OPEN THIS DOCUMENT FIRST: Design Standards Process

Overview:

SCCD has established standards for design and construction to ensure equity and consistency in facilities and for efficiency in operations and maintenance. The Standards consist of **Design Standards** that are directives and information that Design Consultants should incorporate into their contract documents (drawings and specifications). A few disciplines have also provided **Construction Specifications** and **Typical Details**, which should be customized to the design project.

These Standards were developed by the District, with intensive input from District Facilities, Maintenance and Operations personnel, in addition to IT personnel and the Security shared governance Committee for relevant sections. The Standards are based on prior experience at the District and the best practices from other California Community Colleges, and the products selected were carefully evaluated based on criteria that included aesthetics & user comfort, durability, ease of maintenance, sustainable properties/practices and cost.

Purpose:

These Design Standards are a tool to clarify direction and streamline project execution for design professionals, construction managers and other participants in capital improvement projects. They represent the District's "strong preference" and should be applied, when possible, without compromising the creativity of the overall design. Final disposition, color, size, product choice etc. should conform to the best extent possible where equivalent substitutes are allowed in the Design Standard. If equivalent substitutes are allowed only "if performance and quality equivalency can be evidenced" or the consultant wishes to deviate from the written design standards for other reasons, then the consultant needs to provide evidence/justification and seek District approval as outlined below.

In all cases the written design standards do not diminish or eliminate the standard of care owed by the consultant to SCCD or relieve, in any manner whatsoever, a consultant from any professional responsibility, duty or due diligence required toward that work.

These Design Standards should be incorporated into all Solano Community College ("SCC", the "College") projects. Projects include but are not limited to new construction, Tenant Improvements (TI) projects, remodels, and renovations. It is understood that the College could not attempt to upgrade and retrofit all campus facilities in a single massive construction project; such a process would be prohibitively costly and disruptive. Rather, the strategy is for installations to be implemented continually and concurrently in a phased manner, over time and as funding allows, toward a goal of all campuses and campus buildings eventually meeting the same consistent Design Standards.

Design Standards Process:

The following Design Standards Process Guidelines incorporation and approval process provides procedural guidelines to ensure that project-specific design and contractor teams submit and receive approval by authorized SCCD departmental and administrator personnel at defined milestones. This allows for SCCD review, input, and approval as well as documentation of any approved deviations or variances to the Design Standards early in the design process.

Approved deviations and variances from the Design Standards should be conscious and justifiable, provide a solution for a site-specific need or replace outdated/obsolete requirements, and be compatible with other Design Standards. **Proposed deviations shall be submitted to SCCD in writing for review and approval prior to incorporation into the project.** Approved deviations may be project-specific or permanent; if an approved deviation or variance is intended to be permanent the change should be reflected in the associated Design Standard.

Review and Approval

Review and approval by SCCD is required at the conclusion of each of the design phases listed below prior to progressing to the next phase. Documentation required for review includes project drawings and specifications; manufacturer cutsheets, diagrams, and other product data; associated progress cost estimates and written identification of deviations/variances from District Standards Not all projects will include all phases.

Schematic Design

Design professionals should become familiar with the **Architectural, Landscape, Sustainability and other Guidelines** (found in Book 1 of the Facilities Master Plan) and the **District Standards** (found in Book 2 of the Facilities Master Plan and on Facilities Website) prior to initiating the design process. While most of the specifics within the District Standards will be reflected in future design phases, there are some aspects reflected in the District Standards that require consideration from the onset of the design process. If any deviations/variations are apparent at this early phase, bring them to District attention for consideration.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: a written design narrative which describes planned system elements by function and overall design. The narrative should include conceptual device and system floor plan, site layout drawings and functional/operational project planning.

Design Development

This is the phase where the specifics within the Design Standards will need to be reflected and coordinated within the specific project, and any required deviations/variances should be apparent during this phase. Bring all deviations/variances to District attention, in written format, for evaluation and action as soon as they are determined. Do not assume deviations/variations will be apparent to District personnel during their documentation review towards the end of this phase.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: refinement of schematic design conceptual elements to provide a greater level of detail of system floor plan, functional/operational project planning and site layout drawings as well as required supporting components such as physical, electrical, MEP, data network, etc.

Construction Documents

By this phase the deviations/variances should have already been resolved. If coordination and detailing efforts during this phase require previously unknown deviations/variances from District Standards, bring them to District attention, via written format, for evaluation and action as soon as they are determined.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: design drawings indicating location, installation details, cabling and interfaces for elements approved in the schematic design and design development phases. This phase includes written device and systems specifications in the current MasterFormat edition as issued by the Construction Specifications Institute. These specifications should clearly describe interfaces between systems or assemblies and interfaces to any other equipment and systems under other Design Standards.

Project Close-Out

Deliverables of this phase are as stipulated in the Contract with the District. District should endeavor to update District Standards for any deviations or variances that were approved as permanent during that particular project.

End of Document

DESIGN STANDARD FOR AUDIOVISUAL SYSTEMS

General:

The SCC is intent on moving to 21st century unified communications and data systems, consistent with industry standards and best practices as they evolve. To that end all SCC AV will be digital (unless laws or codes specify otherwise) and/or will digitally controlled through an enterprise management system, and will be tightly integrated into the data components of the SCC technology plan.

Purpose:

The purpose of this document is to standardize the basic elements of the audiovisual systems design process, and to guide AV to the integrated solutions envisioned above. The Design Standard has the purpose of creating a consistent application of audiovisual systems design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. This standard serves as a supporting document part of the overall Solano Community College Technology Plan. Deviations from this standard shall be approved by SCC.

Background of Audiovisual Systems within the District:

Audiovisual Systems cover both instructional and informational AV technology. Instructional AV technology covers systems that support teaching, learning, and research. Students and staff members use this technology in pursuit of the College’s educational goals. Informational AV technology covers the digital signage systems deployed around the College. Students and staff members use this technology to share content with the different audiences that may occupy the spaces within the College.

For the purposes of this document the instructional AV technology will be referred to as AUDIOVISUAL SYSTEMS. The informational AV technology will be referred to as DIGITAL SIGNAGE SYSTEMS.

Audiovisual Systems-Related Support Staff and Committees:

Chief Technology Officer
Director, Technology Services & Support
Desktop Services
Network Services

Design Standard:

Smart Classroom General Descriptions

Audio/Video (A/V) Cabinet:

- Located next to wall adjacent to teaching wall 5' from teaching wall corner.
- 2" Conduit from ceiling to junction box in the wall behind A/V cabinet. Junction box should be able to accommodate (2) 2-Gang Boxes. Refer to Page 4 of this document for conceptual drawing.
- In certain situations, the room configuration may dictate the elimination or repositioning of and the A/V Cabinet. Elimination/Repositioning of cabinet to be coordinated with SCC IT.
- Coordinate with District IT for Cabinet configuration of equipment

Lighting:

- Shall be coordinated for appropriate levels related to room functions.
- Lighting controls to be controlled via the Utelogy console (If new construction)
- Control so that lights directly over the teaching wall can be dimmed or turned off for maximum viewing capability.
- Industry standards and guidelines shall be followed.
- Refer to Codes & Standards section of this document for a list of related standards.

Power requirements:

- (1) Dual gang outlet above the ceiling at the projector location or behind TV in a recessed box.
- (2) Dual Gang outlets at the A/V cabinet. (1) Dual gang to be at the table top height of Cabinet and (1) dual gang below/behind cabinet near the Network and A/V Plates.

Data requirements:

- (1) 4-port plate below/behind cabinet near the (1) dual gang power outlet noted above.
  - Data cables to be run to IDF within the building
  - Data ports should be labeled as per the District labeling standard detailed in the SCC Telecom Standards Guideline.
- (1) Cat 6 (shielded) to be run from a two gang junction box located next to the 4-port data plate at the smart cabinet location to the Projector/TV location.
  Note: Cat 6 to be terminated by A/V installers. Wall Plates will be provided by the District

Audio/Video requirements:

- (2) 14/2-gauge audio wire to be run from the two gang junction box (with the (1) Cat 6) located next to the 4-port data plate at the smart cabinet location to the speaker locations within the room. Consult with district IT for location of speakers.
  Note: Audio wire to be terminated with RCA adapter by A/V installers.
- (1) HDMI cable, not to exceed 50ft, from junction box to TV or Projector locations.
  Note: Check with District IT to see if this cable is necessary. Wall plates will be provided by the District.

Projection screens:

- May be motorized or manual roll up and shall be sized appropriately for the room size and desired coverage areas.
- Motorized screens shall be used are in areas in which the screen sizes are larger than 12 ft., typically the Lecture, Multipurpose rooms and Cafeteria.
- Motorized screens to be programmed and controlled via the Utelogy console.
- Smaller screens shall be manual roll up.
- Screens are to be centered on teaching wall mounted no more than 6" below the ceiling (in rooms with normal ceiling heights).

Screen mounts:

- Must have back board of sufficient size to support size of screen.
- For larger screens or rooms with high ceilings (over 10') contact IT management for screen installation instructions.

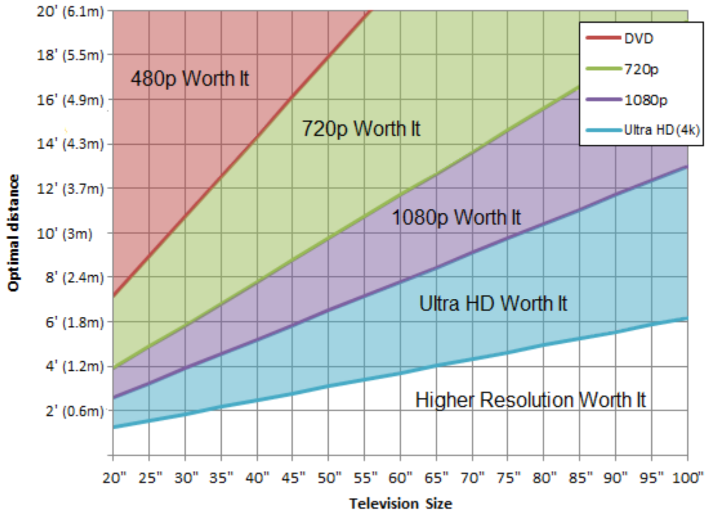
Projectors:

- Shall be industry standard High Definition, with HDMI and Internet Protocol (IP) input, native 16:9 format. Laser projector is preferred.
- Mounted at an appropriate distance from screen so as to take up as much screen space as possible.
- Projector mount may have to be offset 3.5" right of screen as viewed from the screen location to accommodate for the offset of the projector lens.   (If Lens is not center of projector)
- Care should be taken to NOT place anything in the projection path (i.e. lights, art work hangers etc.)
- Control line for projector to be run from projector to A/V cabinet.

