SECTION 28 20 00

VIDEO SURVEILLANCE

PART 1 – GENERAL

A. SUBJECT TO CHANGE
   1. These standards are subject to change. Verify that the latest are being used. Product manufacturers listed is the basis of design or equivalent unless noted otherwise.

B. PURPOSE
   1. The purpose of this document is to provide design guidelines for architects, engineers, consultants, and contractors with an understanding of the minimum requirements for Telecommunications Infrastructure and other Technology systems for any building related project within the Cherry Creek School District (CCSD). If the building is existing, the requirements outlined below should be met to best of the ability of the design team and/or contractor. If the building is new construction, the requirements outlined below must be adhered to unless written approval is provided from CCSD IST prior to design completion.

C. DESIGN REQUIREMENTS
   1. The design of the structured cabling and other technology systems for a new construction or renovation project shall be completed by a pre-approved CCSD Facilities and CCSD IST engineer/consultant. The engineer/consultant is typically selected by CCSD Facilities as a sub consultant to the Architect of the project, but can also be selected by CCSD IST directly if the project is technology systems specific. The engineer/consultant shall have an RCDD on staff and shall be responsible for the daily management of the project and its design. The engineer/consultant shall coordinate with the Architect and CCSD IST for a minimum of two (2) plan reviews during the design phase of the project. In addition, the engineer/consultant may be requested to include standard Contract Administration services including but not limited to Request for Information responses, Submittal Reviews, Site Observations, Final Punch walk, and review of contractor provided close out documents.
   2. Because of the constant product changes and approach, need to review with CCSD staff on the particular project. Request current equipment and component list from CCSD.
   3. Refer to Division 26 for conduit, boxes, sleeves, conduit support, etc. requirements.

D. SUMMARY – SECTION INCLUDES
   1. Video Surveillance

E. VIDEO SURVEILLANCE
   1. Requirements for video surveillance
      a. Submittal
      b. Video surveillance system shall follow current structured cabling section 27 10 00. CCSD IST is responsible for the video surveillance systems throughout the school district. In addition, CCSD IST has been contracting directly with one or two preferred contractors to install the cameras. CCSD IST utilizes Video Insight for the Video Management Software and purchase camera licensing directly from the manufacturer. CCSD IST has a central storage set up for video storage located in the data center located at the ISF building and add to it as needed. CCSD IST is responsible for providing programming, licensing, and video storage for the video surveillance system. The cameras for the video surveillance system needs to be verified whether CCSD IST will provide them or if they are provided by the approved manufacturer. The video surveillance system provider is responsible for configuring of parameters to allow for accessibility such as IP address, phone numbers, and username/password. Only the cabling and pathways for the system is to be included in any design and installation unless directed otherwise by CCSD IST.
      c. Each camera location shall have one Category 6 cable meeting the horizontal cabling standards listed in section 27 10 00. The cabling shall be provided by the cabling contractor and shall meet the same 20 year certification requirements outlined for the voice and data cabling. In addition, all pathway requirements in section 27 10 00 apply to camera cabling. Motion sensors located throughout the space. Typically located near each entry/exit as well as main corridors and stairwells. CCSD Security and IST will provide final locations during design.
      d. Camera locations are often based off of the usage of the building. Typically, all building entry/exits have an interior camera viewing the entry/exit. Some main corridors typically have camera coverage as well as some specialty areas. The design team to coordinate locations of all cameras with CCSD Security and IST during the design phase of the project and cabling and pathway requirements communicated in the construction documents.
      e. Provide preparatory work by all trades for exterior camera locations, when possible, a recess mounted 1900 electrical box with a single gang mud ring to bring it flush to the finished surface. The box to be located near the corners of the building with 18 inch radius clear access around, both inside and outside of the building.

f. Refer to responsibility matrix below

MATRIX OF CONSTRUCTION RESPONSIBILITIES

THE RESPONSIBILITIES LISTED HEREIN ARE PROVIDED AS A RECOMMENDATION AND DO NOT SUPERSEDE OR REPLACE ANY CONTRACTS, OR OTHERWISE DEFINED RESPONSIBILITIES, BETWEEN THE DESIGNATED PARTIES. IN ADDITION, THE INFORMATION IS MEANT TO INDICATE GENERAL RESPONSIBILITY FOR A SCOPE OF WORK AND IN NO WAY DISALLOWS THE RESPONSIBLE PARTY TO SUBCONTRACT THE SCOPE.

