#### TECHNOLOGY LEGEND DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A NETWORK CONNECTION. THE '#' SHALL BE REPLACED WITH NUMERIC TEXT THAT IDENTIFIES THE TOTAL NUMBER OF CATEGORY 6 NETWORK CABLES THAT ARE TO BE INSTALLED AT THE TECHNOLOGY OUTLET LOCATION. CONTRACTOR TO PROVIDE AND INSTALL CATEGORY 6 NETWORK CABLES. CATEGORY 6 CONNECTORS. STAINLESS STEEL FACEPLATES WITH IDENTIFICATION WINDOWS, LABELS, BLANK INSERTS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED OUTLET LOCATION. ALL FACEPLATES PROVIDED SHALL CONTAIN A MINIMUM 4-PORTS AND SHALL BE APPROPRIATELY SIZED TO ACCOMMODATE THE NUMBER OF CIRCUITS BEING INSTALLED AT THIS TECHNOLOGY OUTLET LOCATION. MAXIMUM OF SIX(6) DATA CABLES PER OUTLET. DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A WALL MOUNTED TELEPHONE CONNECTION. CONTRACTOR TO PROVIDE AND INSTALL (1) CATEGORY 6 NETWORK CABLE, (1) CATEGORY 6 CONNECTOR, STAINLESS STEEL WALL TELEPHONE FACEPLATE, LABELS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED CIRCUIT AT EACH LOCATION SHOWN. CONTRACTOR SHALL MOUNT THIS OUTLET AT ADA HEIGHT (MATCH LIGHT SWITCH HEIGHT) AND COORDINATE ALL FINAL LOCATIONS WITH OTHER TRADES ON THE PROJECT TO VERIFY THAT THE LOCATION OF THE OUTLET MAINTAINS 8" OF CLEARANCE ON ALL FOUR SIDES OF THE BACK BOX. OUTLETS SHALL REMAIN CLEAR OF ROOM DOORS, CABINET DOORS, APPLIANCE DOORS, AND SLIDING DRAWERS. DESIGNATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR THE USE OF A WIRELESS ACCESS POINT CONNECTION. CONTRACTOR TO PROVIDE AND INSTALL (2) CATEGORY 6 NETWORK CABLE, (2) CATEGORY 6 CONNECTOR, (2) CAT 6 BISCUIT JACK FACEPLATE WITH IDENTIFICATION WINDOWS, LABELS, AND ANY OTHER MATERIALS REQUIRED TO FURNISH A COMPLETE FUNCTIONAL AND TESTED CIRCUIT AT EACH LOCATION SHOWN. REFERENCE SPECIFICATIONS FOR PATCH CABLE REQUIREMENTS. INDICATES THAT THE ASSOCIATED TECHNOLOGY OUTLET IS INTENDED FOR FURNITURE FEED. ALLOWING CABLING TO ROUTE INTO A MODULAR FURNITURE SYSTEM. CONDUIT SHALL BE SIZE TO ACCOMMODATE THE NUMBER CABLE ROUTING INTO TO THE FURNITURE SYSTEM. VOICE OUTLET WITH CABLE AND TERMINATION AS INDICATED.

#### NOTES:

REFERENCE TECHNOLOGY GENERAL NOTES, PLAN KEYED NOTES, AND ALL OTHER SYSTEM LEGENDS/NOTES. THE STRUCTURED CABLING SYSTEM CONTRACTOR SHALL PROVIDE AND INSTALL CATEGORY 6/6A CABLE TO ALL SYSTEMS' EQUIPMENT REQUIRING NETWORK CONNECTIVITY.

#### RACEWAY LEGEND

INDICATES THE LOCATION OF A FLOOR MOUNTED BOX AND RACEWAY FOR LOW VOLTAGE. CONTRACTOR TO PROVIDE AND INSTALL A FLOOR BOX. EACH FLOOR BOX SHALL HAVE ONE (1) SINGLE GANG PORT WITH ONE (1) 1" CONDUIT(PER EVERY SIX(6) CATEGORY 6 OR FOUR(4) CATEGORY 6A CABLES) AND ONE (1) DOUBLE GANG PORT WITH ONE (1) 1 1/2" CONDUIT UNLESS NOTED OTHERWISE. ALL CONDUITS SHALL ROUTE FROM THE FLOOR BOX, DIRECTLY TO THE WALL INDICATED AND STUB-UP INTO THE NEAREST ACCESSIBLE PLENUM CEILING

- INDICATES THE LOCATION OF A CEILING MOUNTED OUTLET. CONTRACTOR SHALL MOUNT THIS OUTLET AT +12" ABOVE THE CEILING AND COORDINATE ALL FINAL LOCATIONS WITH OTHER TRADES ON THE PROJECT TO VERIFY THAT THE LOCATION OF THE OUTLET MAINTAINS 12" OF CLEARANCE FROM THE FRONT OF THE FACEPLATE FOR OWNER ACCESS.
- INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) DOUBLE GANG BACK BOX WITH A SINGLE GANG REDUCER ONE (1) " CONDUIT STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.
- INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) DOUBLE GANG BACK BOX WITH ONE (1) 1 1/4" CONDUITS STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.
- INDICATES THE LOCATION OF A NEW LOW VOLTAGE OUTLET. CONTRACTOR TO PROVIDE ONE (1) SINGLE GANG BACK BOX WITH ONE (1) 3/4" CONDUITS STUBBING INTO THE NEAREST, ACCESSIBLE PLENUM CEILING.

- A. SYSTEM INSTALLER TO PROVIDE AND INSTALL A PLASTIC PROTECTIVE BUSHING ON ALL CONDUIT STUB-UP AND SLEEVES, PRIOR TO ROUTING CABLING IN CONDUIT, CUTTING BUSHING TO FIT ROUND INSTALLED CABLE WILL NOT BE ACCEPTED
- B. NO CONDUITS SHALL EXCEED FOR 40% MAXIMUM FILL RATIO. CONTRACTOR TO PROVIDE ADDITIONAL CONDUITS REQUIRED.
- C. ANY CONDUIT INSTALL FOR AUDIO /VIDEO SYSTEMS SHALL INCLUDE AT LEAST ONE (1) 1 1/4"

INTRUSION DETECTION LEGEND				
IDP	DESIGNATES THE LOCATION OF THE INTRUSION DETECTION SYSTEM, CONTROL PANEL, ZONE EXPANDER AND POWER SUPPLIES. ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER TO PANEL.			
<u>©</u>	FLUSH MOUNTED MAGNETIC DOOR CONTACT.			
KP	INTRUSION DETECTION SYSTEM ARM/DISARM KEYPAD.			
<b>©</b>	STANDARD RANGE WALL MOUNTED MOTION DETECTOR. PROVIDE WALL MOUNT FOR EACH DEVICE INSTALLED.			
*	CEILING MOUNTED, 360° MOTION DETECTOR.			
- <b>\$</b>	CEILING MOUNTED GLASS BREAK DETECTOR.			

## 1. REFERENCE DIVISION SHEET SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS

	C	ONDUI	Γ / CAB	LE FILI	_ CHAR	Γ
CONDUIT SIZE (ID)	4-PR UTP CATEGORY 3	4-PR UTP CATEGORY 5/5E	4-PR UTP CATEGORY 6	4-PR UTP CATEGORY 6A	4-PR UTP CATEGORY 3/5	12-ST ARMORED FIBER OPTIC CABLE
1"	12	9	6	4	-	-
1-1/4"	21	15	12	8	-	-
1-1/2"	28	21	16	11	1	-
2"	47	35	27	19	3	1
3"	124	93	72	50	8	3
4"	208	155	120	83	12	6

- CONDUIT SIZES SHALL BE SIZED BASED ON MAXIMUM FILL RATION AND ALLOWING INSTALLATION TO NOT EXCEED THE MAXIMUM ALLOWABLE PULL TENSION. CONDUIT FILL RATIO MAY VARY BY MANUFACTURER. THIS CHART SHALL STIPULATE A MINIMUM
- REQUIREMENT. CONTRACTOR SHALL REFERENCE MANUFACTURER SPECIFICATION AND DECREASE CABLE COUNT PER CONDUIT SIZE IF REQUIRED.
- SIZES SHOWN DEPICT THE INTERIOR DIAMETER OF THE CONDUIT

	ACCESS CONTROL LEGEND	
SYMBOL	DESCRIPTION	
CR	WALL OR MULLION MOUNTED ACCESS CONTROL PROXIMITY CARD READER.	
(CR)	DOOR MOUNTED ACCESS CONTROL PROXIMITY CARD READER THAT IS INTEGRATED INTO THE DOOR HARDWARE.	
DR	DOOR RELEASE BUTTON	
[ACP]	DESIGNATES THE LOCATION OF THE ACCESS CONTROL SYSTEM, CONTROL PANEL. ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER TO PANEL. PROVIDE NETWORK CABLE TO PANEL AND COORDINATE WITH THE OWNER'S TECHNOLOGY DEPARTMENT ON ACQUIRING AN IP ADDRESS.	
DS	WALL OR MULLION MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION.	
(DS)	DOOR MOUNTED, 2-WAY AUDIO/VIDEO INTERCOM DOOR STATION.	
MS	2-WAY AUDIO/VIDEO INTERCOM MASTER STATION.	
РВ	ADA AUTO DOOR OPEN BUTTON. SHOWN FOR REFERENCE ONLY, BUTTON AND AUTO DOOR OPERATOR PROVIDED AND INSTALLED BY THE DOOR SYSTEM INSTALLER.	
(DC)	DPDT MAGNETIC DOOR CONTACT/DOOR POSITION SENSOR. FLUSH MOUNTED IN DOOR FRAME, UNLESS NOTED OTHERWISE.	
LD	LOCKDOWN BUTTON	
NOTES:  1. REFERENCE ACCESS CONTROL SCHEDULE, DETAILS, AND DIVISION 28 SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS		