Television: (In lieu of Projector/Screen)

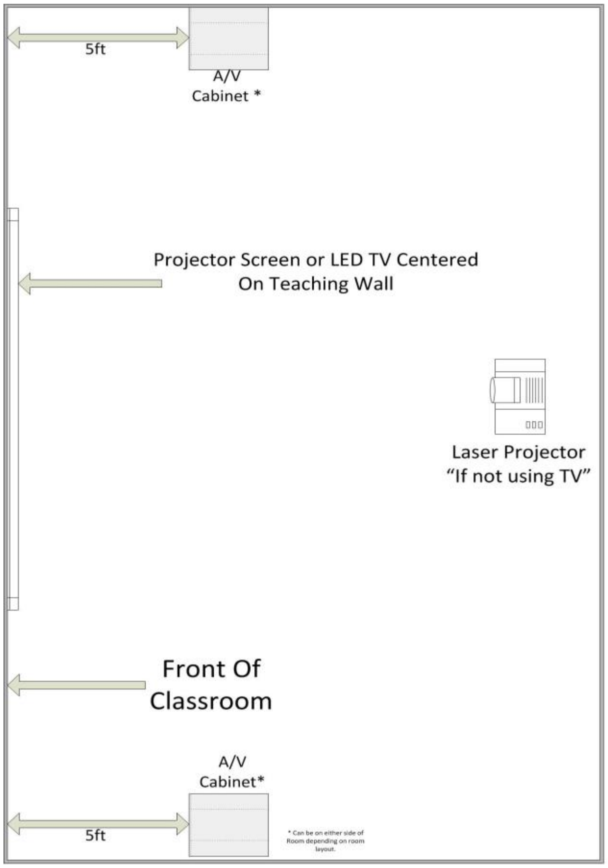
- Industry standards should be followed when determining the correct size of the room. The chart below can assist with determining screen size. Contractor in conjunction with District IT will determine appropriate size for room.
- Proper backing for the TV must be installed for TV locations.
- TV's should at a minimum have (3) HDMI and (1) RS-232 connections.

Optimal viewing distance by the size of the television and the resolution

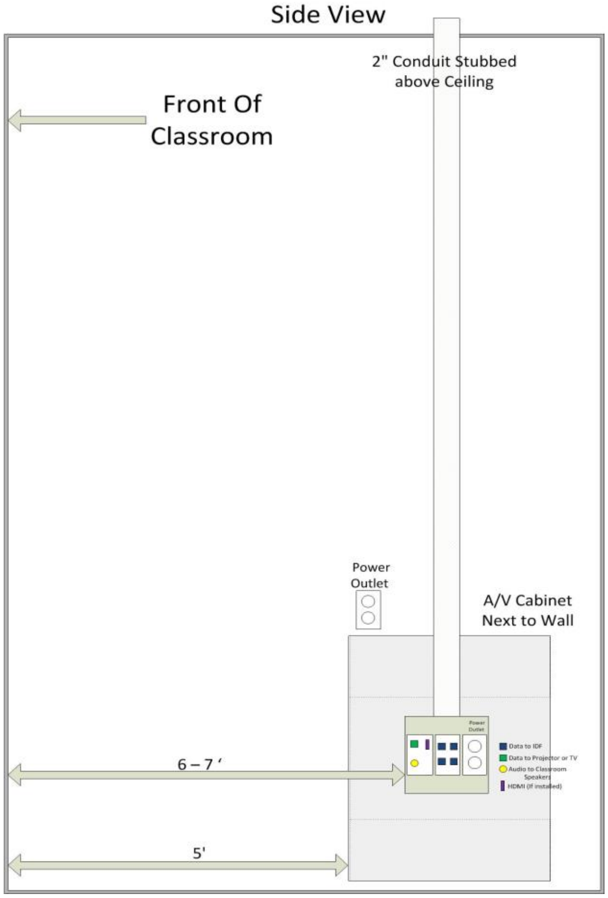


Visual Layout of Smart Classroom

Overhead View



Side View



Audiovisual Systems – Smart Classroom

Smart Classrooms shall utilize a ceiling mounted projector and projection screen or LED TV, A/V Cabinet and wall/ceiling mounted speakers.

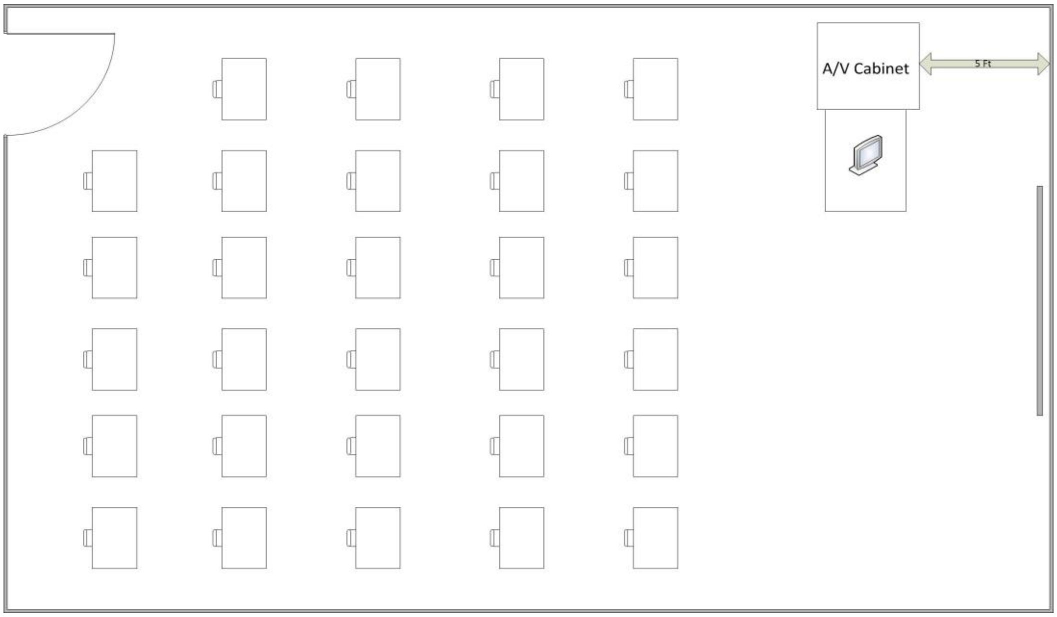
An ADA compliant teaching table shall be located next to the A/V cabinet. Monitor and document camera shall be installed on the table.

System inputs shall be via input panel in the A/V Cabinet that will include VGA, HDMI, Audio and data ports. Contact District IT for the layout/parts list of the A/V Cabinet.

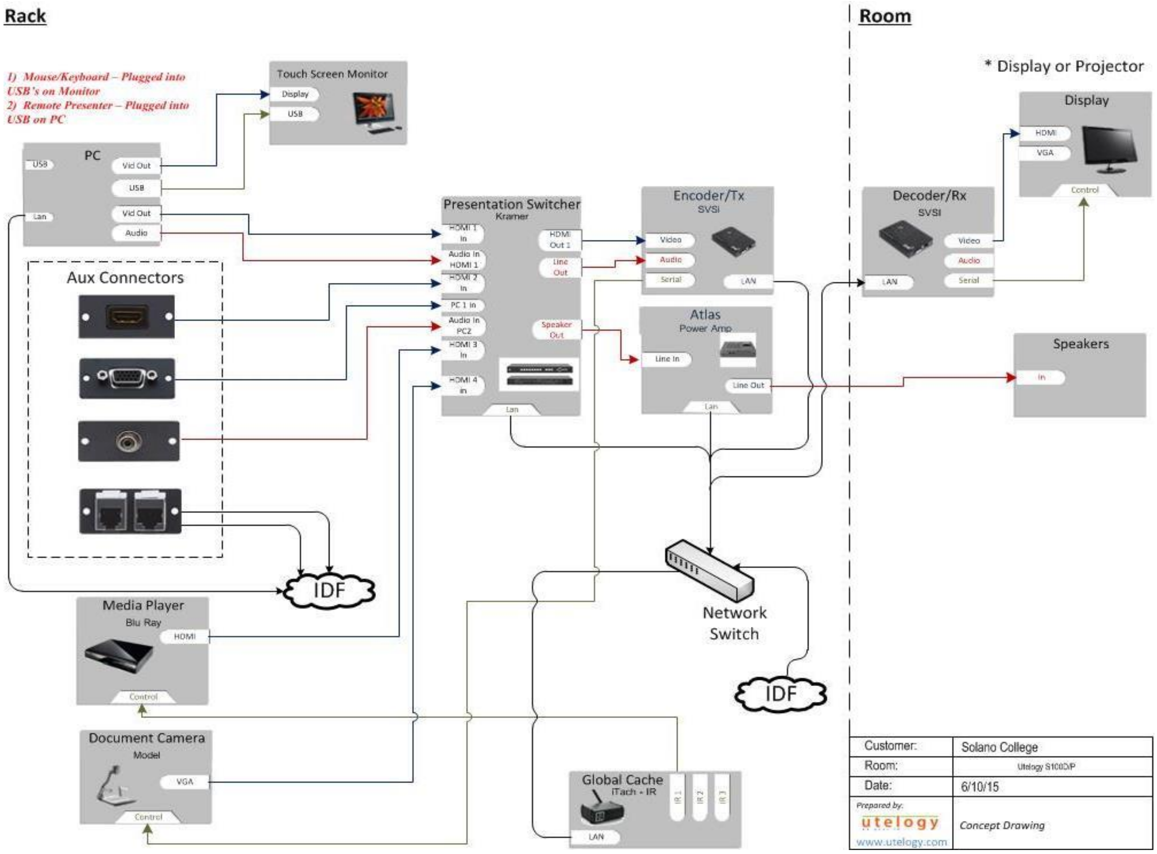
Classroom content will be managed and controlled via the Utelogy suite accessed via a monitor either on the teaching table or top of the cabinet. Displays and speakers shall integrate with Utelogy to support automatic switching of inputs and control of audio volume.

Coordinate Utelogy integration requirements with SCC IT.

Typical Smart Classroom Layout



Typical Smart Classroom Connectivity Diagram



Audiovisual Systems – Computer Labs

Computer Labs shall utilize a ceiling mounted projector and projection screen or LED TV, A/V Cabinet and wall/ceiling mounted speakers.

An ADA compliant teaching table shall be located next to the A/V cabinet. Monitor and document camera shall be installed on the table.