RESPONSIBLE PARTY	GENERAL CONTRACTOR		ELECTRICAL CONTRACTOR		TELECOM CONTRACTOR		LOW VOLTAGE CONTRACTOR		AUDIO-VIDEO CONTRACTOR		SECURITY CONTRACTOR		OWNER		NOTES
SCOPE OF WORK	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	
BUDGET OF WORK	CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		FIX-FURN-EQUIP		
SITE															
INCOMING SERVICE PROVIDER CABLING & COORDINATION													X	X	1
EXTERIOR CONDUIT PATHWAY / DUCTBANK			X	X											
INTERIOR INFRASTRUCTURE															
GROUNDING & BONDING			X	X	X	X									3, 4
INTERIOR CONDUIT PATHWAY			X	X											
BACKBOX / JUNCTION BOX			X	X											
FLOOR BOX / POKE THROUGH			X	X		X									5
CABLE TRAY			X	X											
J-HOOK / SLING					X	X									
SLEEVE / CONDUIT PENETRATIONS			X	X	X	X									6, 7
TELECOMMUNICATIONS															
PLYWOOD BACKBOARD	X	X													
LADDER RACK / LADDER RUNWAY / ACCESSORIES					X	X									
RACK / FRAME / CABINET (TELECOM)					X	X									
WIREMANAGER					X	X									
FIBER PATCH PANEL					X	X									
COPPER PATCH PANEL					X	X									
POWER DISTRIBUTION UNIT (PDU)					X	X									
UNINTERRUPTIBLE POWER SUPLY (UPS)					X	X									
MISCELLANEOUS RACK COMPONENTS (DRAWER, SHELF, ETC.)					X	X									
BACKBONE CABLING SYSTEM (NETWORK, VOICE, CATV)					X	X									
HORIZONTAL CABLING SYSTEM (NETWORK, VOICE, CATV)					X	X									
FACEPLATE / JACK / SURFACE MOUNT BOX					X	X									
PATCH CABLE (INTERIOR TO TELECOMMUNICATIONS ROOM)					X									X	
PATCH CABLE (END DEVICE / OUTLET)					X	X		X		X		X		X	2
LABELING					X	X									
MEDIA CONVERTERS / COPPER EXTENDERS FOR NETWORK CABLING					X	X									
WIRELESS ACCESS POINT (WAP)						X							X		
BUILDING NETWORK (LAN) EQUIPMENT (SWITCH, HEADEND, ETC.)													X	X	9
PERIPHERAL EQUIPMENT (PHONE, PRINTER, PC, ETC.)													X	X	
LOW VOLTAGE (LV)															
PAGING / PUBLIC ADDRESS							X	X							
CELLULAR DISTRIBUTED ANTENNA SYSTEM (DAS)	X	X													
BUILDING NETWORK (LAN) CABLING TO LV SYSTEM(S)					X	X									
AUDIO VISUAL (AV)															
RACK / FRAME / CABINET (AV)									X	X					
AMPLIFIER / CONTROLLER / PROCESSOR / MATRIX									X	X					
MICROPHONE									X	X					
FACEPLATE / JACK									X	X					
CABLING (NON-NETWORK)									X	X					
SPEAKER									X	X					
DISPLAY & MOUNT									X	X					
DISPLAY BACKING	X	X													
PROJECTOR									X	X					
PROJECTOR SCREEN									X	X					
AUDIO VIDEO NETWORK EQUIPMENT (SWITCHES AND CABLING)									X	X					9
BUILDING NETWORK (LAN) CABLING TO AUDIO VIDEO SYSTEM(S)					X	X									9
SECURITY - ACCESS CONTROL SYSTEM (ACS)															
ACS HEADEND / CONTROLLER / PANEL											X	X			
ACS SOFTWARE, PROGRAMMING, & INTEGRATION											X	X	X	X	
CARD READER / KEYPAD AND LICENSE (AUTHENTICATION DEVICE)											X	X			
REQUEST TO EXIT (WHEN NOT INTEGRAL TO DOOR HARDWARE)											X	X			
INTERCOM & INTERCOM MASTER STATION											X	X			
DOOR POSITION SWITCH											X	X			
DOOR RELEASE BUTTON											X	X			
DOOR HARDWARE / COMPONENTS	X	X													
BUILDING NETWORK (LAN) CABLING TO ACS					X	X									9
SECURITY - VIDEO SURVIELLANCE SYSTEM (VSS)															
VSS NETWORK VIDEO RECORDER (NVR)													X	X	
VSS SOFTWARE, PROGRAMMING, & INTEGRATION													X	X	
CAMERA AND LICENSE											X	X			
BUILDING NETWORK (LAN) CABLING TO VSS					X	X									9
SECURITY - INTRUSION DETECTION SYSTEM (IDS)															
ID HEADEND / CONTROLLER / PANEL											X	X			
ID SOFTWARE, PROGRAMMING, & INTEGRATION											X	X			
MOTION SENSOR &/OR GLASS BREAK SENSORS											X	X			
LOCK-DOWN BUTTON											X	X			
PANIC / DURESS BUTTON											X	X			
AUTO-DIALER & DIAL DESTINATION COORDINATION											X	X			
BUILDING NETWORK (LAN) CABLING TO IDS					X	X									9