TONAL	VIDEO SURVEILLANCE LEGEND		WITH TWO (2) DECORA PORTS. PROVIDE A DECORA STYLE INSERT THAT ACCEPTS TI STYLE OF DATA JACK BEING USED FOR STRUCTURED CABLING. WHEN THERE IS A LOCAL AV INPUT ASSOCIATED WITH THE DISPLAY, PROVIDE A DECORA INSERT THAT CONFORMS WITH THE SYSTEMS SPECIFIED. OTHERWISE PROVIDE A BLANK INSERT		
SYMBOL DESCRIPTION			THE SECOND PORT.		
<b>∑</b> N <sub>#</sub>	4-SENSOR CAMERA WITH 3-SENSOR PROVIDING A 270 DEGREE AREA OF VIEW AND 1-SENSOR PROVIDING COVERAGE DIRECTLY UNDERNEATH THE CAMERA LOCATION. '# TO BE REPLACED WITH AN ALPHABETICAL TEXT DEPICTING THE CAMERA TYPE AS ASSOCIATED WITH THE VIDEO SURVEILLANCE CAMERA SCHEDULE.		INDICATES THE LOCATION OF A WALL MOUNTED, INTERACTIVE VIDEO DISPLAY. PROVIDE AND INSTALL A/V CABLE FROM THE ASSOCIATED AV-1 AS PER SYSTEM SPECIFICATIONS. RACEWAY SHALL CONSIST OF A 2-GANG BOX AND TWO (2) 1.25 "CONDUITS STUBBING INTO THE ROOMS ACCESSIBLE CEILING. PROVIDE ONE DOUBLE-GANG FACEPLATE WITH TWO (2) DECORA PORTS. PROVIDE A DECORA STYLE INSERT THAT ACCEPTS THE STYLE OF DATA JACK BEING USED FOR		
NZN#	4-SENSOR CAMERA, 4-SENSORS TO PROVIDE A 360 DEGREE AREA OF VIEW. # TO BE REPLACED WITH AN ALPHABETICAL TEXT DEPICTING THE CAMERA TYPE AS ASSOCIATED WITH THE VIDEO SURVEILLANCE CAMERA SCHEDULE.		STRUCTURED CABLING. WHEN THERE IS A LOCAL AV INPUT ASSOCIATED WITH THE DISPLAY, PROVIDE A DECORA INSERT THAT CONFORMS WITH THE SYSTEMS SPECIFIED. OTHERWISE PROVIDE A BLANK INSERT IN THE SECOND PORT		
	2-SENSOR CAMERA, EACH SENSOR SHALL BE POSITIONED TO PROVIDE COVERAGE IN THE DIRECTION SHOWN. '#' TO BE REPLACED WITH AN ALPHABETICAL TEXT DEPICTING THE CAMERA TYPE AS ASSOCIATED WITH THE VIDEO SURVEILLANCE CAMERA SCHEDULE.	[AVC] *#	INDICATES THE LOCATION OF AN AUDIO/VIDEO CONTROL PLATE. RACEWAY SHALL CONSIST OF ONE (1) A BACK BOX WITH A 1" CONDUIT ROUTING INTO THE ACCESSIBLE CEILING SPACE WITHIN THE SAME ROOM. AV SYSTEM INSTALLER TO COORDINATE THE CONTROL BACK BOX SIZE REQUIREMENT WITH THE PROJECT'S ELECTRICAL CONTRACTOR.		
	1-SENSOR CAMERA, SENSOR SHALL BE POSITIONED TO PROVIDE COVERAGE IN THE	PS	LOCAL INSTRUCTIONAL SPACE PRESENTATION SPEAKER. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.		
DIRECTION SHOWN. '# TO BE REPLACED WITH AN ALPHABETICAL TEXT DEPICT THE CAMERA TYPE AS ASSOCIATED WITH THE VIDEO SURVEILLANCE CAMERA SCHEDULE.		○\_ <sub>*#</sub>	INDICATES THE LOCATION OF A STREAMING CAMERA. CONTRACTOR TO PROVIDE AND INSTALL TWO (2) CATEGORY 6 UTP NETWORK CABLE TO ALL LOCATIONS SHOWN ON THE ENTIRE PROJECT. REFERENCE SPECIFICATION FOR ADDITIONAL INFORMATION.		
	E VIDEO SURVEILLANCE SCHEDULE AND DIVISION 28 SPECIFICATIONS FOR ADDITIONAL AND REQUIREMENTS	NOTES:	ENT THAT '*#* IS NOT DEFINED IN THE OUTLET DESCRIPTION, THE DEVICE SHALL BE		
		CONSIDER	ED A STANDALONE DEVICE, SERVING THE SYSTEM WITHIN THE SAME SPACE OR THE		
	SECURITY GENERAL NOTES		FOLLOWING SHALL APPLY:  *# - UNLESS SPECIFICALLY NOTED OTHERWISE, THE FOLLOWING SHALL APPLY TO EACH DEVICE		

#### SECURITI GENERAL NOTES

- THE SECURITY SYSTEM INSTALLERS SHALL BE RESPONSIBLE FOR CONNECTING ALL APPLICABLE SYSTEM EQUIPMENT TO THE OWNER'S NETWORK.
- THE SYSTEM INSTALLER SHALL PROPERLY SUPPORT ALL INSTALLED SYSTEM CABLING FROM AN APPROVED CABLE SUPPORT SYSTEM AS DETAILED IN SPECIFICATIONS. NO CABLING SHALL BE ROUTED AND TIED DIRECTLY TO BUILDING STEEL. CEILING GRID SUPPORT. CONDUIT. PIPING. OI DUCTWORK. THE CABLE SUPPORT SYSTEM SHALL BE DIRECTLY CONNECTED TO THE BUILDING'S STEEL JOIST. AT LOCATIONS WHERE THE BOTTOM OF THE JOIST IS MORE THAN 5' ABOVE THE CEILING, THE SYSTEM INSTALLER SHALL PROVIDE AND INSTALL THREADED ROD AND ALL REQUIRED MATERIALS TO CONNECT THE THREADED ROD TO THE BUILDING STEEL AND THE CABLE SUPPORT SYSTEM TO THE THREADED ROD. CABLE PATHWAY SHALL NOT BE HIGHER THAN 5' ABOVE THE CEILING AT ANY LOCATIONS.
- SECURITY CAMERA SYSTEM INSTALLER SHALL PROVIDE A CEILING MOUNTED INSTALLATION KIT RECOMMENDED BY THE MANUFACTURER OF THE CAMERA. EACH CEILING MOUNTED CAMERA KIT SHALL HAVE A SUPPORT WIRE ATTACHED TO THE BUILDING'S STRUCTURE TO PREVENT THE CAMERA FROM DROPPING TO THE FLOOR AT ANY TIME. AT NO POINT SHALL THE WEIGHT OF THE CEILING MOUNTED SECURITY CAMERA BE SUPPORTED BY THE CEILING GRID SYSTEM OR CEILING TILES. ALL CEILING MOUNTED CAMERAS SHALL BE FLUSH MOUNTED.
- ALL EXTERIOR AND WALL MOUNTED CAMERA LOCATIONS AND MOUNTING HEIGHTS MUST BE COORDINATED WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATION MEETINGS SHALL BE SCHEDULED THROUGH THE ARCHITECT'S PROJECT MANAGER.
- PROVIDE AND INSTALL MAGNETIC DOOR CONTACT AT ALL ROOF HATCHES ON THE ENTIRE PROJECT. CONTACTS TO BE CONNECTED TO THE BUILDINGS INTRUSION DETECTION SYSTEM.

COORDINATE MONITORING REQUIREMENTS WITH THE INSTALLER FOR EACH SYSTEM AND THE OWNER. PROGRAM SYSTEM TO ALERT THE OWNER DESIGNATED PERSONNEL UPON A MONITORED ALARM

# LOCAL COLIND SYSTEM LEGEND

LOCAL SOUND SYSTEM LEGEND			EXTERIOR WALL MOUNTED INTERCOM PAGING HORN. PAGING HORN SHALL BE TAPPED		
SYMBOL	DESCRIPTION	\$4	AT 7 WATTS UNLESS NOTE OTHERWISE. SYSTEM INSTALLER TO PROVIDE BACK CANS TO PROJECTS ELECTRICAL CONTRACTOR FOR INSTALLATION. ON PROJECTS WITHOUT AN ELECTRICAL CONTRACTOR THE INSTALLER SHALL BE RESPONSIBLE FOR THE COMPLETE		
(S <sub>*#</sub>	VENUE SPECIFIC LOCAL SOUND SYSTEM SPEAKER. *# TO BE REPLACED WITH NUMERIC VALUE INDICATING THE POSITION NUMBER OF THE VENUE SPECIFIC DEVICE.		INSTALLATION INCLUDING BACK CANS AND ASSOCIATED RACEWAY. REFERENCE SHEET SPECIFICATIONS FOR MORE INFORMATION.		
LSC *#	VENUE SPECIFIC LOCAL SOUND SYSTEM CONTROL PLATE. *# TO BE REPLACED WITH NUMERIC VALUE INDICATING THE POSITION NUMBER OF THE VENUE SPECIFIC DEVICE.	VC	PROVIDE AND INSTALL A WALL MOUNTED VOLUME CONTROL WITH EMERGENCY ANNOUNCEMENT PRIORITY OVERRIDE. VOLUME CONTROL SHALL BE INSTALLED WITH LEVEL ZERO ATTENUATING AT NO LESS THAN 10DB. DEVICE TO BE MOUNTED AT +48" AFF.		
MI) *#	VENUE SPECIFIC LOCAL SOUND SYSTEM MICROPHONE INPUT. *# TO BE REPLACED WITH NUMERIC VALUE INDICATING THE POSITION NUMBER OF THE VENUE SPECIFIC DEVICE.	СВ	PROVIDE AND INSTALL A WALL MOUNTED, INTERCOM CALL BUTTON. DEVICE TO BE MOUNTED AT +48" AFF		
[ABM] *#	VENUE SPECIFIC LOCAL SOUND SYSTEM 3.5MM AUXILIARY INPUT AND BLUETOOTH MIXER. *# TO BE REPLACED WITH ALPHANUMERIC TEXT INDICATING THE ASSOCIATED VENUE AND MIXER NUMBER. CONTRACTOR TO PROVIDE AND INSTALL A RECESSED ENCLOSURE WITH FLUSH MOUNTED, LOCKABLE DOOR. DEVICE TO BE MOUNTED AT +	ACS	PROVIDE AND INSTALL AN IP ADMINISTRATIVE CALL STATION. DEVICE OUTLET TO BE INSTALLED IN THE WORKSTATION KNEE SPACE AND THE DEVICE SHALL RESIDE ON THE WORKSTATION SURFACE.		
	42" AFF.		INDICATES THE LOCATION OF A SINGLE FACE SECONDARY TIME CLOCK.		
RACK	RACK INDICATED THE LOCATION OF THE VENUE SPECIFIC LOCAL SOUND SYSTEM HEAD END RACK. AMPLIFIERS, DSPS, AND ALL OTHER HEAD END EQUIPMENT SHALL BE INSTALLED IN THIS RACK/CABINET.		REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE CABLING AS REQUIRED FOR THE TYPE OF CLOCK BEING INSTALLED: - IP BASED CLOCKS - PROVIDE ONE (1) CATEGORY 6 CABLE PER FACE		
WA	WIRELESS MICROPHONE ANTENNA. REFERENCE SPECIFICATIONS FOR MORE INFORMATION.	©	- 12V/24V CLOCK TO BE POWERED VIA A CLOCK POWER SUPPLY AND CONNECTED TO THE SPECIFIED MASTER CLOCK.		
ALA	ASSISTED LISTENING ANTENNA. REFERENCE SPECIFICATIONS FOR MORE INFORMATION.		- 120V CLOCK SHALL BE POWERED VIA 120V ELECTRICAL OUTLET AT THE DEVICE LOCATION AND CONNECTED TO THE SPECIFIED MASTER CLOCK.		
NOTES: 1. REFERENC	E SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS	(C2)	INDICATES THE LOCATION OF A DUAL FACE SECONDARY TIME CLOCK. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROVIDE CABLING AS REQUIRED FOR THE TYPE OF CLOCK BEING INSTALLED:  -IP BASED CLOCKS - PROVIDE ONE (1) CATEGORY 6 CABLE PER FACE		

## **INTERCOM GENERAL NOTES**

THE SYSTEM INSTALLER SHALL PROPERLY SUPPORT ALL INSTALLED SYSTEM CABLING FROM AN APPROVED CABLE SUPPORT SYSTEM AS DETAILED IN SPECIFICATIONS. NO CABLING SHALL BE ROUTED AND TIED DIRECTLY TO BUILDING STEEL, CEILING GRID SUPPORT, CONDUIT, PIPING, OR DUCTWORK. THE CABLE SUPPORT SYSTEM SHALL BE DIRECTLY CONNECTED TO THE BUILDING'S STEEL JOIST. AT LOCATIONS WHERE THE BOTTOM OF THE JOIST IS MORE THAN 5' ABOVE THE CEILING, THE SYSTEM INSTALLER SHALL PROVIDE AND INSTALL THREADED ROD AND ALL REQUIRED MATERIALS TO CONNECT THE THREADED ROD TO THE BUILDING STEEL AND THE CABLE SUPPORT SYSTEM TO THE THREADED ROD. CABLE PATHWAY SHALL NOT BE HIGHER THAN 5' ABOVE THE CEILING AT ANY LOCATIONS.