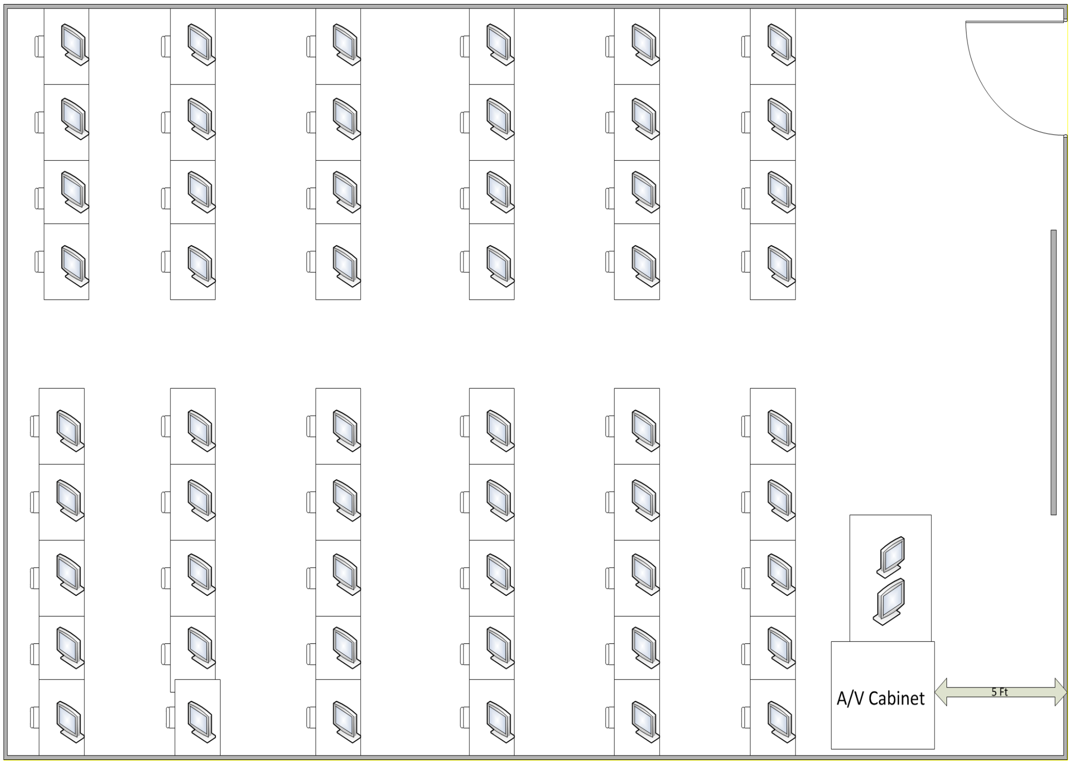
Instructor shall be able to view student desktops upon command.

System inputs shall be via input panel in the A/V Cabinet that will include VGA, HDMI, Audio and data ports. Contact District IT for the layout/parts list of the A/V Cabinet.

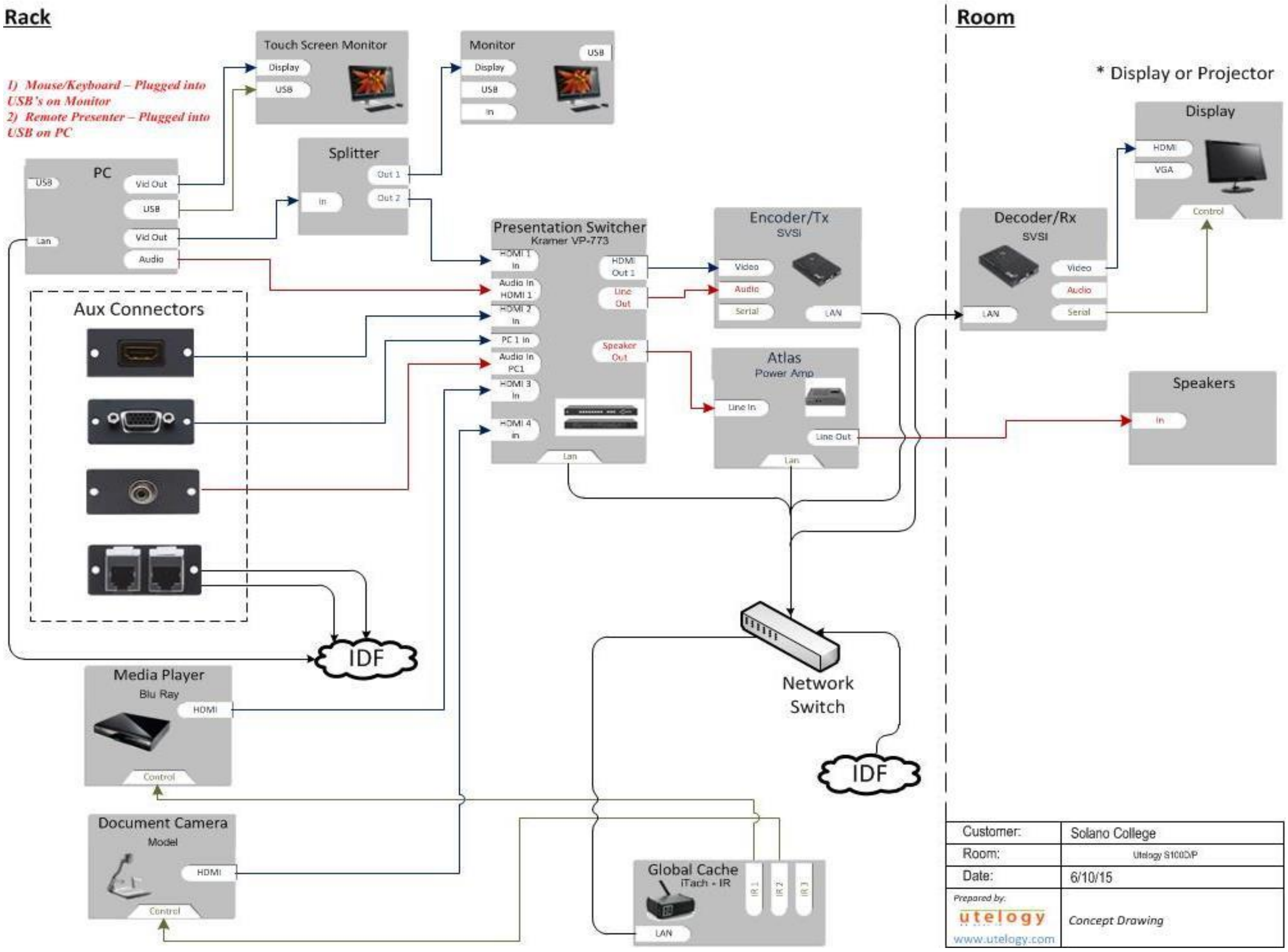
Classroom content will be managed and controlled via the Utelogy suite accessed via a monitor either on the teaching table or top of the cabinet. Displays and speakers shall integrate with Utelogy to support automatic switching of inputs and control of audio volume.

Coordinate Utelogy integration requirements with SCC IT.

Typical Computer Lab Layout



Typical Computer Lab Connectivity Diagram



1) Mouse/Keyboard – Plugged into USB's on Monitor
2) Remote Presenter – Plugged into USB on PC

Audiovisual Systems – Conference Rooms

Conference Rooms shall utilize single wall mounted LED flat panel display sized accordingly for video content presentation. Size of flat panel display shall be determined by using the minimum display dimension formulas illustrated in Figure 1.

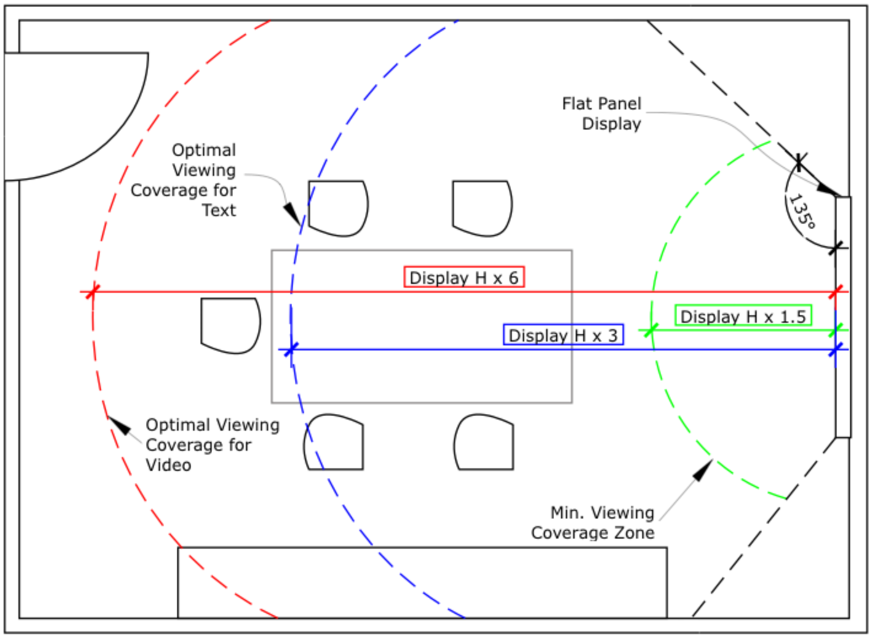

Flat Panel Display
Optimal Viewing Coverage for Text
135°
Display H x 6
Display H x 1.5
Display H x 3
Optimal Viewing Coverage for Video
Min. Viewing Coverage Zone

Figure 1: *Minimum display dimensions shall be calculated using the coverage area formulas represented above. Acceptable coverage area begins at the green dashed circle, which is calculated by obtaining the height of the display and multiplying it by 1.5. Alternatively, one could obtain the desired minimum coverage area and divide this by 1.5. Similarly, the blue and red dashed circles represent the optimal coverage areas for text and video images, respectively.*

<u>Power requirements:</u>

- Dual gang power outlet to be installed behind the LED display.

<u>Data requirements:</u>

- (1) 3-port data outlet is required to be installed behind LED display.
  - 2 data running from behind display to IDF
    - Data ports should be labeled as per the District labeling standard detailed in the SCC Telecom Standards Guideline.
  - 1 data running from behind display to control station area.
    - Data port should be labeled A/V

All outlet mounting shall be recessed mounted with consideration of the mounting brackets. Mount to be installed to prevent easy access to display controls wherever possible. Installation shall be coordinated with SCC IT.

Displays may require wall or ceiling mounted speakers. If mounted on the wall they should be approximately 6”-12” on either side of display. Mounting shall be designed to best project sound throughout the conference room.