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING TIMELINE OF INSTALLATION AND REQUIREMENTS FOR INSTALLATION TO ENSURE A TIMLEY INSTALLATION.
2. THE PARTY RESPONSIBLE FOR INSTALLING THE END DEVICE (PC, CAMERA, WAP, ETC.) SHALL BE RESPONSIBLE FOR INSTALLING THE END-OF-RUN PATCH CABLE. AFTER INSTALLATION, VERIFICATION OF OPERABILITY IS REQUIRED.
3. THE ELECTRICAL CONTRACTOR SHALL i) EXTEND THE BUILDING GROUND TO EACH TELECOMMUNICATION SPACE ii) PROVIDE AND INSTALL THE BUSBAR(S), GROUNDING CABLES, AND ASSOCIATED EQUIPMENT, iii) AND ENSURE EACH TELECOMMUNICATION SPACE HAS PROPER ACCESS TO BUILDING GROUND THROUGH THE LOCAL BUSBAR AS SHOWN IN THE DRAWINGS.
4. FOR ALL DEVICES, EQUIPMENT, PATHWAY, AND OTHER SUCH MATERIAL REQUIRED TO BE GROUNDED, THE CONTRACTOR/PARTY, WITH WHICH THE DEVICE, EQUIPMENT, PATHWAY OR OTHER SUCH MATERIAL WAS INSTALLED BY, SHALL BE RESPONSIBLE FOR ITS PROPER BONDING AND GROUNDING.
5. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION AND INSTALLATION OF ALL FLOOR BOXES AND POKE THROUGHS, AS WELL AS ALL CONDUIT/PATHWAY REQUIREMENTS PERTAINING TO IT, REGARDLESS IF THERE IS POWER CABLING INCLUDED AT DEVICE. THE TELECOM CONTRACTOR SHALL COORDINATE WITH DRAWINGS AND ELECTRICAL CONTRACTOR TO ENSURE LOW VOLTAGE INFRASTRUCTURE AND CABLING REQUIREMENTS ARE MET AND SHALL PROVIDE AND INSTALL ALL CABLING AND FACEPLATE/TERMINATION EQUIPMENT PERTAINING TO DEVICE.
6. FOR ALL PENETRATIONS SHOWN IN DRAWINGS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ENSURE THE EXTERIOR OF EACH PENETRATION IS FIRE-RATED TO MATCH OR EXCEED THE PENETRATED SURFACE.
7. ALL PENETRATIONS NOT SHOWN ON DRAWINGS, BUT REQUIRED FOR CABLING INSTALLATION, SHALL BE PROVIDED AND INSTALLED BY THE CABLING INSTALLATION CONTRACTOR/TEAM. FOR FIRE-RATED PENETRATIONS, THE CABLE INSTALLATION CONTRACTOR/TEAM SHALL ENSURE THE EXTERIOR OF EACH PENETRATION IS FIRE-RATED TO MATCH OR EXCEED THE PENETRATED SURFACE. AFTER ALL CABLING IS INSTALLED, TESTED, AND ACCEPTED, THE INTERIOR OF EACH PENETRATION SHALL BE FIRE-RATED TO MATCH OR EXCEED THE PENETRATED MATERIAL.
8. IT IS ACCEPTABLE FOR THE CONTRACTOR TO REUSE AN EXISTING DEVICE WITH OWNER APPROVAL. COORDINATE WITH OWNER PRIOR TO ANY NEW DEVICE PROCUREMENT TO RECORD ALL DEVICES THAT MAY BE REUSED. FOR ALL DEVICES SCHEDULED FOR REUSE THAT REPLACE AN ITEM SCHEDULED FOR NEW, A CREDIT SHALL BE GIVEN TO OWNER FOR ITEM REPLACEMENT.
9. THE BUILDING NETWORK IS THE LOCAL AREA NETWORK (LAN) OF THE BUILDING AND CONNECTS DIRECTLY TO THE INCOMING SERVICE PROVIDER; IT PROVIDES GENERAL ACCESS TO THE WIDE AREA NETWORK (WAN). OTHER SYSTEMS MAY UTILIZE NETWORK EQUIPMENT TO SUPPORT THEIR SPECIFIC NEEDS, HOWEVER, THIS EQUIPMENT IS SEPARATE AND DISTINCT FROM THE BUILDING NETWORK (LAN) AND ASSOCIATED

END OF SECTION

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SECTION 28 30 00

FIRE DETECTION AND ALARM SYSTEM

PART 1 – GENERAL

A. SUBJECT TO CHANGE
   1. These standards are subject to change. Verify that the latest are being used. Product manufacturers listed is the basis of design or equivalent unless noted otherwise.
   2. Refer to Division 26 for conduit requirements.

B. SUMMARY – SECTION INCLUDES
   1. Fire Detection and Alarm System
   2. Refer to Division 26 for conduit, boxes, sleeves, conduit support, etc. requirements.