AUDIO/VIDEO LEGEND

'AV-\*#'

'FSD-\*#'

2-GANGS.

INSTRUCTIONS.

OF THIS LEGEND.

SHOWN ON THE ENTIRE PROJECT:

VENUE THAT THE DEVICE IS ASSOCIATED WITH.

NOTED OTHERWISE.

ASSOCIATED RACEWAY.

BACK CANS AND ASSOCIATED RACEWAY.

LOCATIONS SHOWN ON THE ENTIRE PROJECT.

SERVING THE DEVICES AREA ROOM.

INDICATES THAT THE DESIGNATED TECHNOLOGY OUTLET IS INTENDED FOR AN

AUDIO/VIDEO (A/V) INPUT. CONTRACTOR TO PROVIDE AND INSTALL A FLOOR

MOUNTED OR WALL MOUNTED BOX AS INDICATED. (1) 1.25" CONDUIT AND (1) 1"

CONDUITS FROM THE BOX TO THE NEAREST, PLENUM ACCESSIBLE CEILING WITHIN

THE SAME ROOM. ALL FLOOR AND WALL MOUNTED BOXES SHALL BE A MINIMUM OF

\*# - WHEN REPLACED WITH A '1' (AV-1) ONLY, THE OUTLET SHALL BE A STANDALONE,

OUTLET WILL NOT BE ASSOCIATED WITH ANY SYSTEM FOR ROUTING TO

INDICATES THE LOCATION OF A FLAT PANEL VIDEO DISPLAY. CONTRACTOR TO

PROVIDE AND INSTALL TWO (2) CATEGORY 6 UTP NETWORK CABLE TO ALL

LOCAL INPUT TIED TO A LOCAL VIDEO DISPLAY (FSD, CMP, WMP, AV-2, ETC.). THIS

DISPLAYS LOCATED IN ANY OTHER PORTION OF THE PROJECT. IF NOT REPLACED

WITH A '1' SEE THE NOTES AT THE BOTTOM OF THE LEGEND FOR ADDITIONAL

\*# - WHEN REPLACED WITH A '1' (FSD-1) ONLY, THE OUTLET SHALL BE A STANDALONE

AND ONLY HAVE THE CATEGORY 6 CABLE ROUTED TO IT, FROM THE MDF/IDF

CATEGORY 6 CABLE ROUTED TO IT, FROM THE MDF/IDF SERVING THE DEVICES

# - WHEN NOT REPLACED WITH A '1' OR '2', SEE THE "NOTES" SECTION AT THE END

EACH FSD OUTLET SHALL BE A 2-GANG BOX AND TWO (2) 1.25 CONDUITS STUBBING

INTO THE ROOMS ACCESSIBLE CEILING, PROVIDE ONE DOUBLE-GANG FACEPLATE

\*# - SHALL BE REPLACED WITH ALPHABETICAL CHARACTERS THAT SHALL INDICATE THE SPECIFIC

REFERENCE SCOPE MATRIX AND PROJECT SPECIFICATIONS FOR INSTRUCTIONS REGARDING THE

PROVIDING AND INSTALLATION OF VIDEO DISPLAYS, PROJECTORS, SCREENS, MOUNTS, AND LIFTS.

INTERCOM/CLOCK LEGEND

PROVIDE AND INSTALL A 2"2, TILE REPLACEMENT, CEILING MOUNTED, 25/70V

INTERCOM SPEAKER. SPEAKER TO BE INSTALLED FLUSH WITH CEILING UNLESS

PROVIDE AND INSTALL A 12" CEILING MOUNTED, 25/70V INTERCOM SPEAKER THAT IS

TO BE FLUSH MOUNTED IN A SOLID CEILING ENVIRONMENT. SYSTEM INSTALLER TO

PROVIDE BACK CANS TO PROJECTS ELECTRICAL CONTRACTOR FOR INSTALLATION.

SPEAKER TO BE INSTALLED FLUSH WITH WALL UNLESS NOTED OTHERWISE. SYSTEM

INSTALLER TO PROVIDE BACK CANS TO PROJECTS ELECTRICAL CONTRACTOR FOR

INSTALLER SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION INCLUDING

ON PROJECTS WITHOUT AN ELECTRICAL CONTRACTOR THE INSTALLER SHALL BE

RESPONSIBLE FOR THE COMPLETE INSTALLATION INCLUDING BACK CANS AND

INTERIOR WALL MOUNTED, 25/70V INTERCOM SPEAKER INTERCOM SPEAKER.

INSTALLATION. ON PROJECTS WITHOUT AN ELECTRICAL CONTRACTOR THE

- 12V/24V CLOCK TO BE POWERED VIA A CLOCK POWER SUPLY AND

-120V CLOCK SHALL BE POWERED VIA 120V ELECTRICAL OUTLET AT THE

DEVICE LOCATION AND CONNECTED TO THE SPECIFIED MASTER CLOCK.

CONNECTED TO THE SPECIFIED MASTER CLOCK.

\*# - SHALL BE REPLACED WITH A NUMERIC VALUE THAT SHALL IDENTIFY THE SPECIFIC DEVICE

THE AUDIO/VIDEO SYSTEM INTEGRATOR SHALL COORDINATE ALL BOX AND CONDUIT SIZE

REQUIREMENTS PRIOR TO ROOUGH-IN BY THE PROJECTS ELECTRICAL CONTRACTOR.

# - WHEN REPLACED WITH A '2' (FSD-2) ONLY, THE OUTLET SHALL HAVE THE

AREA, AND THE CABLING FROM THE ASSOCIATED AV-1.

- ... ALL EXTERIOR AND WALL MOUNTED SPEAKERS SHALL BE MOUNTED AT 10'-0" UNLESS OTHERWISE
- EXTERIOR SPEAKERS SHALL BE INDEPENDENTLY ZONED FROM INTERIOR SPEAKERS.
- 4. ALL WALL MOUNTED CALL INITIATING DEVICES SHALL BE INSTALLED AT ADA HEIGHT. MATCHING THE HEIGHT OF THE INSTALLED LIGHT SWITCHES.
- PROVIDE AND INSTALL WALL MOUNTED VOLUME CONTROLS IN ALL OFFICES, CONFERENCE ROOMS, AND CLINICS.
- 6. ALL VOLUME CONTROLS SHALL BE CONFIGURED WITH EMERGENCY CALL OVERRIDE. ALLOWING
- EMERGENCY ANNOUNCEMENTS TO BE HEARD DESPITE THE POSITION OF THE VOLUME CONTROL
- ALL 25/70V SPEAKERS SHALL BE CONNECTED TO A STANDARD PUNCH DOWN BLOCK LOCATED NEAR HEAD END EQUIPMENT AND THEN CONNECTED TO HEAD END EQUIPMENT.
- 8. CONTRACTOR TO TAP ALL EXTERIOR SPEAKERS AT 7 WATTS. 9. ALL EXTERIOR AND WALL MOUNTED SPEAKERS SHALL BE MOUNTED AT 10'-0" UNLESS OTHERWISE

#### **GENERAL NOTES**

- ALL 120V POWER REQUIRED FOR THE FUNCTIONALITY OF EACH SYSTEM SHALL BE A DEDICATED CIRCUIT AND ON EMERGENCY POWER WHEN AVAILABLE. PROJECTS ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER TO MAIN CONTROL PANELS, REMOTE POWER SUPPLIES AND ALL HEAD END EQUIPMENT. SYSTEM INSTALLERS SHALL COORDINATE LOCATIONS AND CONNECTIONS WITH THE PROJECT'S ELECTRICAL CONTRACTOR.
- THE PROJECT'S ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUITS. FLOOR BOX, BACK BOXES, JUNCTION BOXES, RACEWAYS, AND SLEEVES REQUIRED TO ESTABLISH CLEAR PATHWAYS FOR ALL SYSTEMS. ALL CONDUITS, SLEEVES, BOXES, AND RACEWAYS SHALL BE PROPERLY SIZED TO MAINTAIN A 40% MAXIMUM FILL RATIO. THE INSTALLER FOR EACH SYSTEM SHALL PROVIDE THE ELECTRICAL CONTRACTOR WITH SHOP DRAWINGS INDICATING LOCATIONS AND SIZES OF CONDUITS BEYOND THOSE SHOWN ON THE CONTRACT DOCUMENTS.
- ALL EXPOSED SYSTEM'S WIRING OR WIRING ROUTING ACROSS NON-ACCESSIBLE CEILINGS SHALL BE ROUTED IN CONDUIT, PROVIDED AND INSTALLED BY THE PROJECT'S ELECTRICAL CONTRACTOR. SIZE CONDUIT AS REQUIRED TO ROUTE SYSTEMS WITH 40% CABLE FILL RATIO. MINIMUM CONDUIT SIZE SHALL BE 3/4".
- . EACH SYSTEM INSTALLER SHALL BE RESPONSIBLE FOR ENSURING ALL EXTERIOR WALL PENETRATIONS ARE PROPERLY SEALED TO PREVENT ANY MOISTURE FROM ENTERING BUILDING.
- NO CONDUITS SHALL BE INSTALLED ON THE EXTERIOR OF THE BUILDING. IF EXTERIOR CONDUITS ARE REQUIRED FOR A COMPLETE INSTALLATION, EACH SYSTEM CONTRACTOR SHALL COORDINATE WITH THE PROJECTS CONSULTANT PRIOR TO ANY ROUGH-IN.
- EACH SYSTEM INSTALLER SHALL PROVIDE AND INSTALL PROTECTIVE BUSHINGS ON ALL CONDUIT STUB OUTS AND SLEEVES TO PREVENT CABLE DAMAGE. BUSHING TO BE INSTALLED PRIOR TO CABLE INSTALLATION. CUTTING BUSHING AND INSTALLING AFTER CABLE IS INSTALLED WILL NOT
- ALL CABLE SHALL BE ROUTED DOWN CORRIDORS, PARALLEL AND PERPENDICULAR TO THE BUILDING WALLS AND STRUCTURE. CABLE TO EACH DEVICE SHALL BRANCH OFF OF A MAIN CORRIDOR TRUNK. ROUTING CABLES THROUGH CLASSROOMS, OFFICES, STORAGE ROOMS, RESTROOMS OR ANY TYPE OF ROOM OTHER THAN A CORRIDOR WILL NOT BE ACCEPTED. ENTER ALL ROOMS ABOVE THE ASSOCIATED ROOM DOORWAY.