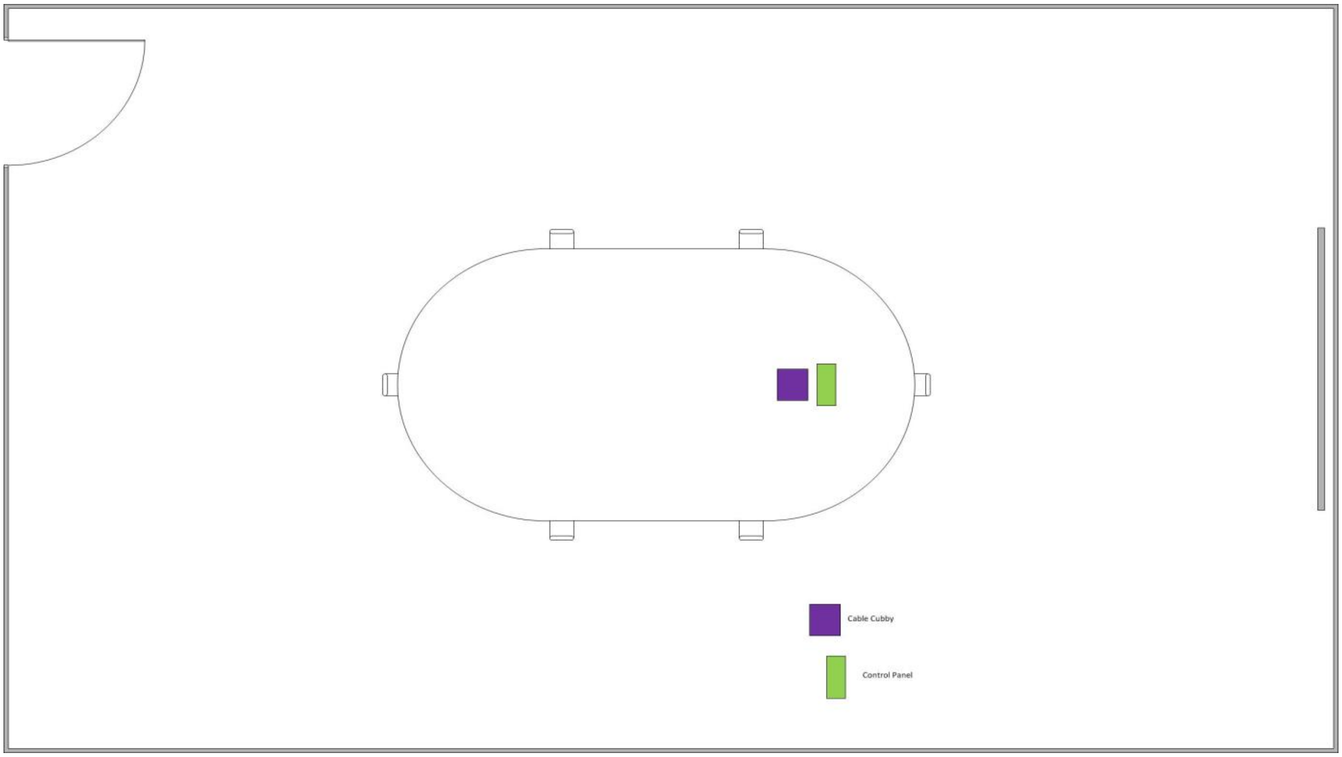
If wall or ceiling speakers are not provided, the flat panel display must have integrated speakers. Coordinate speaker requirements with SCC IT.

System inputs will include VGA, HDMI, Audio and data ports. Location of input panel shall be within a Cable Cubby installed toward the end of the table closest to the TV. Coordinate with SCC IT for proper configuration.

Lighting shall be coordinated for appropriate levels related to room functions. Industry standards and guidelines shall be followed. Refer to Codes & Standards section of this document for a list of related standards.

Content and lighting will be managed and controlled via the Utelogy suite accessed via a control station within the room. Coordinate Utelogy integration requirements with SCC IT.

Typical Conference Room Layout



Note: *Larger conference rooms may require the addition of multiple cable cubbies to provide Data and Power outlets only. The Cubby shown is necessary for input for smart classroom functionality. Coordinate number and location of additional cubbies with SCC IT.*

Conference room connectivity to be designed by A/V consultant in collaboration with District IT.

Digital Signage Systems

Digital signage content shall be displayed via LED flat panel displays sized accordingly for this application. Size of flat panel display shall be determined by using the minimum display dimension formulas illustrated in Figure 1. Digital signage is found typically in Lounges and public spaces, but may be required in specialty areas as well.

Power outlet shall be installed behind LED displays.

(1) Dual gang power outlet and (1) 2-port data outlet is required to be installed behind LED display.

The (2) data cables to the data outlet behind the display will be run to building IDF.

Coordinate power/data requirements with SCC IT.

All outlet mounting shall be placed with consideration of the mounting brackets. Mount to be installed to prevent easy access to display controls wherever possible. Installation shall be coordinated with SCC IT.

Mounting type may include wall mount, pole mount, or other, depending on the application. Installation shall be coordinated with SCC IT.

TV to be mounted on wall mount so as to permit optimal viewing and is to be secured to the mount to prevent easy theft.

If deployed in outdoor or unmonitored public areas consideration should be given to anti-vandalism measures including cabinets with toughened Macaralon type screen protection.

Content will be managed and controlled by the districts content management system.

Refer to Codes & Standards section of this document for a list of related standards.

Preferred Manufacturers:

LED Flat Panel Displays:

1. Samsung
2. Sharp
3. NEC
4. Other as approved by IT

Video Projectors:

1. Panasonic
2. Hitachi
3. Epson
4. Other as approved by IT

Equipment purchases may be by either contractor or district IT department.

If contractor purchased/supplied all Equipment lists/Bill of Materials must be approved by SCC Technology Services Management prior to purchase.

Purchases must follow the Technology Purchases policy of Solano Community College.

A/V installation contractors must be Utelogy certified with proper documentation to support certification. Scope of work to be identified by District IT.

Substitutes Allowed:

All substitutions must be approved by SCC IT. Requests for substitutions must be submitted in writing prior to design, purchase, and installation.

Associated Design Standards and Construction Specifications

Codes and Standards:

ANSI/INFOCOMM 1M-2009 Audio Coverage Uniformity in Enclosed Listener Areas
ANSI/INFOCOMM 2M-2010 Standard Guide for Audiovisual Systems Design and Coordination Processes
ANSI/INFOCOMM 3M-2011 Projected Image System Contrast Ratio

Construction Specifications:

274100 Audiovisual Systems
274200 Digital Signage Systems

DESIGN STANDARD FOR TELECOMMUNICATIONS

Purpose:

The purpose of this document is to standardize the basic elements of the telecommunications systems design process. The design standard has the purpose of creating a consistent application of telecommunications systems design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. This standard serves as a supporting document part of the overall Solano Community College Technology Plan (2013-2015). Deviations from this standard shall be approved by SCC.

Telecommunications Systems-Related Support Staff and Committees:

Chief Technology Officer
Director, Technology Services & Support
Desktop Services
Network Services
The Strategic Technology Advisory Committee (STAC)

Design Standard:

I. TELECOM IDF/MDF ROOMS

A. Minimum size of the IDF is to be 8’ x 9’.

B. Minimum size of the MDF is to be 10’ x 13’ and shall not be co-located with electrical equipment due to EMI-mechanical noise transmitted from the electrical equipment.

C. IDF should have a hard ceiling for security purposes.

D. IDF/MDF rooms should not have any water sprinklers in the room.

E. Room must be well lit. Lighting fixtures shall be coordinated with any horizontal cable tray or other ceiling mounted equipment.

F. No equipment other than that related to the voice/data network should be located in the IDF’s/MDF’s. This includes but not limited to FACP, lighting control equipment, electrical panels, EMS, etc.

G. Regular 110v receptacles should be located at standard locations around the room.

H. Some form of standalone air conditioning must be provided to adequately cool the space when fully equipped. Cooling capacity shall be calculated taking into account all equipment planned for the room. Rooms should not be on building Air system.

I. There should be 3’ of clear space on all 4 sides of the 2’ x 3.25’ cabinet. If necessary for placement of an additional cabinet or future placement of an additional cabinet this requirement can be modified to 3’ of clear space in the front, rear and one side of the cabinet.

J. Lock to IDF/MDF must be uniquely keyed and only Technology Services & Support staff is to be issued keys. In cases where an IDF is shared with Maintenance & Operation (M&O), only essential M&O staff is to have keys to the IDF/MDF (i.e. Engineers, Director, and Assistant Director). Before issuing a key to anyone for any IDF/MDF the Director of Technology Services & Support must be consulted.

K. Where possible, doors to the IDF/MDF should not have windows or signage other than room numbers (for security purposes). If IDF/MDF doors must have windows, windows are to be blacked out.

L. A phone is to be located on one wall of the IDF/MDF room, typically on the door wall.

II. CABINETS

A. Refer to the document SCC – TSS Telecommunications Cabling Materials List for standard cabinet models and accessories (fan kit).

B. Secure cabinet(s) to floor utilizing CPI brackets and drop-in anchors.

C. Secure top of cabinet(s) utilizing appropriate size ladder rack attached to cabinet with CPI elevation kits.

D. Install CPI vertical wire managers and fan-kits to cabinet. Fans shall be connected to power and operational.

E. Install cabinet provided vertical wire management @ rear of cabinet.

F. Install square punched rails in cabinet; contractor to provide necessary cage nuts and mounting screws for all equipment being installed in rack.

G. Install hardware in cabinet based on 1. = top U holes:

1. Fiber LIU (with single-mode fiber terminated first left to right and then followed by MM). LIU shall be installed in the top 1U of the cabinet

2. Wire management shall be installed on the sides of the patch panels as well as between each Data/Voice patch panel

3. Data patch panel(s) shall be KRONE CAT 6 and 568B compliant

4. Copper cable (CAT3) terminated on patch panel. All data patch panels shall be terminated first, and then the CAT 3 cable shall be terminated on a voice patch panel at the end of the data patch panel sequence. There shall be one pair per port (termination on the White/Blue pair for voice) with the Violet/Slate pair un-terminated and left as a spare.

5. District supplied network switches

6. District supplied UPS

7. District supplied PDU (extra outlets for equipment)

H. Two electrical outlets (30amp w/L5-R30 receptacles) to be installed @ top of rack height inside cabinet.

I. Customer provided UPS power cord will be run from UPS on floor of cabinet through rear vertical wire manager to electrical outlet.

III. BACKBOARD LAY-OUT

A. Refer to the document SCC – TSS Telecommunications Cabling Materials List for standard cabling materials.

B. Backboard: 4' X 8' X 3/4" plywood should be installed on only one wall (to be determined by cabinet position)

C. Backboard shall be installed starting 4" above the finished floor, shall be fire-rated plywood painted white. Fire rated sticker shall not be painted over.

D. Copper feed cable is to be terminated in appropriate sized protected terminal (50pr, 100pr etc.). Terminal is to be grounded to bus bar.

E. CAT3 copper cable to be terminated on "out" of protected terminal to patch panel in cabinet. (routed overhead on ladder rack)

IV. CABLING & CABLE ROUTING

A. Refer to the document SCC – TSS Telecommunications Cabling Materials List for standard cabling materials.

B. All drop cables routed into MDF/IDF to be installed through appropriate sized sleeves with bushings.

C. All drop cables to be “split out” by number (ie; 1-12, 13-24) and brought into cabinet on opposing sides of patch panel.

D. All cables will be tested for compliance (using MicroTek or similar device) with results provided to district in printed and in an electronic form acceptable to the district.

E. All ladder rack to be grounded to provided bus bar.

F. Labeling standard is Room#-drop (i.e. 128-10) number starting in left corner of room and moving clockwise around room. Drops number are sequential from room to room (i.e. 128-20, 129-21, etc.).

G. All cables to be terminated 568B.

H. All phone connectivity is to be VOIP with all cables to be ADC blue CAT6.

I. Customer/Architect to determine PVC vs. plenum rated cable.

J. ADC faceplate and jack insert color is typically Ivory.

K. Cable numbering to be determined by sequence: floor, closet #, drop number. Two drop locations to be labeled 1/2 and three plus drop locations to be labeled 1-3. Example: 1st floor closet # 1 would read: 1.1.1/2 or 1.1.1-3.

L. All fiber required to be extended shall match existing hybrid fiber count.

M. All fiber will be tested using OTDR with results provided to district in printed and in an electronic form acceptable to the district.