C. FIRE DETECTION AND ALARM SYSTEM
   1. Requirements for fire detection and alarm system
      a. Submittal
      b. Fire Detection and Alarm System to meet the requirements of the State of Colorado, local jurisdictional authority, and the following as a minimum
      c. Manufactured by Notifier or Simplex
      d. Detection as required and noted
      e. Interface with kilns
      f. Interface with kitchen hoods
      g. Interface with elevators
      h. Interface with rack sound systems to shunt them during alarm condition
      i. Interface with auditorium lighting system transfer switch
      j. Design by supplier, where existing system is replaced review existing program and incorporate existing to remain devices and areas covered
      k. Design sealed by supplier engineer
      l. Meet the requirements of the local jurisdiction
      m. Duct mounted smoke detectors addressable
      n. Air handling shut down via control module and not the local duct mounted smoke detector contacts
      o. Spare battery capacity of 20 percent
      p. Detection device and remote unit interface (RUI) wiring in conduit
      q. Notification device wiring in plenum or conduit
      r. Visual alarm to comply with Americans with Disabilities Act
      s. Full testing prior to fire department testing
      t. Initiation Device:
         1. Smoke Detection
            i Smoke detectors in all electrical rooms and communication equipment rooms
            ii Smoke detectors in corridors where the building is not protected by fire sprinkler system. If the building is protected by fire sprinkler system, then apply the exception in the International Fire Code that allows the smoke detectors to be omitted
            iii Smoke detector above the fire alarm control panel
            iv Smoke detectors in all kindergarten classrooms and other rooms used for pre-school children and daycare purposes
            v Smoke detectors in all rooms used for children with special needs
            vi Smoke detectors in all computer classrooms
            vii Smoke detectors in elevator lobbies, elevator machine room, and top of shaft for elevator recall

viii Smoke detectors on either side of doors held open with magnetic hold open devices in accordance with NFPA
ix Smoke detectors required for smoke damper control and release of roll-up doors. Coordinate with specifier and installer of roll-up doors to provide remote reset of door release device
x Wire guards for devices located in gymnasiums.

2. Heat Detection
   i Heat detectors located in all areas where detection is required, but not suitable for smoke detectors
   ii Heat detectors located in all mechanical equipment rooms
   iii 135 degrees Fahrenheit rate of rise heat detectors in chemical storage areas, science preparation rooms, and science classrooms
   iv In buildings not protected by fire sprinkler system, heat detectors set at the highest programmable fixed temperature possible in boiler rooms, chiller rooms, and similar rooms
   v Adjust sequence for electric kiln only, electric kiln with gas kiln, or gas kiln. Kiln rooms to have two (2) thermal detectors, one (1) fixed temperature of 135 degrees Fahrenheit, and one (1) fixed temperature of 200 degrees Fahrenheit. The 135 degree device to initiate supervisory alarm, shutdown electric kilns, shutdown of natural gas, and electric kiln fans. The 200 degree device to initiate evacuation alarm and shutdown of kiln hood fans. Refer to previous kiln wiring diagrams for additional information (coordinate interface with building automation system designer/installer, electrical contractor, and fire alarm design/installer).
   vi Heat detectors in elevator machine room and elevator shaft adjacent to sprinkler heads at a rating above that of the sprinkler head for shunt-trip of power to the elevator machinery
   vii Wire guards for devices located in gymnasiums

3. Duct Mounted Smoke Detection
   i Intelligent analog/addressable type that initiate a supervisory alarm duct mounted smoke detectors
   ii Duct mounted smoke detectors sampling return air for all air handling equipment of more than 2,000 cubic feet per minute of air volume. Duct mounted smoke detection for all air handling equipment with a combined capacity of more than 2,000 cubic feet per minute of air volume serving the same area.
   iii All air handling equipment of more than 15,000 cubic feet per minute of volume serving two (2) or more stories duct mounted smoke detectors sampling return air at each return air riser connections
   iv Duct mounted smoke detectors located within five (5) feet of smoke dampers unless an approved alternate method can be applied

u. Manual pull station:
   1. Dual action type manual pull stations.
   2. In general, minimize quantity of manual pull stations to code required only.
   3. In existing buildings, remove as many of the existing manual pull stations as possible.
   4. In non-fire sprinkler protected buildings, manual pull stations located at building exits from every floor, and at doors with direct exit from building.
   5. In fire sprinkler protected buildings, manual pull stations locate one in a supervised location.
   6. Manual pull stations mounted at 48 inches above finished floor to operating mechanism.