# **TECHNOLOGY GENERAL NOTES**

- CONTRACTOR SHALL COORDINATE WITH THE SYSTEM ENGINEER PRIOR TO THE INSTALLATION OF RACKS AND RACK EQUIPMENT. NO RACKS SHALL BE PERMANENTLY INSTALLED WITHOUT WRITTEN APPROVAL OF THE PROPOSED LOCATIONS.
- THE SELECTED, INSTALLING CONTRACTOR MUST BE A CERTIFIED INTEGRATOR/INSTALLER AUTHORIZED BY THE SPECIFIED SYSTEM MANUFACTURER TO INSTALL THE CABLE PLANT AND CONNECTIVITY PRODUCTS. REFER TO SPECIFICATIONS FOR PRODUCT TYPE AND DESCRIPTION.
- SYSTEM WIRING AND EQUIPMENT INSTALLATION SHALL BE IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AS ESTABLISHED BY ANSI/EIA/TIA, BICSI, AND THE NEC.
- ALL WIRING SHALL MEET ALL STATE AND LOCAL ELECTRICAL CODES.

CABLING.

- . ALL TELECOMMUNICATIONS SYSTEMS EQUIPMENT AND MOUNTING LOCATIONS SHALL BE IN COMPLIANCE WITH ADA ACCESSIBILITY STANDARDS.
- ALL INDUSTRY STANDARD CATEGORY 6 CABLING PRACTICES MUST BE FOLLOWED FOR ALL DATA
- ALL CABLES/WIRING ARE TO BE INSTALLED WITH A MINIMUM OF 12 INCHES OF SEPARATION FROM AC POWER CABLES, INTERCOM, FIRE ALARM, SECURITY CABLES IN ANY PARALLEL OPEN WIRE RUN.
- 8. ALWAYS CROSS OTHER SYSTEM CABLES AT A 90 DEGREE ANGLE.
- ALL CABLES AND TERMINATION COMPONENTS SHALL BE MACHINE LABELED AT BOTH ENDS. LABEL ALL CABLES PER TS DRAWINGS AND/OR SPECIFICATIONS. FINAL CABLE/OUTLET IDENTIFICATION LABELS SHALL BE COORDINATED WITH THE OWNER AND ENGINEER
- 10. CONTRACTOR TO PROVIDE LIGHTNING PROTECTION ON ALL COMMUNICATION CABLE BETWEEN

. ALL EXPOSED CABLING ROUTED IN PLENUM SHALL BE PLENUM-RATED. ALL NON PLENUM-RATED

- CABLING INSTALLED IN PLENUM SPACES SHALL BE INSTALLED IN CONDUIT.
- 12. NO TERMINATION OR SPLICES SHALL BE INSTALLED IN OR ABOVE CEILINGS UNLESS NOTED NOTED
- 13. CONTRACTOR SHALL MAINTAIN WALL RATING WITH PROPER FIRE BLOCKING METHODS.
- 14. ALL CABLE INSTALLED SHALL ROUTE TO THE CENTER OF THE ROOM IN WHICH IT SERVES AND THEN TO THE OUTLET LOCATION IT IS INTENDED FOR. EACH CABLE SHALL HAVE A 10' SERVICE LOOP AT
- 16. PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO EACH VIDEO SURVEILLANCE CAMERA ON THE ENTIRE PROJECT. REFERENCE VIDEO SURVEILLANCE LEGEND, NOTES, FLOOR PLANS, DETAILS, AND SCHEDULE.

THE CENTER OF EACH ROOM AND A 3' SERVICE LOOP ABOVE EACH OUTLET LOCATION.

- 17. PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO THE BUILDING'S ACCESS CONTROL HEAD END PANEL. TERMINATION OF THIS CABLE SHALL BE COORDINATED WITH THE SYSTEM INSTALLER.
- 18. PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO THE BUILDING'S INTRUSION DETECTION PANEL. TERMINATION OF THIS CABLE SHALL BE COORDINATED WITH THE SYSTEM INSTALLER.
- 19. PROVIDE AND INSTALL ONE (1) CATEGORY 6 CABLE TO EACH LIGHTING CONTROL HUB ON THE ENTIRE PROJECT. COORDINATE EXACT QUANTITY AND LOCATIONS WITH THE LIGHTING CONTROL SYSTEM INSTALLER. CONTRACTOR TO ASSUME A MINIMUM OF TEN (10) PER PROJECT.
- PROVIDE AND INSTALL TWO (2) CATEGORY 6 DATA CIRCUITS TO EACH FSD (ALL VARIATIONS OF), CMP, WMP, AND DS ON THE ENTIRE PROJECT. COORDINATE ANY DISCREPANCIES WITH ENGINEER.
- 21. PROVIDE AND INSTALL ONE (1) CATEGORY 6 DATA CIRCUIT TO THE LOCAL AIR UNIT CONTROLLER IN EACH MDF AND IDF.
- 22 PROVIDE AND INSTALL ONE (1) CATEGORY 6 DATA CIRCUIT TO EACH ACCESS CONTROL VIDEO DOOR STATION AND MASTER STATION ON THE ENTIRE PROJECT. COORDINATE EXACT LOCATION AND TERMINATION REQUIREMENTS WITH THE DOOR STATION INSTALLER, PRIOR TO INSTALLATION.

RESPONSIBILITY MA	ATRIX	<b>,</b>		
SCOPE ITEM F		PONSIB	NOTES	
COMMUNICATIONS - DIVISION 27	OFOI	CFCI	OFCI	
CATEGORY 6 STRUCTURED CABLING SYSTEM		Х		
BUILDING INTERCOM/PA, BELL, AND CLOCK SYSTEM		Х		
NETWORK EQUIPMENT	1			
→ MDF/IDF NETWORK EQUIPMENT	Х			
→ VOIP TELEPHONES X				
→ WIRELESS ACCESS POINTS	Х			
→ UNITERRUPTABLE POWER SUPPLIES (UPS)		Х		
RACEWAY: CONDUIT, BACK BOXES, SLEEVES, ETC.		Х		SEE NOTE 1.
ELECTRICAL POWER		Х		SEE NOTE 1.
LIFE SAFETY AND SECURITY - DIVISION 28	OFOI	CFCI	OFCI	
ACCESS CONTROL SYSTEM(ACS)		Х		
INTRUSION DETECTION SYSTEM		Х		
VIDEO SURVEILLANCE SYSTEM (VSS)				
→ VSS SERVERS	X			
→ VSS CAMERAS		Х		
→ VSS PROGRAMMING		Х		
→ VSS CABLING		Х		SEE NOTE 2.
FIRE ALARM SMOKE DETECTION WITH VOICE EVACUATION		Х		SEE NOTE 1.
RACEWAY: CONDUIT, BACK BOXES, SLEEVES, ETC.		Х		SEE NOTE 1.
ELECTRICAL POWER		Х		SEE NOTE 1.
OFOI - OWNER FURNISHED AND OWNER INSTALLED CFCI - CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED	)			

CFCL-CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED OFCI - OWNER FURNISHED AND CONTRACTOR INSTALLED

REPONSIBILITY MATRIX NOTES:

 BY DIVISION 26 BY DIVISION 27

SUBSCRIPTS AND ABBREVIATIONS				
'WM'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE WALL MOUNTED AT SPECIFIED HEIGHT OR IN COMPLIANCE WITH CODE REQUIREMENTS. ALL WALL MOUNTED HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECT'S ARCHITECT PRIOR TO ROUGH-IN.			
'WP'	INDICATES THAT THE DESIGNATED DEVICE SHALL BE WEATHER PROOF AND RATED FOR EXTERIOR CONDITIONS INSTALLATION.			
'AC'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE INSTALLED ABOVE THE COUNTERTOP. A NUMERIC VALUE SHALL REPLACE THE '#' SYMBOL AND SHALL DESIGNATE THE SPECIFIC HEIGHT ABOVE COUNTER. ALL HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECT'S ARCHITECT PRIOR TO ROUGH-IN.			
'AFF'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE INSTALLED ABOVE THE FINISHED FLOOR. A NUMERIC VALUE SHALL REPLACE THE '#' SYMBOL AND SHALL DESIGNATE THE SPECIFIC HEIGHT ABOVE FINISHED FLOOR. ALL HEIGHTS ARE TO BE CONFIRMED WITH THE PROJECT'S ARCHITECT PRIOR TO ROUGH-IN.			
'IIC'	INDICATES THAT THE DESIGNATED DEVICE IS TO BE MOUNTED ON THE			

UNDERSIDE OF THE ELEVATED CANOPY.

PROJECT'S ARCHITECT PRIOR TO ROUGH-IN.

# FIELD COORDINATE ELEVATION.

	FIRE ALARM LEGEND
FACP	FIRE ALARM CONTROL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT
NOTES:	

INDICATES THAT THE DESIGNATED DEVICE IS TO BE CORNER MOUNTED AT

SPECIFIED HEIGHT. ALL WALL MOUNTED HEIGHTS ARE TO BE CONFIRMED WITH THE

FIRE ALARM SYSTEM IS A PERFORMANCE BASED PER SPECIFICATIONS 28 46 00. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- 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.
- PROJECT SCOPE INCLUDES EXPANDING THE EXISTING FIRE ALARM SYSTEM. FIRE ALARM SYSTEM SHALL BE FULLY OPERATIONAL THROUGHOUT ALL PHASES OF CONSTRUCTION.

# NOTES TO CONTRACTOR

. EVERY SYMBOL SHOWN ON LEGEND MAY NOT APPEAR ON DRAWINGS. REFER TO GENERAL ELECTRICAL NOTES FOR WALL-MOUNTED DEVICE MOUNTING HEIGHTS.

- 2. REFERENCE SPECIFICATIONS FOR MATERIALS AND METHODS.
- . COMPLETE INSTALLATION OF ALL PRODUCTS SHALL BE IN COMPLIANCE WITH ALL CODES, INDUSTRY STANDARDS, COMMON PRACTICES AND MANUFACTURER'S INSTRUCTIONS.
- 4. ALL EXTERIOR AND WALL MOUNTED CAMERA LOCATIONS AND MOUNTING HEIGHTS MUST BE COORDINATED WITH THE OWNER PRIOR TO ROUGH-IN. COORDINATION MEETINGS SHALL BE SCHEDULED THROUGH THE ARCHITECT'S PROJECT MANAGER.