N. Extended fiber shall be fusion spliced in approved fiber splice case.

O. Single mode patch cords are to be installed from fiber LIU to fire panel. Alarm vendor will plug in @ panel.

P. Copper cable required to be extended can “splice thru” on A110 blocks.

Q. All cabling should be routed according to industry standards and supported in cable hangers or cable trays.

R. Cable hangers will not be attached to ceiling tie wires. The first choice by cabling vendor will be to install their own wires or wall mount hangers. Where this is not possible due to existing conditions, there may be existing wires that are unattached to the grid or utilized for other mechanical support that can be utilized.

S. Industry standards apply to fire stop installation and will be dictated by field conditions.

T. Phones are to be co-located with data and terminated on patch panel in cabinet

U. Need data runs for HVAC (copper) and fire alarms (fiber). A cat 6 drop must be placed near the HVAC controller. A fiber patch cable must be run in conduit from the FACP location to the IDF.

V. Standard is Cat6 cabling

W. Cabinet as well as station patch cords are to be provided by contractor in lengths and quantities as specified by customer (usually the number of ports terminated for cabinet quantity– 3'& 7' lengths).

X. Standard drop count for an employee work location is 3 drops. Standard drop count for a student station is 1 drop plus 1 printer drop for every 20 computers.

Y. Standard materials are to be used as listed on the Solano Community College - Technology Services & Support Telecommunications Cabling Materials List.

Z. All building projects must include above ceiling cabling for installation of PoE wireless access points.

AA. Electronic and printed forms of as built drawings must be provided to IT.

BB. All newly installed cabling must be tested and performance test results shall be submitted to SCC IT.

V. WIRELESS NETWORK

A. All building projects must include installation of wireless access points to cover the interior of the building (location diagram will be supplied by district).

B. All interior wireless access points are Power over Ethernet (PoE) and therefore DO NOT require a power receptacle to be placed near the access point device.

C. All exterior wireless access points have an external antenna and the device MAY REQUIRE a power receptacle to be located in close proximity to the device. Coordinate requirements with SCC IT.

D. Wireless access points require a Cat6 cable terminated with an RJ45 connector in a biscuit box to be located per the district supplied drawings and routed to the IDF/MDF. Every effort should be made to keep the wireless access point cables to be terminated in a group on the patch panel and clearly identified. Cabling and termination is vendor supplied (i.e. patch panels, biscuit box, etc.).

E. Access points are to be mounted per manufacturer supplied instructions and are generally surface mounted on the ceiling at district specified locations. Actual placement can vary slightly depending on conditions at the specified locations.

F. All cabling to access points are to be tested per industry standards.

G. All wireless access points are district supplied/contractor installed.

VI. PHONES

A. All phones are to be VoIP phones except where analog lines are necessary (i.e. emergency phones, fax lines, etc.).

B. District standard VoIP phones are CISCO brand.

C. All VoIP phones plug into CISCO PoE (Power over Ethernet) switches.

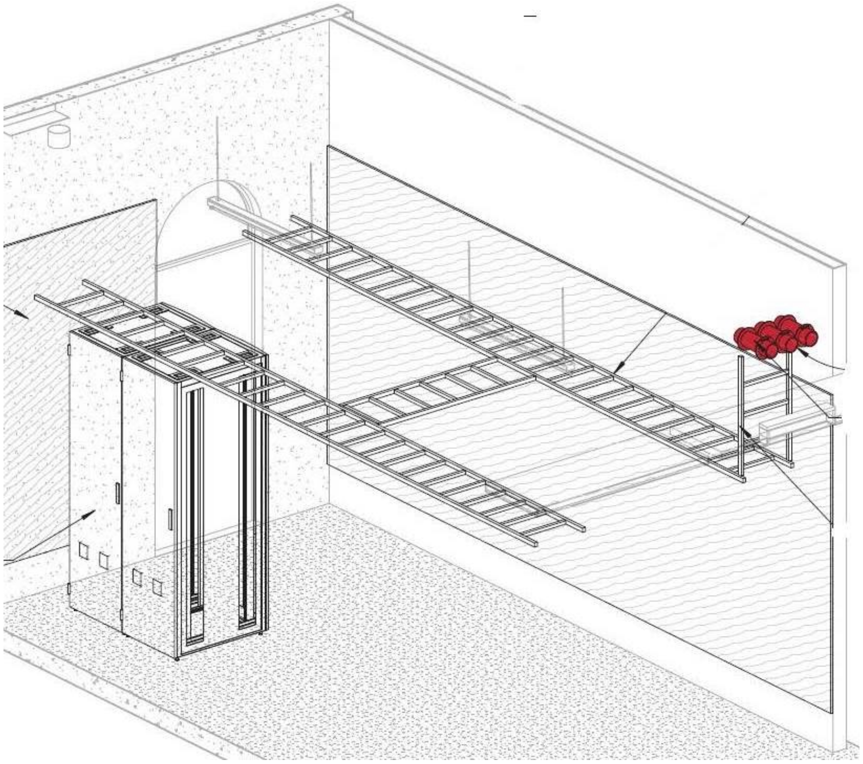
D. Lines for emergency equipment (emergency phones, fire alarms, security alarms, etc.) are to be 1MB’s provided by the district’s Telco carrier and NOT part of the district phone system.

E. Each building is to have wall mounted courtesy/emergency phones in each hallway.

VII. ACCESS TO TELECOM SPACES

A. Contractors shall contact SCC IT for proper badging and access to telecom spaces. Request for access shall be submitted in writing and follow the District’s guidelines and procedures.

Typical IDF Room Layout



Approved Manufacturers:

Equipment Racks and Cabinets:

1. Middle Atlantic Products
2. CPI – Chatsworth Products
3. Panduit

Wireless Access Points:

1. Refer to SCC IT for list of approved manufacturers

Copper Patch Panels:

1. Panduit
2. Siemen

Fiber Patch Panels:

1. Panduit
2. Siemen

Category Cable / Patch Cords:

1. General Cable
2. Mohawk
3. Berk-Tek

Fiber Cable / Patch Chords:

1. General Cable
2. Mohawk
3. Berk-Tek

Wire Managers:

1. Middle Atlantic Products
2. CPI – Chatsworth Products
3. Panduit

Ladder Rack / Cable Tray:

2. Refer to SCC IT for list of approved manufacturers

Substitutes Allowed:

All substitutions must be approved by SCC IT. Requests for substitutions must be submitted in writing prior to design, purchase, and installation.

Associated Design Standards and Construction Specifications

Standards

EIA/TIA-568 Commercial Building Telecommunications Wiring Standard
TIA-569 Telecommunications Pathways and Spaces
TIA-607 Generic Telecommunications Bonding and Grounding for Customer Premises
TIA-942 Telecommunications Infrastructure Standard for Data Centers
ANSI/NECA/BICSO-56-2006 Standard for Installing Commercial Building Telecommunications Cabling
ANSI/NECA/BISCI-607 Telecommunications Bonding and grounding Planning and Installation Methods for Commercial Buildings
ANSI/BICSI-002 Data Center Design Standard and Recommended Practices

Specifications

270500 COMMON WORK RESULTS FOR COMMUNICATIONS
271100 COMMUNICATIONS EQUIPMENT ROOM FITTINGS
271300 COMMUNICATIONS BACKBONE CABLING
271500 COMMUNICATIONS HORIZONTAL CABLING

End of Document

DESIGN STANDARD FOR ELECTRONIC SAFETY AND SECURITY

Purpose

The purpose of this document is to standardize the basic elements of the Electronic Safety and Security systems design process. The Design Standard has the purpose of creating a consistent application of Electronic Safety and Security systems design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. Deviations from this standard shall be approved by SCC.

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Abbreviations

- **SSA** – Security Sensitive Areas
- **P&P's** – Policies & Procedures
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- **PV** – Photovoltaic (solar panels)
- **EMNS** – Emergency Mass Notification Systems
- **PA** – Public Address (overhead speakers)
- **AV** – Audiovisual
- **LAN** – Local Area Network (IP network based Ethernet data network)
- **IDS** – Intrusion Detection System (burglar alarm)
- **PIN code** – Personal Identification Number (numerical code entered on arming station keypad to arm or disarm an Intrusion Detection System)
- **ARM** – arming station keypad used to arm or disarm an Intrusion Detection System
- **MD** – Motion Detector (intrusion detection sensor)
- **EACS** – Electronic Access Control System
- **ACP** – Access Control Panel
- **CCTV** – Closed Circuit Television (older, traditional term for analog video surveillance system)
- **VMS** – Video Management System (newer term for IP network based video surveillance system)
- **NVR** – Network Video Recorder
- **PTZ** – Pan Tilt Zoom video surveillance camera (remotely operable in lieu of fixed)

Design Standard – Security Systems Ownership

An effective security program requires comprehensive administrative and operational planning, direction, oversight, and control. With regard to security electronics systems – including electronic access control, video surveillance, intrusion detection, and emergency communications – the "ownership" of the security systems by various associated parties must be clarified, codified in policy, assigned, and accepted.

There are 4 primary parties that must be assigned and must accept responsibility and accountability for various functions of service and maintenance as well as daily operation of the security systems. Importantly, such accountability cannot be reasonably and successfully assigned unless the associated party is also granted the authority, staffing, and funding to carry out the responsibility.

SCC Executive Leadership

1. Provides the authority, authorization, oversight, and funding for systems deployment and use.
2. Issues Policies & Procedures.
3. Determines the appropriate end-users of the system from both law enforcement professional security personnel and departmental staff personnel.
4. Coordinates the functional and operational system requirements between Academic and departmental representatives.

SCC IT

1. Provides network connectivity and support.
2. May provide computing hardware such as servers and computer workstations for use by the Security Systems Contractor/Integrator.
3. Ensures appropriate network security, firewalls, and encryption issues are addressed and documented.
4. Maintains scheduled maintenance of security systems software versions, licenses, and firmware (when such activities are not outsourced to the Security Systems Contractor/Integrator).
5. Maintains scheduled maintenance of security systems hardware operating system, antivirus software, utilities, and system activity logs.
6. Coordinates authorized login UserID and passwords with the network domain identity structure.

Security Systems Contractor/Integrator

1. Provides, installs, programs, configures, and tests the security systems hardware and software.
2. Warrants the installation for one year from date of project substantial completion.
3. May be engaged under contract to provide extended warranty including work order service and preventative maintenance beyond the one year project warranty.
4. This role may be filled by one or more contractors.

SCC Engineering & Plant Ops

1. Provides, installs, programs, configures, and tests the security systems hardware and software as needed above and beyond the scope of the Security Systems Contractor/Integrator and when the Security Systems Contractor/Integrator is no longer under contract.
2. Provides, installs, and maintains door/frame assemblies and electrified locking door hardware.
3. Maintains traditional physical keying system with documented issuance and retrieval audit logs.
4. Provides the lead role in coordinating the efforts of the Security Systems Contractor/Integrator with SCC Executive Leadership, IT, project design team, and the work of other trades and contractors.

Design Standard—Electronic Access Control System (EACS)

Refer to **Addendum 'A'** at the end of this document for the Electronic Access Control System Standard.