7. Wire guards for devices located in gymnasiums.

v. Carbon Monoxide (CO) Sensor:
   1. Part of smoke detector or thermal detector base with ten (10) year module life and initiates supervisory alarm carbon monoxide (CO) detectors. Fire alarm control panel to report condition of module including time left.
   2. Carbon monoxide detectors located in first room served by natural gas heat air handling equipment
   3. Carbon monoxide detectors located in boiler and other mechanical equipment rooms with gas fired equipment
   4. Carbon monoxide detectors located in kiln rooms shall override building automation system to initiate the starting of kiln hood exhaust fans. Refer to previous kiln wiring diagrams for additional information (coordinate interface with building automation system designer/installer, electrical contractor, and fire alarm design/installer).

w. Fire Sprinkler Monitoring:
   1. Monitor all fire sprinkler water flow switches with a dedicated homerun to the fire alarm control panel
   2. Monitor all fire sprinkler water valve tamper switches with addressable monitor module

x. Distributed Antenna System Monitoring:
   1. Monitor the distributed antenna system components and report supervisory alarm

y. Notification Device:
   1. Conventional speakers and speaker/strobes (addressable not acceptable) to be located to provide a minimum of 15 dB above ambient sound levels throughout all portions of the building. Voice intelligibility to be verified after installation.
   2. Ceiling mounted speaker/strobes are preferred over wall mounted in instructional spaces, toilet rooms, and offices. Locate in center of room as much as possible, but not to exceed 5 feet in any direction from the center unless approved by the engineer or jurisdictional authority. When ceiling mounting is not practical, locate on wall with the bottom of the strobe lens at 80 inches above finished floor or top at 6 inches below the ceiling, whichever is lower. For specific limited applications, mount on wall strobe lens at 96 inches above finished floor. Each location approved in writing by the engineer or jurisdictional authority.
   3. Speaker/strobes located in all common public areas, including corridors, instructional spaces, kindergarten classrooms, pre-school classroom, toilet rooms (except single water closets), open office areas, mechanical equipment rooms and high-noise areas and all areas where more than one person occupancy
   4. Strobes located in clinics, conference rooms, smaller toilet rooms, copy rooms, work rooms, storage rooms greater than 400 square feet, storage rooms where high occupant usage levels anticipated under normal conditions, and in offices capable of more than one occupant
   5. Exterior weatherproof horn/strobe at fire department response point and any playground areas mounted at 10 feet above grade. The horns able to be silenced.
   6. Temporal code 4 for carbon monoxide initiated alarm without separate signaling devices
   7. Wire guards for devices located in gymnasiums

z. Fire Detection and Alarm Cabling:
    1. Minimum size fire alarm cable with stripping as follows.
    2. 16/2 red with green stripe for speakers
    3. 14/2 red with yellow stripe for strobes
    4. 14/2 red with purple stripe for 24 volts DC power
    5. 18/2 red with no stripe for SLC (IdNET)
    6. All initiation device wiring in minimum 3/4 inch conduit or Type MC-FPLP Cable in existing building with approval
    7. All notification device wiring may be plenum wiring with proper support.

END OF SECTION

SECTION 28 50 10

ACCESS CONTROL AND INTRUSION DETECTION

PART 1 – GENERAL

A. SUBJECT TO CHANGE
   1. These standards are subject to change. Verify that the latest are being used. Product manufacturers listed is the basis of design or equivalent unless noted otherwise.

B. PURPOSE
   1. The purpose of this document is to provide design guidelines for architects, engineers, consultants, and contractors with an understanding of the minimum requirements for Telecommunications Infrastructure and other Technology systems for any building related project within the Cherry Creek School District (CCSD). If the building is existing, the requirements outlined below should be met to best of the ability of the design team and/or contractor. If the building is new construction, the requirements outlined below must be adhered to unless written approval is provided from CCSD IST prior to design completion.

C. DESIGN REQUIREMENTS
   1. The design of the structured cabling and other technology systems for a new construction or renovation project shall be completed by a pre-approved CCSD Facilities and CCSD IST engineer/consultant. The engineer/consultant is typically selected by CCSD Facilities as a sub consultant to the Architect of the project, but can also be selected by CCSD IST directly if the project is technology systems specific. The engineer/consultant shall have an RCDD on staff and shall be responsible for the daily management of the project and its design. The engineer/consultant shall coordinate with the Architect and CCSD IST for a minimum of two (2) plan reviews during the design phase of the project. In addition, the engineer/consultant may be requested to include standard Contract Administration services including but not limited to Request for Information responses, Submittal Reviews, Site Observations, Final Punch walk, and review of contractor provided close out documents.
   2. Because of the constant product changes and approach, need to review with CCSD staff on the particular project. Request current equipment and component list from CCSD.
   3. Refer to Division 26 for conduit, boxes, sleeves, conduit support, etc. requirements.

