS INFRASTRUCTURE**

A. Category 6 Horizontal Cables:
1. Maximum cable lengths to be 328 feet (100 m) or 492 ft (150 m) when using Cat-6A cabling, including service loop. Provide all necessary installation materials, tools and equipment to perform insulation displacement type terminations at all communications outlets, patch panels and 110 punch-down blocks. See exception in 3.1.B.5. Support and secure cables at patch panels using rear cable management bracket supplied with panel.

B. Optical Fiber Cable:
1. All optical fiber installations shall be installed using open-cabling methods. Limit the cable-bending radius to 20 times the cable diameter during installation, and 10 times the diameter after installation. Provide all required tools, materials, consumables, and equipment necessary for cleaning and field termination of optical fiber connectors. Label each end of each cable as to source and destination. Terminate optical fibers in a consistent, consecutive manner at each end.
2. Optical fiber cable terminations shall utilize enclosures and components in quantities consistent with the required fiber counts at each end of each segment. During field polish optical fiber connector termination, visually inspect all terminations with a 400-power microscope. Follow all of the connector manufacturer's recommendations. Unacceptable flaws in the terminations will include, but not limited to, scratches, full or partial cracks, bubbles, pits, epoxy residual, dirt, dust, oil, moisture, grinding and sanding debris. The acceptable termination will show a connector tip that is free of all imperfections in 100% of the core and 80% of the cladding. All unacceptable connectors shall be inspected after rework.
3. During installation of optical fiber cable do not allow pulling tension to exceed cable manufacturer's specification for the cable being installed. Only the strength member of the cable shall be subjected to the pulling tension.
4. All optical fiber connector tips shall be cleaned with proper cleaning tools specifically designed for optical fiber prior to inserting them into matting receptacles or bulkheads.

**3.6 CLEANUP**

A. The communications System Integrator shall clean up all debris-related communications cabling installation on a regular basis. Protect all equipment from damage during construction. Equipment not protected shall be replaced at the System Integrator's expense.


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MOORE PUBLIC SCHOOLS

MPS ASC
BOARDROOM
BUILDING

sheet no:

**T304**


Salas O'Brien

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2900 S. Telephone Road, Suite 120
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## Audiovisual Bill of Material