# Partnership L.L.C. 201 N. BROADWAY SUITE 210 MOORE, OK. 73160 AGP@theAGP.ne www.theAGP.ne

CEDAR CREEK INC

KFC ENGINEERING

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MECHANICAL / ELECTRICAL

OCTOBER 2022



MOORE PUBLIC SCHOOLS



**NEW ADDITION** KELLEY ELEMENTARY **SCHOOL** 

sheet no:



2600 Van Buren St., Suite 2635 Norman, Oklahoma 73072

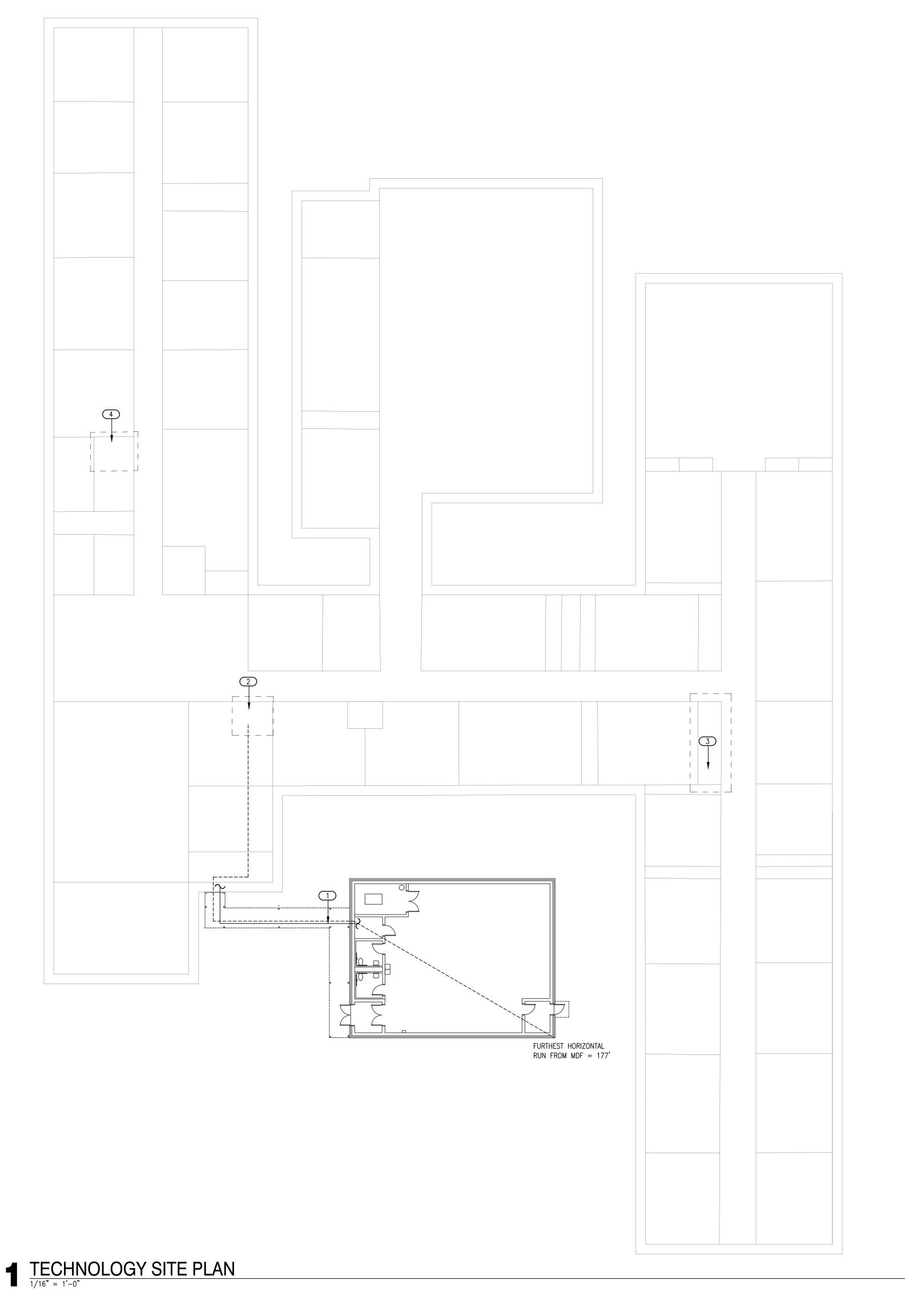
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OWNERSHIP USE OF DOCUMENTS:



# **GENERAL NOTES**

- A. INTERCOM: CONNECT NEW INTERCOM DEVICES TO EXISTING TELECOR
  SYSTEM. INTERCOM WIRE SHALL BE SHIELDED. CONTRACTOR TO PROVIDE
  EQUIPMENT WIRE AND SYSTEM PROGRAMING NEEDED. PROVIDE 4 EXTRA
  SHIELDED INTERCOM WIRES FOR FUTURE USE. PROVIDE ENOUGH SLACK
  TO REACH FURTHEST WALL.
- B. DATA: CONNECT ALL NEW DATA DROPS TO EXISTING MDF LOCATED IN MAIN BUILDING. PROVIDE 4 EXTRA CAT 6 CABLES FOR FUTURE USE. PROVIDE ENOUGH SLACK TO REACH FARTHEST WALL.
- C. SECURITY ALARM: CONNECT NEW SECURITY ALARM DEVICES TO EXISTING DSC SECURITY ALARM SYSTEM LOCATED IN MAIN BUILDING. ALL WIRING SHALL BE NON-SHIELDED. CONTRACTOR TO PROVIDE ALL EQUIPMENT, WIRE AND SYSTEM PROGRAMMING NEEDED.
- D. FIRE ALARM: CONNECT NEW FIRE ALARM DEVICES TO EXISTING SILENT KNIGHT FIRE ALARM SYSTEM LOCATED IN MAIN BUILDING. CONTRACTOR TO PROVIDE ALL EQUIPMENT, WIRE AND SYSTEM PROGRAMMING NEEDED.
- E. CLOCK: CLOCK SHALL BE STAND ALONE 110V CLOCK AMERICAN TIME MODEL E56BAAV304

# **KEYED NOTES**

1 CONTRACTOR TO PROVIDE AND INSTALL (4) 2 INCH METAL CONDUITS TO MAIN BUILDING TO CONNECT TO EXISTING MDF, INTERCOM HEAD END, FACP AND SECURITY ALARM MAIN PANEL. CONDUITS SHALL RUN ABOVE CANOPY AS INDICATED. CONTRACTOR TO PROPERLY SEAL ALL BUILDING PENETRATIONS.

- 2 APPROXIMATE LOCATION OF EXISTING MDF.
- 3 APPROXIMATE LOCATION OF EXISTING IDF.
- 4 APPROXIMATE LOCATION OF EXISTING FACP, INTERCOM HEAD END UNIT AND SECURITY ALARM MAIN CONTROL UNIT.

the Abla Griffin Partnership L.L.C.

> 201 N. BROADWAY SUITE 210 MOORE, OK. 73160 405.735.3477 AGP@theAGP.net www.theAGP.net

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MOORE PUBLIC SCHOOLS

BOARD OF EDUCATION MOORE, OKLAHOMA



NEW ADDITION KELLEY ELEMENTARY SCHOOL

sheet no:

T100



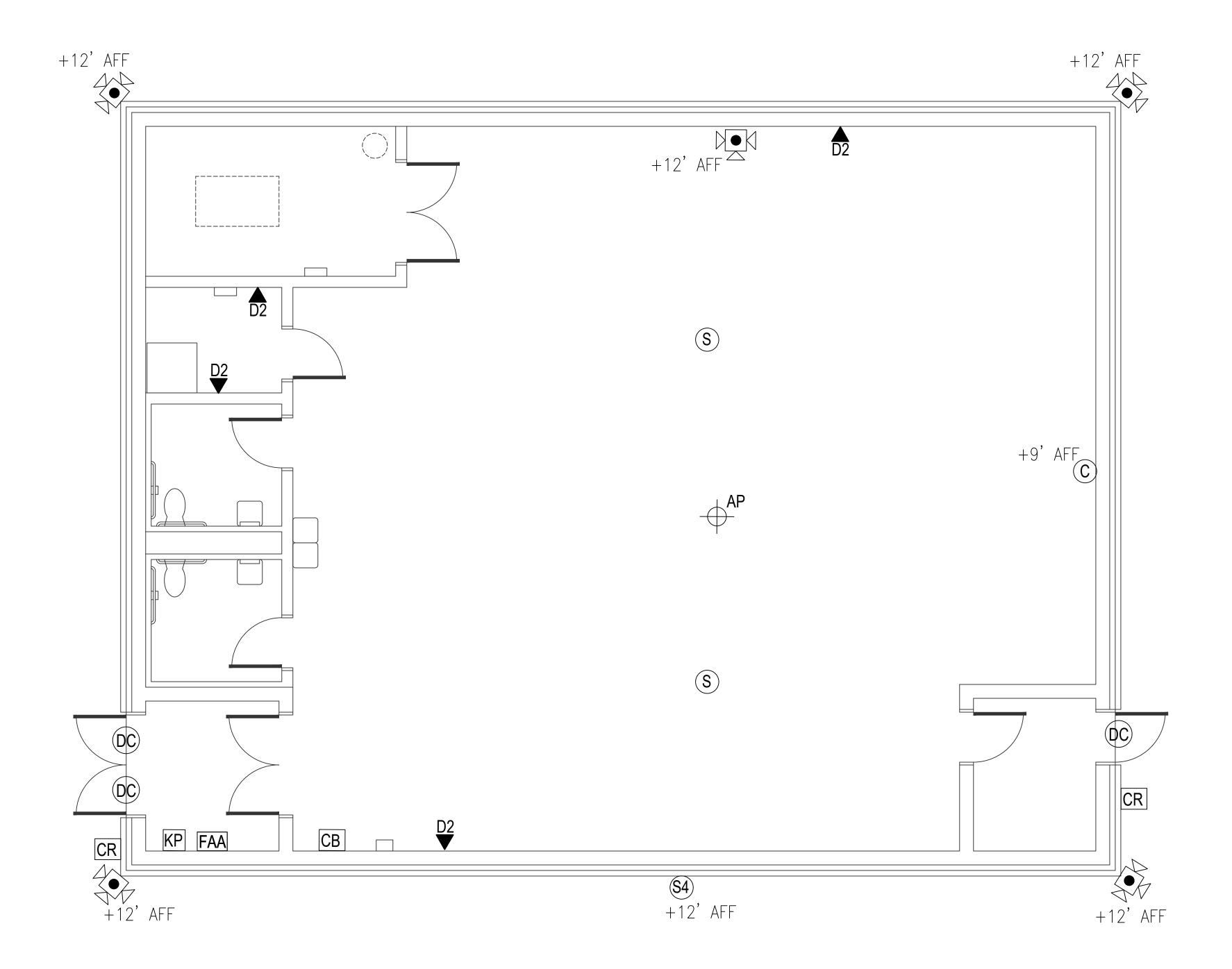
2600 Van Buren St., Suite 2635 Norman, Oklahoma 73072 P: 405.364.9926 | CA#:7058 Expiration Date: 6/30/2023

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# SAFEROOM NOTE

PER ICC 500-2014, 309.1:

PENETRATIONS THROUGH THE STORM SHELTER ENVELOPE THAT ARE LARGER THAN:

1. 3.5" SQUARE INCHES IN AREA FOR RECTANGULAR OPENINGS, OR

2. 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.

# FIRE ALARM

- A. FIRE ALARM SYSTEM IS A PERFORMANCE BASED PER SPECIFICATIONS 28 46 00. CONTRACTOR TO REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- B. 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.
- C. PROJECT SCOPE IS EXPANSION OF AN EXISTING SYSTEM.