Design standards ensure that Electronic Access Control System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. These EACS Standards also support a single system database to avoid redundancy, duplication, and error, facilitate system administrator training and back-up, facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible Electronic Access Control System at all campuses
2. System will primarily consist of card readers, electrified locking door hardware, alarm contacts, request-to-exit (REX) sensors and access control server hardware/software

3. System will secondarily consist of wireless locksets which communicate with the centralized access control server hardware/software

4. Electrified locking door hardware should be hardwired for low-voltage power

5. Electronically access controlled doors shall be capable of being locked and unlocked in an automated manner based on schedules in the EACS software

6. All access control points shall communicate with the centralized access control server hardware/software and shall not be 'stand-alone'; all electronic access control devices shall provide wireless or hardwired communication to the standardized centralized access control system software platform

7. Access to access control system cardholder and access rights database shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

8. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights end-user with control over a limited subsection of the cardholder and access rights database

The Electronic Access Control System shall:

1. Be purpose-built for access control functionality

2. Support wireless and hardwired access control locking door hardware

3. Support integration with software for the maintenance of the traditional "hard key" Keying System

4. Supported by numerous local competitive contractors

5. Should not require recurring licensing fees

6. Support the use of technology-based access credentials whether photo ID badge or key ring fob or other form factors; credentials shall be programmed for customizable specific access rights per individuals

Access Control Application Criteria

Electronic access control with electrified locking door hardware shall be designed, provided, and installed on the following doors in the following order of priority:

1. Building exterior entry/exit doors: these are entryways which provide the primary access to the building; these are the doors which are intended to be capable of being locked/unlocked on a

scheduled basis. The number of designated entry/exit doors should be limited in number to funnel traffic to these doors, the doors must have door closers and no door prop mechanisms, and must unlock without unlatching when “open” according to the pre-programmed schedule.

2. Building interior additional doors shall be installed with electronic access control devices pending confirmation by Solano Community College on a project-specific case-by-case basis in coordination with the project teams:

    a. MDF/IDF data network equipment closets

    b. Computer labs

    c. Smart classrooms

    d. Lost & Found or other asset storage areas

    e. Security Sensitive Areas

The following doors have access control considerations other than electronic access control with electrified locking door hardware:

1. Emergency exit only doors shall have no exterior trim (no exterior lockset knobs/lever handles or key cylinders) unless required by SCC or the Authority Having Jurisdiction. These doors shall be used for exiting only and should not be used as entry doors into the building.

    a. They may be locally alarmed with door prop alarms to indicate that the door has been left open, these locations shall be determined on a project-specific case by case basis.

    b. Where door prop alarms are used they should be hardwired for low-voltage power and supported by appropriate signage.

Design Standard—Video Management System (VMS)

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible video surveillance system at all campuses

2. System will consist of cameras, cabling, Power-Over-Ethernet (PoE) data network switches, and Network Video Recorder (NVR) hardware/software

3. System shall be IP network (Ethernet) based; no analog cameras or other system components shall be specified, provided, or installed

4. Cameras shall primarily be homerun hardwired with cabling; cabling shall be Ethernet cabling of a Category confirmed by SCC; this CAT cable shall be Power-Over-Ethernet (PoE) to provide signal and low-voltage power in a single homerun cable

5. Cameras shall secondarily be on wireless point-to-point connections only where the costs of providing a hardwired connection is greater than the costs of providing a wireless link (e.g. parking lots)

6. Access to live or recorded video shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

7. Authorized client access to system shall be customized based on the user’s role: for example: full-privilege rights system administrator versus limited-privilege rights “view/search only” end-user

8. System will primarily consist of fixed cameras; Pan-Tilt-Zoom (PTZ) remotely operable cameras shall be specified, provided, or installed only on a project-specific case-by-case basis. PTZ cameras may be a required programmatic system component to be specified at the discretion of SCC, such as Cafeteria and Quad areas.

9. Where a camera is installed near an electronic access control door the door should be in the field of view of the installed camera

10. 30 days recording minimum

<u>Camera Application Criteria</u>

Video surveillance cameras shall be designed, provided, and installed at the following areas in the following order of priority; camera placements shall be coordinated with projects that are pending in the SCC Master Plan so that projects are not installing cameras that will subsequently be removed:

1. Primary campus vehicular entry/exit lanes; though these cameras are not intended to be software-based “License Plate Recognition (LPR)” cameras they should be mounted low with IR illuminators in order to provide views of vehicles and license plates. These installations typically leverage an available local power source such as a light-pole and may utilize underground conduit runs or wireless point-to-point to send the video signal to a building where the recording equipment is installed.

2. Parking lots general views as confirmed in design projects by SCC; coordinated with obstructions, trees/landscaping, and PV panels; may include bus stop and drop-off/pick-up curbs

3. Building primary pedestrian entry/exit doors associated with electronic access controlled doors

4. Building secondary pedestrian entry/exit and emergency exit only doors

5. Building second floors points of vertical transportation and corridors
6. Quad (clock tower)
7. Cafeteria
8. Building Security Sensitive Areas (SSA) doors such as IDF's, computer labs, and asset/equipment storage closets associated with electronic access controlled doors, specifically including but not limited to any associated money handling areas
9. Specific areas where past incidents have occurred and/or future incidents are anticipated to occur, specifically including but not limited to Financial Aid, Check Cashing, Veterans, and Counseling

Design Standard—Intrusion Detection System (IDS)

System Criteria

1. SCC will deploy industry standard intrusion alarm panels at designated campuses buildings or designated high-value rooms within buildings for the detection and monitoring of unauthorized entry
2. Intrusion alarm panels do not have to be of a single consistent type, this equipment is essentially a commodity and the functionality between various products is similar. However, from the point of view of contractor support and SCC service and maintenance the College should consider standardizing on a single product type
3. Intrusion detection system alarm control panels shall be installed in a locked enclosure with a locked room
4. PIN-code arming/disarming keypad station shall be installed just inside the main authorized user entry door
   a. The keypad station should not be visible from the exterior of the building or room to be protected
   b. The main authorized user entry door associated with the keypad station shall be programmed as an entry/exit delay in the system in order to give the authorized user time to enter and disarm, or exit after arming, the system

   c. Do not install a motion detection sensor that covers the area of the keypad station, or the authorized user will not be able to enter and disarm the system without activating the alarm, and they will not be able to arm the system without generating a system fault

5. Primary alarm signal communication shall be via a telephone line dialer module

   a. SCC shall contract monitoring service for each alarm panel from a UL-Listed 3rd party commercial Central Station monitoring service

   b. Alarm signal communication telephone line shall be a supervised circuit to produce a 'trouble' or 'comm loss' alarm signal on disruption or loss of the alarm signal communication telephone line

   c. Each alarm panel shall require a dedicated analog telephone line (outside service line, not an analog line out from a digital PBX)

6. Each authorized user shall have their own unique PIN-code for arming and disarming of the system

   a. PIN-codes shall be maintained in a centrally controlled list and changed periodically (minimum annually)

   b. PIN-codes shall be removed from the system on turnover of a previously authorized user; this step should be included in the termination or exit interview HR processes along with retrieving any traditional door lock keys and access control card badge credentials

   c. Alarm panels may be programmed to arm and disarm on schedule in addition to a manual process

Intrusion Detection System Application Criteria

Intrusion Detection System equipment, cabling, and sensor devices shall be designed, provided, and installed on the following doors, windows, and rooms for an entire building or a specific interior area to be monitored:

1. Exterior doors leading into the building or area: door position switch alarm contacts

   a. Mounted concealed in the door and frame header rabbet

   b. On certain existing doors surface-mounted door position switch alarm contacts may need to be installed on the interior door and frame header face; installation shall limit the amount of exposed cabling and wiring by using armored flex conduit to a junction box

DESIGN STANDARD FOR ELECTRONIC SAFETY AND SECURITY

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4. This role may be filled by one or more contractors.

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2. Provides, installs, and maintains door/frame assemblies and electrified locking door hardware.

3. Maintains traditional physical keying system with documented issuance and retrieval audit logs.

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Design Standard—Electronic Access Control System (EACS)

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Design standards ensure that Electronic Access Control System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. These EACS Standards also support a single system database to avoid redundancy, duplication, and error, facilitate system administrator training and back-up, facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

System Criteria

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3. System will secondarily consist of wireless locksets which communicate with the centralized access control server hardware/software

4. Electrified locking door hardware should be hardwired for low-voltage power

5. Electronically access controlled doors shall be capable of being locked and unlocked in an automated manner based on schedules in the EACS software

6. All access control points shall communicate with the centralized access control server hardware/software and shall not be 'stand-alone'; all electronic access control devices shall provide wireless or hardwired communication to the standardized centralized access control system software platform

7. Access to access control system cardholder and access rights database shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

8. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights end-user with control over a limited subsection of the cardholder and access rights database

The Electronic Access Control System shall:

1. Be purpose-built for access control functionality

2. Support wireless and hardwired access control locking door hardware

3. Support integration with software for the maintenance of the traditional "hard key" Keying System

4. Supported by numerous local competitive contractors

5. Should not require recurring licensing fees

6. Support the use of technology-based access credentials whether photo ID badge or key ring fob or other form factors; credentials shall be programmed for customizable specific access rights per individuals

<u>Access Control Application Criteria</u>

Electronic access control with electrified locking door hardware shall be designed, provided, and installed on the following doors in the following order of priority:

1. Building exterior entry/exit doors: these are entryways which provide the primary access to the building; these are the doors which are intended to be capable of being locked/unlocked on a

scheduled basis. The number of designated entry/exit doors should be limited in number to funnel traffic to these doors, the doors must have door closers and no door prop mechanisms, and must unlock without unlatching when "open" according to the pre-programmed schedule.

2. Building interior additional doors shall be installed with electronic access control devices pending confirmation by Solano Community College on a project-specific case-by-case basis in coordination with the project teams:

    a. MDF/IDF data network equipment closets

    b. Computer labs

    c. Smart classrooms

    d. Lost & Found or other asset storage areas

    e. Security Sensitive Areas

The following doors have access control considerations other than electronic access control with electrified locking door hardware:

1. Emergency exit only doors shall have no exterior trim (no exterior lockset knobs/lever handles or key cylinders) unless required by SCC or the Authority Having Jurisdiction. These doors shall be used for exiting only and should not be used as entry doors into the building.

    a. They may be locally alarmed with door prop alarms to indicate that the door has been left open, these locations shall be determined on a project-specific case by case basis.

    b. Where door prop alarms are used they should be hardwired for low-voltage power and supported by appropriate signage.

Design Standard—Video Management System (VMS)

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible video surveillance system at all campuses

2. System will consist of cameras, cabling, Power-Over-Ethernet (PoE) data network switches, and Network Video Recorder (NVR) hardware/software

3. System shall be IP network (Ethernet) based; no analog cameras or other system components shall be specified, provided, or installed

4. Cameras shall primarily be homerun hardwired with cabling; cabling shall be Ethernet cabling of a Category confirmed by SCC; this CAT cable shall be Power-Over-Ethernet (PoE) to provide signal and low-voltage power in a single homerun cable

5. Cameras shall secondarily be on wireless point-to-point connections only where the costs of providing a hardwired connection is greater than the costs of providing a wireless link (e.g. parking lots)

6. Access to live or recorded video shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

7. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights "view/search only" end-user

8. System will primarily consist of fixed cameras; Pan-Tilt-Zoom (PTZ) remotely operable cameras shall be specified, provided, or installed only on a project-specific case-by-case basis. PTZ cameras may be a required programmatic system component to be specified at the discretion of SCC, such as Cafeteria and Quad areas.