| Space | Category | Equipment | Model Number | Quantity | Specs / Model | Placement / Location | Function | Notes |
|---|---|---|---|---|---|---|---|---|
| Board Room / PD Center | Displays | Commercial Large Format Display | Sony FW98BZ30L | 2 | 100" 4K commercial display | West wall above Board Members on each side of the dias, centered between logo and outer room wall. | Displays presentation content above board members for those attending board meetings | **CFCI** |
| Board Room / PD Center; Executive Board Room; Lobby | Displays | Commercial Large Format Display | Sony FW85BZ30L | 8 | 85" 4K commercial display | PD Room:2 west wall; 2 north wall; 2 south wall<br>Lobby<br>Executive Board Room | Displays presentation content & digital signage | **CFCI** |
| Board Room / PD Center; Executive Board Room; Lobby | Displays | Commercial Display Wall Mount | Chief - RLXT3 | 10 | Heavy-duty mount sized for 86"-100" display | Behind each display | Secure wall mounting | **CFCI** |
| Board Room / PD Center | Video Distribution | HDMI Splitter | Blustream - SP18CSV2 | 1 | Centralized video routing system | mounted under Dias | Routes presentation sources to board member displays | **CFCI** |
| Board Room / PD Center | Video Distribution | HDMI Distribution Amp | Atlona - AT-HDR-CAT-8 | 1 | HDR HDBT HDMI 1 X 8 Distribution Amp | Equipment Rack | Distributes video | **CFCI** |
| Board Room / PD Center | Video Distribution | HDMI Distribution Receivers | Atlona - AT-HDR-EX-70C-RX | 8 | | Mounted behind each display (8 total) | Receives video signal from HDMI input | **CFCI** |
| Board Room / PD Center | Video Distribution | Video Encoders | Q-SYS NV-1-H-WE | 3 | Video over IP | Equipment rack and display locations | Connects sources and displays to video distribution system | **CFCI** |
| Board Room / PD Center | Video Distribution | Video Decoders | Q-SYS NV-21-HU | 2 | Video over IP to HDMI zones | Equipment rack and display locations | Connects sources and displays to video distribution system | **CFCI** |
| Board Room / PD Center | Control | Wall-Mounted Touchscreen Control Panel | Q-SYS TSC-70-G3 | 1 | Commercial AV touchscreen controller | Wall near room entry or podium | Controls displays, source switching, and audio levels | **CFCI** |
| Board Room / PD Center | Control | AV Control Processor | Q-SYS Core 24f | 1 | Commercial AV control processor | Equipment rack in tech closet | Controls AV system components | **CFCI - Verify with owner prior to purchasing** |
| Board Room / PD Center | Dais Audio | Conference Microphone System | Shure ULXD system (ANX4) | 1 | System supporting 7 dais seats | Dais | Provides board member microphone audio | **CFCI** |
| Board Room / PD Center | Dais Audio | Conference Microphone System | Shure UA864US | 2 | Wall-mounted Wideband Antenna | Boardroom - on Wall | Provides wireless mic coverage | **CFCI** |
| Board Room / PD Center | Dais Audio<br>& Lectern/Speaker Audio | 15" Gooseneck Microphone | Shure MX415RLP/C (Microphone) | 8 | Individual conference mic unit with gooseneck | One at each dais seat and one for the speaker/trainer lectern. | Captures board member and speaker audio | **CFCI** |
| Board Room / PD Center | Dais Audio<br>& Lectern/Speaker Audio | Transmitters | Shure ULXD8W=-X52 (Transmitter) | 8 | Individual conference mic unit with gooseneck | One at each dais seat and one for the speaker/trainer lectern. | Captures board member and speaker audio | **CFCI** |
| Board Room / PD Center | Dais Audio<br>& Lectern/Speaker Audio | 8 bay gooseneck charging station | Shure SBC850-US (Bay) | 1 | Charging bay for all 8 gooseneck microphones | Either dias or Tech Closet | charges gooseneck mics | **CFCI** |
| Board Room / PD Center | Dais Audio | Chairperson Control Unit | Q-SYS TSC-70-G3 with TSC-710t-G3 tabletop mount | 1 | Chairperson/priority microphone control unit | Board president seat | Allows chairperson control/mute capability | **CFCI** |
| Board Room / PD Center | Dais Displays | Desktop Confidence Monitor | ViewSonic - VX1754 17.3" | 7 | 15–24" desktop display | One at each dais seat | Shows presentation content to board members from one of the AV-1 inputs | **CFCI** |
| Board Room / PD Center | Dais Power | Electrical Outlet / Power Connection | | 7 | Power outlet at each board position | One at each dais seat | Powers laptops and devices | **Coordinate with Division 26** |
| Board Room / PD Center | Dais Power | Cable Management Grommet | | 7 | Desk/table cable pass-through | One at each dais seat | Manages power/data/AV cabling | **CFCI** |
| Board Room / PD Center | Clerk Station | Clerk Network Connection | | 1 | Hardwired network drop | Clerk desk on dais | Provides network access for clerk workstation | **CFCI** |