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NEW ADDITION KELLEY ELEMENTARY SCHOOL

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#### SYSTEMS SPECIFICATIONS No substitutions. Ensure pulling tensions of cables are not exceeded. STRUCTURED CABLING • Maintain proper cable bend radius of 4 times the cable's outer diameter during placement. Ladder racking **Horizontal Cabling** • Ladder racking shall be Chatsworth #10250-718. No splices are permitted. • No link shall exceed 90 meters. Contractor is responsible for verifying proper footages. The appropriate Chatsworth mounting hardware shall be used. Copper cable shall be Category 6 plenum rated cable (blue in Color) for all work station drops. • Pull one additional "Mule Tape" or 1/4" Nylon rope when pulling cables through any conduit utilizing existing No substitutions. • Copper cable shall be Category 6 plenum rated cable (White in Color) for all Security camera drops. • Mule Tape or Nylon rope is to be pulled into conduit separately and after all other cables have been Power protection power strips • Copper cable shall be Category 6 plenum rated cable (Yellow in Color) for all Wifi drops. • Approved Category 6 cables are as follows. PDU's are to be placed in all data racks. Install sleeves when puncturing walls. Superior Essex Cat6 Plenum Part #'s 77-240-2B blue PDU shall have overload protection and easy to reset circuit breaker. 77-240-4B white Cable shall not be installed between cinder block walls and roof decking. 77-240-6B yellow PDU shall be rack mountable. 77-240-5B green • Cable shall not be installed between red iron and roof decking. PDU shall be constructed from 18 AWG steel. Mohawk Cat6 Plenum Part #'s • Firestop all sleeves and conduit openings after cable installation. M58281B Blue • PDU shall have light emitting diodes to indicate "Power On" and "Ground/Polarity OK" feature. M58280B white • Terminate all pairs and conductors at all ends according to manufacturer's instructions following color code M58283B yellow • PDU shall be rated for 20 Amps and have a 12' L5-20P plug and ten 5-20R receptacles. M58286B green Berk-Tech Cat6 Plenum Part #'s 10136226 blue No substitutions. No splices are permitted in any fiber optic cable except when terminating connectors 10136230 white Installation 10136749 yellow Terminate all Fiber pairs. 10136748 green • All optical fiber cable shall be installed in the fiber panels in accordance with the manufacturer's instructions. Free standing racks General Cat6 Plenum Part #'s 7131800 blue • Optical fiber Back bone cable length shall not exceed 300 meters. 7131841 white 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. 7131802 yellow 7131806 green Copper backbone cable length shall not exceed 90 meters. • All racks must be attached to the floor in four places using appropriate floor mounting anchors. When • All back bone cables (Fiber and Copper) shall have 20' of slack at both ends. placed over a raised floor, threaded rods should pass through the raised floor tile and be secured in the structural floor below. Part 1 - General • Corning rack mount fiber patch panels are to be used where applicable. • Connector shall be Leviton part # 61110-RO6 eXtreme 6 connector for all workstation drops. All rack must be secured to the adjacent wall using ladder rack to stabilize the top of the rack and provide a Outdoor rated fiber will be used for all outdoor fiber runs. cable pathway from the ceiling to the rack. Connector shall be Leviton part # 61110-RW6 eXtreme 6 connector for all Security camera drops. • Stress relief cable and the appropriate building fastener will be used on all aerial runs. • 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. • Connector shall be Leviton part # 61110-RY6 eXtreme 6 connector for all Wifi drops. All aerial cables will be fastened to the stress relief cables. Mount rack mount power strips on rack where active equipment will be placed. 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 • 3" conduit is to be used for all buried runs, accessible at each end, with a pull string inside. Ladder rack A trace wire and warning tape will be buried with all buried runs Contractor shall provide Moore Public Schools, Technology Department, one 10' category 6 patch cord, • Ladder rack shall be attached to the top of the rack to deliver cables to the rack. The rack should not be (blue in color) for each category 6 work station cable installed. Leave in box at network cabinet. To be All bends in conduit will be made with sweeps. drilled to attach ladder rack. Use appropriate hardware from the ladder rack manufacturer. installed by MPS Technology Dept. • Back bone cabling shall utilize a star topology with no more than 2 levels of backbone. • Ladder racking shall be supported every 5' with 3/8" threaded rod anchored and secured to permanent 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 Utilize Velcro ONLY in all closets. • Loading of cable rack shall not exceed 6" depth and should have retainers every 12" to prevent cables from Install all components in a neat and workmanlike manner. spilling over the sides. 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 • Install all horizontal cables and termination frames in accordance with manufacturer's recommendations. Where ladder racking butts up against wall the appropriately sized wall mount bracket shall be utilized. installed by MPS Technology Dept. Ladder rack shall extend vertically up wall and through drop ceiling to gain access to cavity above drop 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 • Label shall be a rap type with number printed multiple times enabling print to be legible from any angle. · 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 • Machine label all termination panels and face plates with cabinet and cable number. Contractor shall provide Moore Public Schools, Technology Department, one 10' category 6 patch cord, • Termination panels shall be labeled in numerical order. Mating pieces of ladder racking together shall utilize appropriate butt splice and junction splice kits. (Yellow in color) for each category 6 Wifi cable installed. Leave in box at network cabinet. To be installed by MPS Technology Dept. • A single drop will be labeled a total of four times. The labels will be located on the patch panel in the rack, • All cut and exposed sharp ends shall utilize a plastic end cap to prevent injury. on both ends of the cable, and on the face plate at the work station end. The labels are to read exactly the • Each cable shall be terminated on the patch panel in data closets. Cable management same in all four locations. • All Category 6 connectors shall be placed into QuickPort faceplates at the workstation end. • All 5' patch cables will be labeled at both ends. 5' cables will be installed at the cabinet. Faceplate shall be Leviton part # 41080-6wp Vertical cable manager shall be installed on every rack vertical rail. Where two rack rails will be butted Numbering scheme will be 00-000 where the first two digits are the cabinet number and the last three are together there shall be two vertical wire managers between the racks. • No substitutions. the drop number. Example, drop number 75 in cabinet 2 will read, 02-075. Horizontal wire managers shall be utilized above and below every copper and fiber patch panel. • Camera drop labels numerically start at 500 in each cabinet. If camera drops already exist in said cabinet Communications Backbone Cabling • All cables shall sweep in and out of any cable management product without a deformation of cable jacket. the next available consecutive number will be used. • Ensure cables are properly supported when using cable management to ensure cables do not sag. • WiFi drop labels numerically start at 800 in each cabinet. If WiFi drops already exist in said cabinet the next Requirements - Optical fiber available consecutive number will be used. Utilize Velcro ONLY for securing of cables on cable management. • 1 Optical fiber cable shall be run from the MDF to each IDF. Example for cabinet 1: Copper and Fiber patching panels Data (blue cable orange jacks) 01-001 to 01-499 • Fiber shall be terminated with LC connectors. Camera (white cable white jacks) 01-500 to 01-799 Route all cables to backside of termination panels in an asymmetrical orientation to ensure cable bundles • Optical fiber cable shall be plenum rated Laser Optimized 50 micron Multi Mode distribution fiber. 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 Optical fiber cable shall be an OM3 rated cable guaranteed to support 10 Gigabit Ethernet for 300 meters • Utilize rear wire management bars for supporting cables into point of termination. using 850 nm wavelength. Secure all cables on all panels using Velcro ONLY to prevent cables from pulling away. • Optical fiber cable shall have 24 strands using industry standard color coding. • Test results for all Category 6 copper and fiber optic cables shall be provided to Moore Public Schools, End of Section Optical fiber cable shall have a flame retardant and low smoke FEP jacket. Technology department. • Optical fiber cable shall support 10GBase-SX applications for the life of the system. **Quality Assurance** End of Section Optical fiber cable shall be armor jacketed or protected inside plenum rated plastic inner duct orange or • Install all components as directed by Manufacturer's installation guidelines. **Communications Equipment Room Fittings** All products shall bear the mark of UL or ETL for performance level. MIC Tight-buffered 024T88-33180-A3 • System installation shall meet all applicable Local/State codes and safety requirements where project is • No substitutions. • Free standing equipment rack shall be Chatsworth #55053-703. All products shall be new and un-used in original packaging. • Free standing racks shall be sized to accept 19" spaced equipment and handle a total weight load of 1, 000 Requirements - Copper backbone Follow and adhere to installation practices specified by the applicable Telecommunications Industry • 6 Cat 6 cables shall be run from the MDF to each IDF. • Free standing racks shall have 3" side rails tapped on both sides with universal hole patterns for threaded • 3 Cat 6 cables shall be run from the phone Dmark to the MDF. • Follow and adhere to installation practices specified by BICSI Information Transport System Installation. No substitutions. • Copper cable shall be Category 6 cable. Green in color Follow and adhere to installation practices specified by BICSI Telecommunications Distribution Methods. Copper Patch panels • Connector shall be Leviton part # 61110-RV6 eXtreme 6 connector. • Follow and adhere to installation practices specified by NFPA-70 National Electric Code. • Patch panel shall be a Leviton #49255-H24 Quick Port 110 panel with cable management bar. • Each cable shall be terminated on the patch panel in data closets. Follow and adhere to installation practices specified by the Manufacturers. • Patch panel shall have 24 ports taking up 1 rack mount unit. • Each cable end shall be terminated using the T568B pin/pair assignment. • Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative. No substitutions. No substitutions. Contractor shall replace all defective components. Horizontal cable management Cable Installation Bidder/Installer Qualifications Horizontal cable manager shall be a 2 RU Chatsworth part #30130-719. Properly support horizontal cables in ceiling every 4'-5' using J-Hooks or cable tray only. (no slings, No substitutions. Bidding Contractor shall be a licensed to install telecommunications systems in the state where work will be pouches, or D rings.) Place horizontal cables in pathways and spaces dedicated for communications cables. No pathways shall | Vertical cable management Bidding Contractor shall be Leviton certified for at least one year be in or above the red iron. Data cable will be run in separate pathways from all other cables. • Vertical cable manager shall be Chatsworth part #30095-703. • Provide 30' of slack at station end in ceiling and not inside wall. Bidding Contractor shall have a minimum of 5 years experience installing structured cabling for No substitutions. telecommunications. Slack shall be rolled neatly in a 2' loop and hanging from a j-hook in ceiling above drop location. • Bidding Contractor shall have the capability to bond project in its entirety. Optical fiber patch panel / enclosure • Cat 6 data cables are to be terminated using the T568B standard. Bidding Contractor shall be able to provide insurance at the request of the owner.

• Optical fiber enclosure shall be Corning LC loaded rack mount panel.

the Manufacturer's telecommunications products.

CCH-04U

CCH-01U

CCH-CP24-E4

SOC-LC-900-OM4

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 ½" un-twisting and no more than ½"

• Ensure terminations have no un-twisting and that tower separators are utilized to separate pairs.

un-jacketing and are in accordance with manufacturer's recommendations.