D. SUMMARY – SECTION INCLUDES
   1. Access Control and Intrusion Detection

E. ACCESS CONTROL AND INTRUSION DETECTION
   1. Requirements for access control and intrusion detection system
      a. Submittal
      b. Access control and intrusion detection shall follow current structured cabling section 27 10 00. Preferred access control integrator is Paladin Technologies, Inc. (PTI). It is expected that PTI will provide all hardware associated with the access control and intrusion detection systems, however conduits, back boxes, and cabling are expected to be included in the scope of the general contractor. The district has standardized on Honeywell DMP XR series panels for IDS installations and the Pro 4200 for ACP solutions for access control and intrusion detection systems. The engineer/consultant shall provide design for the pathways for these systems based on coordination with CCSD and these vendors.

c. Each door with access control shall consist of a card reader, electric lock (strike/ hardware), and door contact, and be integrated with the ADA operator when applicable. A 3/4 inch conduit routed from the back box of each access control device to a consolidation box above each door and in case the door hardware is an electrified crash bar, the manufacturer to provide a remote above ceiling power supply to meet the need of power required for the lock device, this may be used as the consolidation box. From the consolidation box a 1 inch conduit shall run to the telecom room which PTI designates as the room designated as the room to house the access control panel and power supply. It is anticipated that card readers be located at the main building entry/exit as well as the kitchen entry/exit. Additional locations may be required around the perimeter depending on playground equipment locations, after care usage, and other considerations. In addition, there are some interior doors that require card readers which include all telecom rooms. Additional interior and exterior locations coordinated with CCSD Security and IST during design. All exterior door locations shall have a door contacts. Motion sensors located throughout the space. Typically located near each entry/exit as well as main corridors and stairwells. CCSD Security and IST will provide final locations during design.
d. These systems are wired in a loop configuration. Consultant/engineer to coordinate with CCSD for location of devices. It shall be the contractor's responsibility to provide a 16/4 bus cable in a loop configuration around the interior perimeter of the building, one each floor. Both ends of the loop shall terminate in a telecom room designated by Integrated Systems. A 22/2 wire shall be provided from each motion detector and door contact to the buss loop. An 22/2, 22/6, 18/4, and 22/4 composite cable shall be home run by the contractor from each door that has a card reader running from the consolidation box back to the access control panel location. In addition, the main entry and service entry locations require an 18-4 cable pulled with the door package wire and a single gang backbox in the entry vestibule for the purpose of being the local arming station for the building intercom. These locations will require a Category 6 cable and 18-4 cable to the location of the ACP headend. An 18-4 cable to the main officer reception desk to permit for remote release of the interior main entry, as well office door (if installed).
e. Sequence of actions as follows. The IDS panel will be armed by the ACP via relay logic and disarmed by any valid card read to gain entry to the building. The IDS panel remote armed/disarmed is from Winpak software at dispatch. Only keypad on site is installed at the headend location.
f. Door contacts on the IDS system are used as status point monitoring involved with the local LED visual annunciator. The purpose of this device to provide at a glance verification that the building is secure, all doors must be shut. Annunciator model is H. R. Kirkland Company, RSE-L-GR-GP3.
g. Integration of the ADA operator as follows. The unsecured side button should not be active until a valid card read, then button can be pressed and the operator will open the door. From the secured side of the door, when the ADA button is pressed, unlock the door, and then operator will open the door. Intention of this design is to prevent unnecessary wear/abuse to the ADA hardware, and door frame/door.
h. Buildings require auxiliary alarm components provided by Integrated Systems that include based on the systems and building. The components shall be tied into the access control system and provide by Integrated Systems, unless noted otherwise. All devices adjusted by the type of systems in the building or site. Coordinate with the design team and CCSD Facilities. All wiring in 3/4 inch conduits.
    1. Monitor phase monitor at each electrical service (Time Mark phase monitor provided by the electrical distribution system and monitored by access control system)

2. Environmental items
    i. Boiler low temperature alarm strap on aquastat installed on the return piping of the boiler (Honeywell/Resideo L6006C1018)
    ii. Boiler room wall with probe drilled through wall with Air Shunt device on the same alarm point as the boiler low temperature alarm (Air Shunt 2E399A)
    iii. Low temperature sensor on the ceiling per floor on the northwest corner of the building (Pottor RTS or Winland Electronics, Inc. TA-40)
    iv. Water sensors near floor drains in unfinished areas and boiler rooms (Winland Electronics, Inc. Waterbug 200)
    v. High water level sensors in sumps and lift station basins (monitor control panel alarm point)

i. Refer to responsibility matrix below

MATRIX OF CONSTRUCTION RESPONSIBILITIES

THE RESPONSIBILITIES LISTED HEREIN ARE PROVIDED AS A RECOMMENDATION AND DO NOT SUPERSEDE OR REPLACE ANY CONTRACTS, OR OTHERWISE DEFINED RESPONSIBILITIES, BETWEEN THE DESIGNATED PARTIES. IN ADDITION, THE INFORMATION IS MEANT TO INDICATE GENERAL RESPONSIBILITY FOR A SCOPE OF WORK AND IN NO WAY DISALLOWS THE RESPONSIBLE PARTY TO SUBCONTRACT THE SCOPE.