9. Where a camera is installed near an electronic access control door the door should be in the field of view of the installed camera

10. 30 days recording minimum

Camera Application Criteria

Video surveillance cameras shall be designed, provided, and installed at the following areas in the following order of priority; camera placements shall be coordinated with projects that are pending in the SCC Master Plan so that projects are not installing cameras that will subsequently be removed:

1. Primary campus vehicular entry/exit lanes; though these cameras are not intended to be software-based "License Plate Recognition (LPR)" cameras they should be mounted low with IR illuminators in order to provide views of vehicles and license plates. These installations typically leverage an available local power source such as a light-pole and may utilize underground conduit runs or wireless point-to-point to send the video signal to a building where the recording equipment is installed.

2. Parking lots general views as confirmed in design projects by SCC; coordinated with obstructions, trees/landscaping, and PV panels; may include bus stop and drop-off/pick-up curbs

3. Building primary pedestrian entry/exit doors associated with electronic access controlled doors

4. Building secondary pedestrian entry/exit and emergency exit only doors

5. Building second floors points of vertical transportation and corridors

6. Quad (clock tower)

7. Cafeteria

8. Building Security Sensitive Areas (SSA) doors such as IDF's, computer labs, and asset/equipment storage closets associated with electronic access controlled doors, specifically including but not limited to any associated money handling areas

9. Specific areas where past incidents have occurred and/or future incidents are anticipated to occur, specifically including but not limited to Financial Aid, Check Cashing, Veterans, and Counseling

Design Standard—Intrusion Detection System (IDS)

System Criteria

1. SCC will deploy industry standard intrusion alarm panels at designated campuses buildings or designated high-value rooms within buildings for the detection and monitoring of unauthorized entry

2. Intrusion alarm panels do not have to be of a single consistent type, this equipment is essentially a commodity and the functionality between various products is similar. However, from the point of view of contractor support and SCC service and maintenance the College should consider standardizing on a single product type

3. Intrusion detection system alarm control panels shall be installed in a locked enclosure with a locked room

4. PIN-code arming/disarming keypad station shall be installed just inside the main authorized user entry door

    a. The keypad station should not be visible from the exterior of the building or room to be protected

    b. The main authorized user entry door associated with the keypad station shall be programmed as an entry/exit delay in the system in order to give the authorized user time to enter and disarm, or exit after arming, the system

   c. Do not install a motion detection sensor that covers the area of the keypad station, or the authorized user will not be able to enter and disarm the system without activating the alarm, and they will not be able to arm the system without generating a system fault

5. Primary alarm signal communication shall be via a telephone line dialer module

   a. SCC shall contract monitoring service for each alarm panel from a UL-Listed 3rd party commercial Central Station monitoring service

   b. Alarm signal communication telephone line shall be a supervised circuit to produce a ‘trouble’ or ‘comm loss’ alarm signal on disruption or loss of the alarm signal communication telephone line

   c. Each alarm panel shall require a dedicated analog telephone line (outside service line, not an analog line out from a digital PBX)

6. Each authorized user shall have their own unique PIN-code for arming and disarming of the system

   a. PIN-codes shall be maintained in a centrally controlled list and changed periodically (minimum annually)

   b. PIN-codes shall be removed from the system on turnover of a previously authorized user; this step should be included in the termination or exit interview HR processes along with retrieving any traditional door lock keys and access control card badge credentials

   c. Alarm panels may be programmed to arm and disarm on schedule in addition to a manual process

<u>Intrusion Detection System Application Criteria</u>

Intrusion Detection System equipment, cabling, and sensor devices shall be designed, provided, and installed on the following doors, windows, and rooms for an entire building or a specific interior area to be monitored:

1. Exterior doors leading into the building or area: door position switch alarm contacts

   a. Mounted concealed in the door and frame header rabbet

   b. On certain existing doors surface-mounted door position switch alarm contacts may need to be installed on the interior door and frame header face; installation shall limit the amount of exposed cabling and wiring by using armored flex conduit to a junction box

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Design Standard – Security Systems Ownership

An effective security program requires comprehensive administrative and operational planning, direction, oversight, and control. With regard to security electronics systems – including electronic access control, video surveillance, intrusion detection, and emergency communications – the "ownership" of the security systems by various associated parties must be clarified, codified in policy, assigned, and accepted.

There are 4 primary parties that must be assigned and must accept responsibility and accountability for various functions of service and maintenance as well as daily operation of the security systems. Importantly, such accountability cannot be reasonably and successfully assigned unless the associated party is also granted the authority, staffing, and funding to carry out the responsibility.

SCC Executive Leadership

1. Provides the authority, authorization, oversight, and funding for systems deployment and use.
2. Issues Policies & Procedures.
3. Determines the appropriate end-users of the system from both law enforcement professional security personnel and departmental staff personnel.
4. Coordinates the functional and operational system requirements between Academic and departmental representatives.

SCC IT

1. Provides network connectivity and support.
2. May provide computing hardware such as servers and computer workstations for use by the Security Systems Contractor/Integrator.
3. Ensures appropriate network security, firewalls, and encryption issues are addressed and documented.
4. Maintains scheduled maintenance of security systems software versions, licenses, and firmware (when such activities are not outsourced to the Security Systems Contractor/Integrator).
5. Maintains scheduled maintenance of security systems hardware operating system, antivirus software, utilities, and system activity logs.
6. Coordinates authorized login UserID and passwords with the network domain identity structure.

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5. Maintains scheduled maintenance of security systems hardware operating system, antivirus software, utilities, and system activity logs.
6. Coordinates authorized login UserID and passwords with the network domain identity structure.

Security Systems Contractor/Integrator

1. Provides, installs, programs, configures, and tests the security systems hardware and software.
2. Warrants the installation for one year from date of project substantial completion.
3. May be engaged under contract to provide extended warranty including work order service and preventative maintenance beyond the one year project warranty.
4. This role may be filled by one or more contractors.

SCC Engineering & Plant Ops

1. Provides, installs, programs, configures, and tests the security systems hardware and software as needed above and beyond the scope of the Security Systems Contractor/Integrator and when the Security Systems Contractor/Integrator is no longer under contract.
2. Provides, installs, and maintains door/frame assemblies and electrified locking door hardware.
3. Maintains traditional physical keying system with documented issuance and retrieval audit logs.
4. Provides the lead role in coordinating the efforts of the Security Systems Contractor/Integrator with SCC Executive Leadership, IT, project design team, and the work of other trades and contractors.

Design Standard—Electronic Access Control System (EACS)

Refer to **Addendum 'A'** at the end of this document for the Electronic Access Control System Standard.

Design standards ensure that Electronic Access Control System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. These EACS Standards also support a single system database to avoid redundancy, duplication, and error, facilitate system administrator training and back-up, facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible Electronic Access Control System at all campuses
2. System will primarily consist of card readers, electrified locking door hardware, alarm contacts, request-to-exit (REX) sensors and access control server hardware/software

3. System will secondarily consist of wireless locksets which communicate with the centralized access control server hardware/software

4. Electrified locking door hardware should be hardwired for low-voltage power

5. Electronically access controlled doors shall be capable of being locked and unlocked in an automated manner based on schedules in the EACS software

6. All access control points shall communicate with the centralized access control server hardware/software and shall not be 'stand-alone'; all electronic access control devices shall provide wireless or hardwired communication to the standardized centralized access control system software platform

7. Access to access control system cardholder and access rights database shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

8. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights end-user with control over a limited subsection of the cardholder and access rights database

The Electronic Access Control System shall:

1. Be purpose-built for access control functionality

2. Support wireless and hardwired access control locking door hardware

3. Support integration with software for the maintenance of the traditional "hard key" Keying System

4. Supported by numerous local competitive contractors

5. Should not require recurring licensing fees

6. Support the use of technology-based access credentials whether photo ID badge or key ring fob or other form factors; credentials shall be programmed for customizable specific access rights per individuals

Access Control Application Criteria

Electronic access control with electrified locking door hardware shall be designed, provided, and installed on the following doors in the following order of priority:

1. Building exterior entry/exit doors: these are entryways which provide the primary access to the building; these are the doors which are intended to be capable of being locked/unlocked on a

scheduled basis. The number of designated entry/exit doors should be limited in number to funnel traffic to these doors, the doors must have door closers and no door prop mechanisms, and must unlock without unlatching when "open" according to the pre-programmed schedule.

2. Building interior additional doors shall be installed with electronic access control devices pending confirmation by Solano Community College on a project-specific case-by-case basis in coordination with the project teams:

    a. MDF/IDF data network equipment closets

    b. Computer labs

    c. Smart classrooms

    d. Lost & Found or other asset storage areas

    e. Security Sensitive Areas

The following doors have access control considerations other than electronic access control with electrified locking door hardware:

1. Emergency exit only doors shall have no exterior trim (no exterior lockset knobs/lever handles or key cylinders) unless required by SCC or the Authority Having Jurisdiction. These doors shall be used for exiting only and should not be used as entry doors into the building.

    a. They may be locally alarmed with door prop alarms to indicate that the door has been left open, these locations shall be determined on a project-specific case by case basis.

    b. Where door prop alarms are used they should be hardwired for low-voltage power and supported by appropriate signage.

Design Standard—Video Management System (VMS)

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible video surveillance system at all campuses

2. System will consist of cameras, cabling, Power-Over-Ethernet (PoE) data network switches, and Network Video Recorder (NVR) hardware/software

3. System shall be IP network (Ethernet) based; no analog cameras or other system components shall be specified, provided, or installed

4. Cameras shall primarily be homerun hardwired with cabling; cabling shall be Ethernet cabling of a Category confirmed by SCC; this CAT cable shall be Power-Over-Ethernet (PoE) to provide signal and low-voltage power in a single homerun cable

5. Cameras shall secondarily be on wireless point-to-point connections only where the costs of providing a hardwired connection is greater than the costs of providing a wireless link (e.g. parking lots)

6. Access to live or recorded video shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

7. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights "view/search only" end-user

8. System will primarily consist of fixed cameras; Pan-Tilt-Zoom (PTZ) remotely operable cameras shall be specified, provided, or installed only on a project-specific case-by-case basis. PTZ cameras may be a required programmatic system component to be specified at the discretion of SCC, such as Cafeteria and Quad areas.

9. Where a camera is installed near an electronic access control door the door should be in the field of view of the installed camera

10. 30 days recording minimum

Camera Application Criteria

Video surveillance cameras shall be designed, provided, and installed at the following areas in the following order of priority; camera placements shall be coordinated with projects that are pending in the SCC Master Plan so that projects are not installing cameras that will subsequently be removed:

1. Primary campus vehicular entry/exit lanes; though these cameras are not intended to be software-based "License Plate Recognition (LPR)" cameras they should be mounted low with IR illuminators in order to provide views of vehicles and license plates. These installations typically leverage an available local power source such as a light-pole and may utilize underground conduit runs or wireless point-to-point to send the video signal to a building where the recording equipment is installed.