Delivery, Storage, and Protection 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. 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. • 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 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 1.02a Intercom Systems Equipment Description - 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 Advanced Cabling, Inc - 405-418-4322 High-Tech Tronics, Inc - 405-495-0215 1.02b Intercom Systems Equipment Description - Rauland Telecenter U IP Intercom 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 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 1.03 Systems Installation All non-IP cabling shall be shielded and have a minimum of 5 conductors. • All network IP cabling shall be Cat6 (see structured cabling System Specifications for cabling information) • All wire shall be shielded and have a minimum of 5 conductors. • All circuits and wiring shall be labeled at all terminating ends. All devices shall be mounted according to the manufactures specifications. • All devices shall be properly adjusted and tested prior to job completion. • All 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 • 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. • 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. 1.04 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 All products shall be new and un-used in original packaging. 1.03.02 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. Installer shall have an onsite supervisor and one technician who are certified by the Manufacturer to install • Contractor is responsible for all materials, tools and vehicles left on the job site. Follow Manufacturer's recommendations for handling of materials. • 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 • 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. Part 3 - Execution • Communications Contractor shall coordinate a disposal bin for the removal of all trash produced by the Communications Contractor personnel during the project.

End of Section

Intercom System Specifications

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.

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.

End of Section

#### 1.04 Submittals

1.04.01 Prior to installation

Show compete map of system design for approval by Owner.

#### 3.02 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.

End of Section

#### Intercom System Installation Completion Check List

#### Part 1 - General

1.01 Section Includes

Intercom System Completion Check List

## 1.02 Completion Check List

Main control panel has a map of the entire system inside and a copy has been given to Jack Phillips with

## 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

#### **Clock System Specifications**

# Part 1 - General

# 1.01 System Manufacture

• Clock Equipment shall match existing system. (Must be compatible with schools existing system.) 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 Intercom Clock Systems Equipment Description

 Intercom Digital Clocks shall be hard wired and may not use battery power for its primary power source. Clocks shall be 4 inch and be compatible with existing system. Clocks must be compatible with existing clock system.

Partnership L.L.C.

201 N. BROADWAY SUITE 210 MOORE, OK. 73160 405.735.3477 AGP@theAGP.net www.theAGP.net

CEDAR CREEK INC

KFC ENGINEERING STRUCTURAL

SALAS O'BRIEN

MECHANICAL / ELECTRICAL

OCTOBER 2022

MOORE PUBLIC SCHOOLS BOARD OF EDUCATION MOORE, OKLAHOMA



**NEW ADDITION** KELLEY ELEMENTARY **SCHOOL** 

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SALASOBRIEN

2600 Van Buren St., Suite 2635 Norman, Oklahoma 73072 P: 405.364.9926 | CA#:7058 Expiration Date: 6/30/2023

Salas O'Brien Project No.: 2022-04164-00

#### All products shall be new and un-used in original packaging. 1.03.02 Bidder/Installer Qualifications Intercom 12" Analog Clock shall be hard wired and may not use battery power for its primary power source. Clock must be compatible with existing clock system. **Security System** Bidding contractor shall be a local licensed Commercial Burglar Alarm Company with licensed Commercial Burglar **Specifications** If 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 Part 1 - General Stand-alone dual face hallway clock shall be American Time E93BAQD204BP 2.01 Manufacturers An 110v electric clock receptacle shall be installed at each clock location for future devices. Security System Manufacturer shall be DSC. (No Substitutions) 1.03 Systems Installation • Peripheral device Manufacturers shall be according to equipment list. (No Substitutions) All devices shall be mounted according to the manufactures specifications. • Cable Manufacturer shall be Genesis. (Or Equivalent) All devices shall be properly adjusted and tested prior to job completion. Security Systems Equipment All extra wire taps shall be insulated. Security alarm Graphic Touchscreen keypad with Prox Reader shall be DMP Model # 7872 (No Substitutions) Projective grommets shall be installed on all conduits to protect wire. Security alarm 5 Amp power supply shall be DMP Model # 505-12-G. (No Substitutions) 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. Zone expansion module shall be DMP 714-16 All wire ran between building shall be in conduit and shall be direct burial cable. It shall be a minimum of 5 Relay Output Module shall be DMP 860. conductor 18 AWG copper. Security alarm 35'x35' motion detector shall be Honeywell Model # DT-8035. (No Substitutions) 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 Security alarm 50'x60' motion detector shall be Honeywell Model # DT-8050. (No Substitutions) the proper locations. Security alarm window glass break sensor shall be Honeywell Model # FG-730. (No Substitutions) Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008. Security alarm recessed 3/4" wide gap door contact shall be GE Model # 1078CW-M. (No Substitutions) Follow and adhere to installation practices specified by the Manufacturers. Security alarm recessed 1" wide gap door contact shall be GE Model # 1076D-M. Double Pole Double Throw for 1.06 Sequencing 1.04 Quality Assurance doors with access control (No Substitutions) 1.04.01 Qualifications Security alarm C channel door magnets shall be GRI Model # MC180 Install all components as directed by Manufacturer's installation guidelines. Security alarm surface window contact shall be Aleph Model # PS-1541. (Or equivalent approved by MPS) 1.07 Scheduling All products shall bear the mark of UL or ETL for performance level. Security alarm overhead door contact shall be Amseco Model # ODC-59A or for rail mount applications Interlogix GE2315AL. (No Substitutions) System installation shall meet all applicable Local/State codes and safety requirements where project is located. 1.08 Warranty Security alarm indoor siren shall be Ademco Model # Wave2EX. (No Substitutions) All products shall be new and un-used in original packaging. Security alarm outdoor siren shall be ATW Model # DS301SET. 1.04.02 Bidder/Installer Qualifications Security alarm outdoor strobe shall be Amseco Model # SL401C. (No Substitutions) Part 2 - Products Bidding contractor shall have a minimum of 5 years experience installing school intercom systems. 1.01 Systems Installation Bidding contractor shall be able to provide insurance at the request of the owner. All alarm junctions and or splices shall be soldered and insulated. 1.05 Delivery, Storage, and Protection All circuits and wiring shall be labeled at all terminating ends. Contractor shall ensure that materials delivery to work area shall be coordinated with construction site manager Part 3 responsible for materials distribution to all trades. All devices shall be mounted according to the manufactures specifications. Contractor is responsible for all materials, tools and vehicles left on the job site. All devices shall be properly adjusted and tested prior to job completion. Follow Manufacturer's recommendations for handling of materials. All zone expansion module shall be DMP 714-16 and Relay Output Module shall be DMP 860. All cabinets shall be labeled outside with their corresponding module and zone numbers and installed with lock. 1.06 Scheduling All cabinets shall be labeled inside with module number by the corresponding module and zone list definitions. 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. Main control panel shall have a CAT 6 cable ran between the main control and the phone company DMARC for monitoring purposes. Each expansion cabinets shall have two non-sheilded16 gauge 4 conductor cables ran from the main control to the Contractor shall provide a 1 year parts and labor warranty against defective workmanship and/or system All devices such as motion detectors, glass break detectors, door contacts, Keypads etc. shall be labeled with their corresponding module and zone number. Label shall be visible from the floor. Part 3 - Execution All motion detectors shall be sealed to prevent air and insects from entering. All steel doors shall have wide gap contacts installed. 3.01 Field Quality Control 3.04 Protection All door contacts shall be recessed and door magnets shall be glued in place. Contractor shall make available all ceiling and termination work for inspection by Manufacturer's representative or owner's representative. All devices such as door contact (double doors wire as one), motion detectors, glass break detectors, etc. shall be wired individually on separate zones with end of line resistors at the devices. Contractor shall replace all defective components. All air conditioning condensers accessible from the outside and roof shall have pressure switches installed on the high pressure side and be connected to the security alarm. 3.02 Adjusting Protective grommets shall be installed on all conduits to protect wire. No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative. All devices shall be wired with NON shielded cable. 3.03 Protection All panels, power supplies and modules shall be grounded. It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project All wire shall be run in J hooks above ceiling with a minimum space of 4" from ceiling deck. All wire shall be in with appropriate materials. separate pathways 6" from other system wiring. No wire ties allowed. No wire shall be run between the red iron and Remove all protective covers and protective materials from equipment prior to turnover to Owner. • All wire visible from the finished floor shall be covered in decorative wire molding. 3.04 Schedules 1.02 Submittals All wire ran between building shall be in conduit and shall be non shielded direct burial cable. It shall be a minimum Codrdinate work with Owner's project manager and follow scheduling sequence as established by Owner's of 4 conductor 16 AWG copper. project manager Installer shall have a commercial burglar technician on the job site at all times during installation. It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is met 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. 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. Follow and adhere to installation practices specified by NFPA-70 National Electric Code, Edition 2008. are installed in the proper locations. Follow and adhere to installation practices specified by the Manufacturers. Part 1 - General End of Section 1.02 Products Installed but not Supplied Under This Section 1.04 Submittals All conduit and EMT required for Fire cabling pathway in/out of closets and in/out of wall cavities at the work area 1.04.01 Prior to installation EMT or Conduit for pathways shall have no more than two 90 degree sweeps and no continuous section over 100'. | 1.02 Completion Check List Show compete map of system design for approval by Owner. 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. End of Section Back boxes for the mounting of Fire Devices. Clock System Installation Drag line or pull string at the back boxes fished through EMT or conduit to the other end for installing Fire Cabling Completion Check List Part 1 - General 1.01 Section Includes 1.03 Quality Assurance Clock System Completion Check List 1.03.01 Qualifications 1.02 Completion Check List Install all components as directed by Manufacturer's installation guidelines. All Clocks have been tested for proper operation and synchronization. All products shall bear the mark of UL or ETL for performance level. End of Section System installation shall meet all applicable Local/State codes and safety requirements where project is located.

Bidding contractor shall have at least one year experience installing DSC 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 Regulrements 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 Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams for the lifecycle of the project. 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. 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) 2.02 Source Quality Control Materials shall be purchased from Distributors authorized by system Manufacturers to sell new and unused components. 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. No additional work outside of the contract scope of work shall be completed without the approval of the Owner or Owner's representative Contractor shall sweep and mop the floors of all equipment rooms or connection point closets prior to turnover to the 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. Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date is 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 1.03.01 Prior to installation Show compete map of system design for approval by Owner. Security System Installation Completion Check List 1.01 Section Includes Security System 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.

SYSTEMS SPECIFICATIONS

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. End of Section 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 **Access Control System** Specifications **Access Control Equipment** 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)

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.

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 250 = 2 Door 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 2,4 or 8 Door Reader Control Panel per site shall be equipped with (1) Keyscan Netcom2p module. If the site has an existing 2,4 or 8 Door Control Panel with a Netcom2P already installed, then a Netcom 2P is not needed and CIM or CIM-Link modules shall be used to connect the new Control Panel to the existing Control Panel. • All Reader Control Panels shall be linked together with either CIM or CIM-Link modules.