RESPONSIBLE PARTY	GENERAL CONTRACTOR		ELECTRICAL CONTRACTOR		TELECOM CONTRACTOR		LOW VOLTAGE CONTRACTOR		AUDIO-VIDEO CONTRACTOR		SECURITY CONTRACTOR		OWNER		NOTES
SCOPE OF WORK	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	FURNISH	INSTALL	
BUDGET OF WORK	CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		CONSTRUCTION		FIX-FURN-EQUIP		
SITE															
INCOMING SERVICE PROVIDER CABLING & COORDINATION													X	X	1
EXTERIOR CONDUIT PATHWAY / DUCTBANK			X	X											
INTERIOR INFRASTRUCTURE															
GROUNDING & BONDING			X	X	X	X									3, 4
INTERIOR CONDUIT PATHWAY			X	X											
BACKBOX / JUNCTION BOX			X	X											
FLOOR BOX / POKE THROUGH			X	X		X									5
CABLE TRAY			X	X											
J-HOOK / SLING					X	X									
SLEEVE / CONDUIT PENETRATIONS			X	X	X	X									6, 7
TELECOMMUNICATIONS															
PLYWOOD BACKBOARD	X	X													
LADDER RACK / LADDER RUNWAY / ACCESSORIES					X	X									
RACK / FRAME / CABINET (TELECOM)					X	X									
WIREMANAGER					X	X									
FIBER PATCH PANEL					X	X									
COPPER PATCH PANEL					X	X									
POWER DISTRIBUTION UNIT (PDU)					X	X									
UNINTERRUPTIBLE POWER SUPLY (UPS)					X	X									
MISCELLANEOUS RACK COMPONENTS (DRAWER, SHELF, ETC.)					X	X									
BACKBONE CABLING SYSTEM (NETWORK, VOICE, CATV)					X	X									
HORIZONTAL CABLING SYSTEM (NETWORK, VOICE, CATV)					X	X									
FACEPLATE / JACK / SURFACE MOUNT BOX					X	X									
PATCH CABLE (INTERIOR TO TELECOMMUNICATIONS ROOM)					X									X	
PATCH CABLE (END DEVICE / OUTLET)					X	X		X		X		X		X	2
LABELING					X	X									
MEDIA CONVERTERS / COPPER EXTENDERS FOR NETWORK CABLING					X	X									
WIRELESS ACCESS POINT (WAP)						X							X		
BUILDING NETWORK (LAN) EQUIPMENT (SWITCH, HEADEND, ETC.)													X	X	9
PERIPHERAL EQUIPMENT (PHONE, PRINTER, PC, ETC.)													X	X	
LOW VOLTAGE (LV)															
PAGING / PUBLIC ADDRESS							X	X							
CELLULAR DISTRIBUTED ANTENNA SYSTEM (DAS)	X	X													
BUILDING NETWORK (LAN) CABLING TO LV SYSTEM(S)					X	X									
AUDIO VISUAL (AV)															
RACK / FRAME / CABINET (AV)									X	X					
AMPLIFIER / CONTROLLER / PROCESSOR / MATRIX									X	X					
MICROPHONE									X	X					
FACEPLATE / JACK									X	X					
CABLING (NON-NETWORK)									X	X					
SPEAKER									X	X					
DISPLAY & MOUNT									X	X					
DISPLAY BACKING	X	X													
PROJECTOR									X	X					
PROJECTOR SCREEN									X	X					
AUDIO VIDEO NETWORK EQUIPMENT (SWITCHES AND CABLING)									X	X					9
BUILDING NETWORK (LAN) CABLING TO AUDIO VIDEO SYSTEM(S)					X	X									9
SECURITY - ACCESS CONTROL SYSTEM (ACS)															
ACS HEADEND / CONTROLLER / PANEL											X	X			
ACS SOFTWARE, PROGRAMMING, & INTEGRATION											X	X	X	X	
CARD READER / KEYPAD AND LICENSE (AUTHENTICATION DEVICE)											X	X			
REQUEST TO EXIT (WHEN NOT INTEGRAL TO DOOR HARDWARE)											X	X			
INTERCOM & INTERCOM MASTER STATION											X	X			
DOOR POSITION SWITCH											X	X			
DOOR RELEASE BUTTON											X	X			
DOOR HARDWARE / COMPONENTS	X	X													
BUILDING NETWORK (LAN) CABLING TO ACS					X	X									9
SECURITY - VIDEO SURVIELLANCE SYSTEM (VSS)															
VSS NETWORK VIDEO RECORDER (NVR)													X	X	
VSS SOFTWARE, PROGRAMMING, & INTEGRATION													X	X	
CAMERA AND LICENSE											X	X			
BUILDING NETWORK (LAN) CABLING TO VSS					X	X									9
SECURITY - INTRUSION DETECTION SYSTEM (IDS)															
ID HEADEND / CONTROLLER / PANEL											X	X			
ID SOFTWARE, PROGRAMMING, & INTEGRATION											X	X			
MOTION SENSOR &/OR GLASS BREAK SENSORS											X	X			
LOCK-DOWN BUTTON											X	X			
PANIC / DURESS BUTTON											X	X			
AUTO-DIALER & DIAL DESTINATION COORDINATION											X	X			
BUILDING NETWORK (LAN) CABLING TO IDS					X	X									9