| Board Room / PD Center | House Audio | Commercial Pendant Speaker or High-Output Ceiling Speaker | Q-SYS AD-C8T-ZB for High Ceiling - Tap at 100W | 9 | Speaker type appropriate for 16' ceiling | Distributed across 62' x 40' audience/PD area; additional dais coverage | Amplifies microphones and presentation audio | **CFCI** |
| Board Room / PD Center | House Audio | Rack-Mounted Audio Amplifier | LEA Professional - Connect 352 | 1 | Commercial amplifier matched to speaker design | Equipment rack in tech closet | Powers room speakers | **CFCI** |
| Board Room / PD Center | Wireless Microphones | Wireless Handheld Microphone | Shure ULXD2/SM58=-X52 | 1 | Rechargeable wireless handheld | Used throughout room | Presenter or audience microphone | **CFCI** |
| Board Room / PD Center | Wireless Microphones | Wireless Microphone Battery | Shure SB900C | 10 | Rechargeable battery for Shure microphones | 8 gooseneck, 1 handheld, 1 headset | supplies power to mics | **CFCI** |
| Board Room / PD Center | Wireless Microphones | Wireless headset Microphone | Shure ULXD1=X52<br>with SM35-TQG | 1 | Rechargeable wireless headset | Used throughout room | Hands-free presenter microphone | **CFCI** |
| Board Room / PD Center | Wireless Microphones | Dual Charging Station for handheld and headset microphones | Shure SBC220-US | | charging station for wireless headset mic and handheld mic | | charges rechargeable mic batteries | **CFCI** |
| Board Room / PD Center | Accessibility | Assistive Listening System | Listening Technologies LS-31-072 (Whole system) | 1 | RF or loop assistive listening transmitter and 4 receivers | Equipment rack in tech closet | Provides accessibility audio support | **CFCI** |
| Board Room / PD Center | PTZ Cameras | PTZ Camera - Rear Wall Primary Board View | Q-SYS NC-20x60 | 1 | PTZ camera with strong zoom capability | Rear wall centered on dais | Wide dais shot, board close-ups, podium/PD presenter view | **CFCI** |
| Board Room / PD Center | PTZ Cameras | PTZ Camera - North Wall Angled View & PTZ Camera - Behind Dais Audience View | Q-SYS NC-12x80 | 2 | PTZ camera | North wall aimed toward dais/podium &<br>Behind dais facing audience | Angled board/presenter views; south wall presenter view &<br>Audience view and reverse presenter angle | **CFCI** |
| Board Room / PD Center | Equipment Rack | AV Equipment Rack | Generic wall rack | 1 | Standard 19" AV rack | Tech closet | Houses AV hardware + 25% Spare space for future expnasion | **CFCI** |
| Board Room / PD Center | Equipment Rack | Power Conditioner | Middle Atlantic PDX-915R | 1 | Rack-mounted power conditioner | Tech closet equipment rack | Power protection for AV equipment | **CFCI** |
| Board Room / PD Center | Equipment Rack | UPS Battery Backup | Middle Atlantic UPS-S1500R | 1 | Rack-mounted UPS | Tech closet equipment rack | Backup power for AV equipment | **CFCI** |
| Board Room / PD Center | Network | Managed Network Switch | Netgear AV - GSM4248UX | 1 | Managed switch with PoE capability | Equipment rack in tech closet | Supports AV-over-IP, cameras, and controls | **CFCI** |
| Board Room / PD Center; Executive Board Room; Lobby | Infrastructure | Conduit Pathways | | As required | Conduit sized for AV cabling | Between floor boxes, dais, displays, cameras, and rack | Provides pathways for AV wiring | **Coordinate with Division 26** |
| Board Room / PD Center; Executive Board Room; Lobby | Infrastructure | Pull Strings | | As required | Installed in AV conduit | All AV conduit pathways | Supports future cable pulls | **Coordinate with Division 26** |
| Executive Board Room | Infrastructure | Floor Box Conduit | | As required | Dedicated conduit from floor boxes to transmitter/display and conference table | Each floor AV box to tech closet/rack | Connects floor inputs to AV system | **Coordinate with Division 26** |
| Executive Board Room/Board Room | Infrastructure | Infrastructure Cabling or Patch Cables | | As required | AV Cabling | Provide all cables needed for a fully functional, turnkey AV system. | Provides interconnections between AV devices as well patch cables needed at the end-user side. | **CFCI** |
| Executive Board Room | Presentation Inputs | HDMI Input | Transmitter: HT-AIM-70-TX-WP<br>Receiver: HT-AIM-70-RX) | 1 | HDMI input on conference table | Conference table | Allows laptops to connect to display | **CFCI** |


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MOORE PUBLIC SCHOOLS

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**T305**


Salas O'Brien

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Salas O'Brien Project Number: 2650-00986-00



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