Each new Reader Control Panel shall be capable of 2 doors minimum

## Elementary School Card Readers shall be (No Substitutions)

HID 13.56 MHz SINGLE GANG BACK BOX MOUNT READ ONLY CONTACTLESS SMART CARD READER KEYSCAN HIGH SECURITY FORMAT C/W 36 BIT WIEGAND OUTPUT- Part # KR40SE (For use in all locations except where mullion mount reader size is required to fit)

HID 13.56 MHz MULLION MOUNT READ ONLY CONTACTLESS SMART CARD READER - KEYSCAN HIGH SECURITY FORMAT C/W 36 BIT WIEGAND OUTPUT- Part # KR10SE (For use on mullion mount locations where single gang reader KR40SE is too large)

HID 13.56 MHz SINGLE GANG BACK BOX MOUNT READ ONLY C/W KEYPAD CONTACTLESS SMART CARD READER HIGH SECURITY FORMAT C/W 36 BIT WIEGAND OUTPUT- Part # KRK40SE (Do not use unless noted)

# Jr High & High School Card Readers shall be (No Substitutions)

 HID 13.56 MHz SINGLE GANG BACK BOX MOUNT READ ONLY CONTACTLESS SMART CARD READER - HID ICLASS SE R40 Part # 920NTNNEK00000 (For use in all locations except where mullion mount reader size is required to fit)

HID 13.56 MHz MULLION MOUNT READ ONLY CONTACTLESS SMART CARD READER - FULL MULLION HID ICLASS SE R15 Part # 910NTNNEK00000 or MINI-MULLION HID ICLASS SE R10 Part # 900NTNNEK00000 (For use on mullion mount locations where single gang reader R40 is too large)

All Readers require 22/6 STR OAS Wire

# Elementary, Jr High & High School Access Control Cards shall be (No Substitutions)

 HID SEOS Part # 5006PGGMN 48-bit HID Global Corporate 1000 format. (Cards must be ordered from ADI or Anixter. MPS shall provide the Format & Facility Code to winning bidder.) Provide Moore Public Schools with 100 Cards

Access Control Strikes and locks shall be (No Substitutions unless approved by Moore Public Schools) RCI 0163X32D ½ inch Rim RCI 0162X32D ¾ inch Rim

RCI F0162X32D ¾ inch Rim Fire Rated RCI F2164X32D

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)

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- AQM20-8C/16C, AQD5-8C or equal.

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

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)

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

3.01.1 Submittals

3.01.2 Prior 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

## 3.02 Quality Assurance

3.02.1 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.

Access Control Installation

Completion Check List

Access Control System Completion Check List

# 4.02 Completion Check List

Part 4 - General

4.01 Section Includes

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.

SALASOBRIEN

2600 Van Buren St., Suite 2635 Norman, Oklahoma 73072 P: 405.364.9926 | CA#:7058 Expiration Date: 6/30/2023

Salas O'Brien Project No.: 2022-04164-00

Partnership L.L.C.

201 N. BROADWAY SUITE 210 MOORE, OK. 73160 405.735.3477 AGP@theAGP.net www.theAGP.net

CEDAR CREEK INC

KFC ENGINEERING

STRUCTURAL

SALAS O'BRIEN

MECHANICAL / ELECTRICAL

MOORE, OKLAHOMA

MOORE PUBLIC SCHOOLS

**BOARD OF EDUCATION** 

OCTOBER 2022

**NEW ADDITION** KELLEY ELEMENTARY SCHOOL

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# Local Authority Having Jurisdiction 4.05 Definitions AWG - American Wire Gauge EIA - Electronics Industry Alliance NFPA - National Fire Protection Agency UL - Underwriters Laboratory 4.07 Project Conditions 4.07.1 Environmental Requirements 4.07.2 Field Measurements 4.08 Sequencing for the lifecycle of the project. 4.09 Scheduling terminations and testing once scheduling sequence has been determined to the Owner's Project Manager. 4.10 Warranty component failure. (1 year warranty shall begin at job completion) 4.11 Source Quality Control Part 5 -5.01 Field Quality Control owner's representative. 5.02 Adjusting Owner's representative. 5.03 Cleaning the Owner. with appropriate materials. Remove all protective covers and protective materials from equipment prior to turnover to Owner. 5.05 Schedules

# 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 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

#### BICSI - Building Industry Consulting Service International

FCC - Federal Communications Commission

#### NECA - National Electrical Contractors Association

#### 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.

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

Contractor shall coordinate with Owner's project manager on sequencing of various trades and construction teams

Contractor shall provide a detailed construction schedule with hard dates for completion of roughing in cables,

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

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

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

No additional work outside of the contract scope of work shall be completed without the approval of the Owner or

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

- It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project
- Coordinate work with Owner's project manager and follow scheduling sequence as established by Owner's project
- It is recommended that the Contractor schedule closely with any other systems contractor to ensure turnover date
- 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

#### Fire System Specifications

#### Part 1 - General

#### 2.01 Manufacturers

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

#### 1.03 Fire Systems Equipment Description

- Fire alarm control shall be Silent Knight Model # 6820. (No Substitutions)
- Fire alarm distributed power module NAC Expansion shall be Silent Knight / Fire-Lite Model #'s SK-PS6 / FL-PS6 or 1.03 Quality Assurance SK-PS10 / 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 signaling line circuit expander shall be Silent Knight Model # 5815XL. (No Substitutions)
- Fire alarm addressable manual pull station shall be Silent Knight Model # SD500-PSDA. (No Substitutions)
- CO Detector shall be System Sensor Model # CO1224T. (No Substitutions) An SD500-AIM shall be installed on each CO1224T and be accessible from the finished floor.
- Fire alarm addressable photoelectric smoke detector shall be Silent Knight Model # SD505-PHOTO. (No Substitutions)
- Fire alarm addressable heat detector shall be Silent Knight Model # SD505-HEAT. (No Substitutions)
- Fire alarm base for Silent Knight Model #'s SD505-PHOTO and SD505-HEAT shall be Silent Knight Model # SD505-6AB. (No Substitutions)
- Fire alarm addressable input module shall be Silent Knight Model # SD500-AIM. (No Substitutions)
- Fire alarm addressable relay module shall be a Silent Knight Model # SD500-ARM. (No Substitutions)
- Fire alarm SLC line isolator shall be Silent Knight Model # SD500-LIM. (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
- 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 system shall be as needed Silent Knight SKE-450 (Single Zone), SKE-450-ZN4 (4 Zone) or SKE-450-ZN6 (6 Zone). (No Substitutions)
- Fire alarm Duct detectors and Duct Detector Remote Test Stations shall be Silent Knight Model #'s SD505-DUCTR and SD505-DTS-K. (No Substitutions)

# 1.01 Systems Installation

(No Substitutions)

- All fire alarm junctions and or splices shall be soldered and insulated.
- All Ceiling mounted devices shall be mounted on non-stainable ceiling tiles.
- All circuits and wiring shall be labeled at all terminating ends.
- All fire system wiring shall be RED in color and non-shielded. • All devices shall be mounted according to the manufactures specifications.
- All devices shall be properly adjusted and tested prior to job completion.
- All fire pulls shall be dual action.
- All Initiating Devices shall be labeled with their corresponding module and point number. Smoke detector label shall 3.03 Protection be on smoke detector and smoke detector base and be clearly visible from the finished floor.
- All Each Initiating Device Circuits (IDC) shall have Line Isolator Modules installed at the SLC Head End.
- All Initiating Device Circuits (IDC) shall be wired Class B (NFPA Style B).
- All Initiating Device Circuits (IDC) shall be wired with minimum 18 AWG gauge red NON Shielded cable.
- All duct detectors shall be connected to fire system and shall have remote test stations installed accessible and visible from the finished floor. They shall be labeled with their corresponding module and point number.

• All duct detector ARM / AIM shall be installed adjacent to the remote test stations and accessible and visible from

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

#### 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.

# 1.03.01 Qualifications

SYSTEMS SPECIFICATIONS

- 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.

It is the responsibility of the Contractor to ensure equipment is protected from dust and water during the project with

End of Section

appropriate materials • Remove all protective covers and protective materials from equipment prior to turnover to Owner.

## 1.04.01 Prior to installation

1.04 Submittals

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

#### **Fire System Installation** Completion Check List

## Part 1 - General

## 1.01 Section Includes

Fire System Completion Check List

1.02 Completion Check List A map of the entire system showing device numbers and wire routes has been left inside the main control panel and

All panel programming has been checked and is correct.

a copy has been given to Rodney Cobb with MPS.

- 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 horn/strobes and strobes have been tested for proper operation.

All points have been tested to verify proper description at the keypad.

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

#### End of Section

# IP camera Specifications

IP CAMERA MANUFACTURE is AVIGILON (NO SUBSTITUTIONS).

#### **Moore Public Schools** IP camera Specifications

# **AVIGILON EQUIPMENT**

#### INDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST 4.0C-H5A-D1-IR

ACC7-ENT LICENSE - 1 per camera

INDOOR MULTI-HEAD 3 HEAD CAMERA REQUIRED EQUIPMENT LIST 9C-H4A-3MH-180 (3x3MP) POE-INJ2-60W-NA Power Injector ACC7-ENT LICENSE - 1 per camera

# INDOOR MULTI-HEAD 4 HEAD CAMERA REQUIRED EQUIPMENT LIST

H4AMH-AD-CEIL1

H4AMH-DC-COVR1

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

#### OUTDOOR DOME SINGLE HEAD CAMERA REQUIRED EQUIPMENT LIST 6.0C-H5A-DO1-IR

ACC7-ENT LICENSE - 1 per camera

OUTDOOR MULTI-HEAD 3 HEAD CAMERA CORNER MOUNT REQUIRED EQUIPMENT LIST 15C-H4A-3MH-270 (3x5MP) POE-INJ2-60W-NA Power Injector ACC7-ENT LICENSE - 1 per camera H4AMH-AD-PEND1 H4AMH-DO-COVR1

H4AMH-AD-IRIL1

#### H4-MT-CRNR1 OUTDOOR MULTI-HEAD 3 HEAD CAMERA WALL MOUNT REQUIRED EQUIPMENT LIST 15C-H4A-3MH-180 (3x5MP) POE-INJ2-60W-NA Power Injector ACC7-ENT LICENSE - 1 per camera H4AMH-AD-PEND1

H4AMH-DO-COVR1

H4AMH-AD-IRIL1

IRPTZ-MNT-WALL1

- Install single head cameras on adjacent walls were possible. If it must be mounted on ceiling, it shall be on a water-resistant non-stainable ceiling tile. MPS to have final determination of camera location and field of view) (Call Jack Phillips for final location and view
- Any cameras installed on ceiling shall be mounted on a water-resistant non-stainable ceiling
- 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.

and testing requirements.

- **Horizontal Cabling** Requirements • See MPS Structured Cabling Specifications for camera network cabling installation, labelling
- Communications Contractor shall provide a 1 year parts and labor warranty against defective

• Communications Contractor shall execute a Lifetime Applications Assurance Warranty for

workmanship and/or system component failure.

# parts and labor to support stated applications from the connectivity Manufacturer.

End of Section

## **Audio Visual Systems for Instructional Spaces Specifications**

# Part 1 - General

1.02 Special Spaces

1.03 Flat Panel Displays

1.01 Instructional Spaces Reference technology drawings and detail sheet T504 for classroom configuration and part numbers.

All non interactive Flat Panel displays shall be 43" Samsung BE Series.

## Reference technology drawings and one line diagrams.

Bio Lab 37 displays shall be ceiling mounted.

• Career Tech 12 and Career Tech 15 displays shall be wall mounted 55" AFF to center of display.

End of Section

Partnership L.L.C.

201 N. BROADWAY SUITE 210 MOORE, OK. 73160 405.735.3477 AGP@theAGP.net www.theAGP.net

CEDAR CREEK INC

KFC ENGINEERING

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MOORE PUBLIC SCHOOLS **BOARD OF EDUCATION** 



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