NOTES:

1. CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING TIMELINE OF INSTALLATION AND REQUIREMENTS FOR INSTALLATION TO ENSURE A TIMLEY INSTALLATION.
2. THE PARTY RESPONSIBLE FOR INSTALLING THE END DEVICE (PC, CAMERA, WAP, ETC.) SHALL BE RESPONSIBLE FOR INSTALLING THE END-OF-RUN PATCH CABLE. AFTER INSTALLATION, VERIFICATION OF OPERABILITY IS REQUIRED.
3. THE ELECTRICAL CONTRACTOR SHALL i) EXTEND THE BUILDING GROUND TO EACH TELECOMMUNICATION SPACE ii) PROVIDE AND INSTALL THE BUSBAR(S), GROUNDING CABLES, AND ASSOCIATED EQUIPMENT, iii) AND ENSURE EACH TELECOMMUNICATION SPACE HAS PROPER ACCESS TO BUILDING GROUND THROUGH THE LOCAL BUSBAR AS SHOWN IN THE DRAWINGS.
4. FOR ALL DEVICES, EQUIPMENT, PATHWAY, AND OTHER SUCH MATERIAL REQUIRED TO BE GROUNDED, THE CONTRACTOR/PARTY, WITH WHICH THE DEVICE, EQUIPMENT, PATHWAY OR OTHER SUCH MATERIAL WAS INSTALLED BY, SHALL BE RESPONSIBLE FOR ITS PROPER BONDING AND GROUNDING.
5. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION AND INSTALLATION OF ALL FLOOR BOXES AND POKE THROUGHS, AS WELL AS ALL CONDUIT/PATHWAY REQUIREMENTS PERTAINING TO IT, REGARDLESS IF THERE IS POWER CABLING INCLUDED AT DEVICE. THE TELECOM CONTRACTOR SHALL COORDINATE WITH DRAWINGS AND ELECTRICAL CONTRACTOR TO ENSURE LOW VOLTAGE INFRASTRUCTURE AND CABLING REQUIREMENTS ARE MET AND SHALL PROVIDE AND INSTALL ALL CABLING AND FACEPLATE/TERMINATION EQUIPMENT PERTAINING TO DEVICE.
6. FOR ALL PENETRATIONS SHOWN IN DRAWINGS, THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL. THE ELECTRICAL CONTRACTOR SHALL ENSURE THE EXTERIOR OF EACH PENETRATION IS FIRE-RATED TO MATCH OR EXCEED THE PENETRATED SURFACE.
7. ALL PENETRATIONS NOT SHOWN ON DRAWINGS, BUT REQUIRED FOR CABLING INSTALLATION, SHALL BE PROVIDED AND INSTALLED BY THE CABLING INSTALLATION CONTRACTOR/TEAM. FOR FIRE-RATED PENETRATIONS, THE CABLE INSTALLATION CONTRACTOR/TEAM SHALL ENSURE THE EXTERIOR OF EACH PENETRATION IS FIRE-RATED TO MATCH OR EXCEED THE PENETRATED SURFACE. AFTER ALL CABLING IS INSTALLED, TESTED, AND ACCEPTED, THE INTERIOR OF EACH PENETRATION SHALL BE FIRE-RATED TO MATCH OR EXCEED THE PENETRATED MATERIAL.
8. IT IS ACCEPTABLE FOR THE CONTRACTOR TO REUSE AN EXISTING DEVICE WITH OWNER APPROVAL. COORDINATE WITH OWNER PRIOR TO ANY NEW DEVICE PROCUREMENT TO RECORD ALL DEVICES THAT MAY BE REUSED. FOR ALL DEVICES SCHEDULED FOR REUSE THAT REPLACE AN ITEM SCHEDULED FOR NEW, A CREDIT SHALL BE GIVEN TO OWNER FOR ITEM REPLACEMENT.
9. THE BUILDING NETWORK IS THE LOCAL AREA NETWORK (LAN) OF THE BUILDING AND CONNECTS DIRECTLY TO THE INCOMING SERVICE PROVIDER; IT PROVIDES GENERAL ACCESS TO THE WIDE AREA NETWORK (WAN). OTHER SYSTEMS MAY UTILIZE NETWORK EQUIPMENT TO SUPPORT THEIR SPECIFIC NEEDS, HOWEVER, THIS EQUIPMENT IS SEPARATE AND DISTINCT FROM THE BUILDING NETWORK (LAN) AND ASSOCIATED

END OF SECTION