2. Parking lots general views as confirmed in design projects by SCC; coordinated with obstructions, trees/landscaping, and PV panels; may include bus stop and drop-off/pick-up curbs

3. Building primary pedestrian entry/exit doors associated with electronic access controlled doors

4. Building secondary pedestrian entry/exit and emergency exit only doors

5. Building second floors points of vertical transportation and corridors

6. Quad (clock tower)

7. Cafeteria

8. Building Security Sensitive Areas (SSA) doors such as IDF's, computer labs, and asset/equipment storage closets associated with electronic access controlled doors, specifically including but not limited to any associated money handling areas

9. Specific areas where past incidents have occurred and/or future incidents are anticipated to occur, specifically including but not limited to Financial Aid, Check Cashing, Veterans, and Counseling

Design Standard—Intrusion Detection System (IDS)

System Criteria

1. SCC will deploy industry standard intrusion alarm panels at designated campuses buildings or designated high-value rooms within buildings for the detection and monitoring of unauthorized entry

2. Intrusion alarm panels do not have to be of a single consistent type, this equipment is essentially a commodity and the functionality between various products is similar. However, from the point of view of contractor support and SCC service and maintenance the College should consider standardizing on a single product type

3. Intrusion detection system alarm control panels shall be installed in a locked enclosure with a locked room

4. PIN-code arming/disarming keypad station shall be installed just inside the main authorized user entry door

    a. The keypad station should not be visible from the exterior of the building or room to be protected

    b. The main authorized user entry door associated with the keypad station shall be programmed as an entry/exit delay in the system in order to give the authorized user time to enter and disarm, or exit after arming, the system

c. Do not install a motion detection sensor that covers the area of the keypad station, or the authorized user will not be able to enter and disarm the system without activating the alarm, and they will not be able to arm the system without generating a system fault

5. Primary alarm signal communication shall be via a telephone line dialer module

    a. SCC shall contract monitoring service for each alarm panel from a UL-Listed 3rd party commercial Central Station monitoring service

    b. Alarm signal communication telephone line shall be a supervised circuit to produce a 'trouble' or 'comm loss' alarm signal on disruption or loss of the alarm signal communication telephone line

    c. Each alarm panel shall require a dedicated analog telephone line (outside service line, not an analog line out from a digital PBX)

6. Each authorized user shall have their own unique PIN-code for arming and disarming of the system

    a. PIN-codes shall be maintained in a centrally controlled list and changed periodically (minimum annually)

    b. PIN-codes shall be removed from the system on turnover of a previously authorized user; this step should be included in the termination or exit interview HR processes along with retrieving any traditional door lock keys and access control card badge credentials

    c. Alarm panels may be programmed to arm and disarm on schedule in addition to a manual process

Intrusion Detection System Application Criteria

Intrusion Detection System equipment, cabling, and sensor devices shall be designed, provided, and installed on the following doors, windows, and rooms for an entire building or a specific interior area to be monitored:

1. Exterior doors leading into the building or area: door position switch alarm contacts

    a. Mounted concealed in the door and frame header rabbet

    b. On certain existing doors surface-mounted door position switch alarm contacts may need to be installed on the interior door and frame header face; installation shall limit the amount of exposed cabling and wiring by using armored flex conduit to a junction box

2. Exterior windows leading into the building or area: glass break detection sensors
    a. Ceiling mounted or wall-mounted
3. Interior rooms and corridors: motion detection sensors
    a. Ceiling mounted or wall-mounted
    b. Motion detection sensors shall be dual-technology type to minimize false alarms: passive infrared (PIR) and microwave (Doppler effect)

Design Standard—Emergency Mass Notification Systems (EMNS)

Emergency Mass Notification shall be provided, installed, and utilized on SCC campuses in accordance with the communication goals of the President's Advisory Council on Emergency Preparedness (PACEP). Emergency Mass Notification is more of a series of supporting systems and procedures than it is a single system.

This series of supporting electronic and software-based systems includes but is not limited to:

1. Electronic automated notification message broadcasting services over SMS text/email/phone call trees
2. Indoor public address announcements
3. Outdoor public address announcements
4. Outdoor Emergency Telephones (2-way communication)
5. Indoor and outdoor electronic signage
6. Integration with the campus Cisco VOIP telephone system
7. Integration with the campus Utelogy centralized smart classroom management system

These individual system components should be integrated at a software-based level where possible. These systems should be coordinated with regard to the governing policies and procedures for their use regardless of whether they are integrated or separate individually operated systems. These coordinating policies and procedures should include but not be limited to such factors as:

1. Trigger events for deployment
2. Coordinated messaging

2. Exterior windows leading into the building or area: glass break detection sensors
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1. Trigger events for deployment
2. Coordinated messaging

3. Notification statement guidance and pre-written and approved announcements

4. Definition of proper and authorized usage

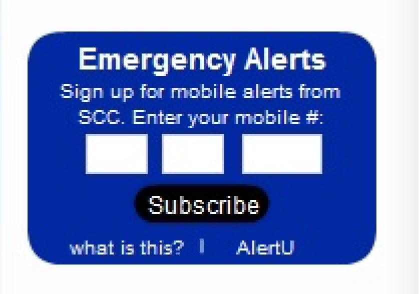
5. Disciplinary measures for improper and unauthorized usage

6. Guidelines for system deployment sequence, process, and priority

Automated Notification Message Broadcasting Service

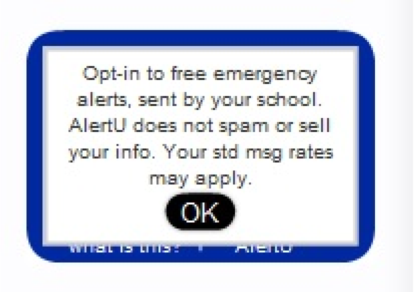
Refer to AlertU website https://www.alertu.org/ for more information regarding this hosted service.

Refer to SCC website http://www.solano.edu/ for enrollment information.



Emergency Alerts

Sign up for mobile alerts from SCC. Enter your mobile #:



Opt-in to free emergency alerts, sent by your school. AlertU does not spam or sell your info. Your std msg rates may apply.

Indoor Public Address

Refer to related Design Standards.

Outdoor Public Address

Outdoor public address is produced through exterior mounted broadcast loudspeakers. These loudspeakers should be installed throughout the campus grounds based on a campus-wide strategic layout though they may be installed as part of specific projects. Outdoor public address loudspeakers may be used to broadcast live voice messages, recorded voice messages, or siren sounds. Outdoor public address loudspeakers shall be integrated into the Talk-A-Phone WEBS mass notification platform.

Outdoor public address loudspeakers shall be: School Outfitters AmpliVox Sound Systems Half-Mile Hailer Outdoor Speaker System.

Outdoor "Blue Tower" Emergency Telephones

Outdoor 2-way emergency communication is produced through exterior mounted "Blue Tower" Emergency Telephones. These Emergency Telephones should be installed throughout the campus grounds based on a campus-wide strategic layout though they may be installed as part of specific projects.

Outdoor “Blue Tower” Emergency Telephones shall be: Talk-A-Phone WEBS multi-layer hardware and software mass notification platform. Platform components include: outdoor tower units or wall-mount units. The tower hardware units can be configured to support strobes, cameras, and light fixtures. Tower hardware units shall be provided with supervised communication links and call source announcement capability. The outdoor public address loudspeakers shall be integrated into the Talk-A-Phone WEBS mass notification platform.

Design Standard— Crime Prevention through Environmental Design (CPTED)

Crime Prevention through Environmental Design (CPTED) is a design perspective which leverages physical and environmental aspects to incorporate security within a campus.

The four principles of CPTED are:

- Natural Surveillance
- Natural Access Control
- Territorial Reinforcement
- Maintenance and Management

From a high-level perspective, Natural Surveillance would be ensuring that sight lines are open and trees and bushes aren’t obstructing views in strategic areas that could encourage crime or vandalism. The intent of natural surveillance is to increase the perception of observation, which can affect and alter the decision-making process with regard to inappropriate and unauthorized behavior.

Natural Access Control would be the thoughtful application of environmental designs (plants, trees, or benches) used to “control” or “funnel” access to certain areas. For example, properly located entrances, exits, fencing, landscaping and lighting can subtly direct both foot and vehicular traffic in ways that decreases criminal opportunities.

The last two principals – Territorial Reinforcement and Maintenance and Management – are related to invoking a sense of pride and investment within the campus so people feel this campus is their own, which naturally encourages them to protect the space. This is known to be related to reduction in opportunities for aberrant or criminal behavior such as vandalism.

Approved Manufacturers

Stanley Security Solutions / BEST Access Systems (EACS)

Luxriot Video Management System (VMS)

DSC MaxSys (IDS)

AlertU (EMNS)

School Outfitters AmpliVox Sound Systems (EMNS)

Talk-A-Phone WEBS (EMNS)

Substitutes Allowed

None noted.

Associated Design Standards and Construction Specifications

Associated Design Standards:

None noted.

Construction Specifications:

- 28 10 00 Electronic Access Control and Intrusion Detection
- 28 13 00 Access Control
- 28 16 00 Intrusion Detection
- 28 20 00 Electronic Surveillance
- 28 23 00 Video Surveillance

Addendum ‘A’

Electronic Access Control System Standard

Electronic Access Control System Standard

Solano Community College understands that there are advantages, efficiencies, and cost savings to be realized with the adoption and ongoing commitment to facilities Standards. In pursuit of these benefits Solano Community College is currently pursuing an initiative for the creation, development, and adoption of Standards. Electronic security systems—including an Electronic Access Control System—are an important part of such Standards.

Standards ensure that Electronic Access Control System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. Standards also support a single system database to avoid redundancy, duplication, and error, facilitate system administrator training and back-up, facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

Ongoing and future renovation projects require timely direction with regard to the selection of the Standard for an Electronic Access Control System. The selected Electronic Access Control System should be purpose-built for access control functionality, support wireless and hardwired access control locking door hardware, support integration with software for the maintenance of the traditionpal "hard key" Keying System, supported by numerous local competitive contractors, and should not require recurring licensing fees.

Solano Community College hereby selects BEST Access Systems "**Stanley WI-Q Technology Wireless Access Management System**" including associated system software, equipment components, and electronic locking door hardware as the Standard Electronic Access Control System.

Electronic access control devices shall be installed on all exterior building doors, with the exception of emergency exit only doors with no exterior trim (no exterior lockset knobs/lever handles or key cylinders). These electronic access control devices shall provide wireless or hardwired communication to the standardized centralized access control system software platform. Additional interior doors may be installed with electronic access control devices at the discretion of Solano Community College (such as at MDF/IDF equipment closets, computer labs, classrooms, etc.).

This direction applies to the following facilities:
FAIRFIELD CAMPUS | 4000 Suisun Valley Road, Fairfield, CA 94534
VACAVILLE CENTER | 2001 North Village Parkway, Vacaville, CA 95688
VALLEJO CENTER | 545 Columbus Parkway, Vallejo, CA 94591

End of Document

DESIGN STANDARD FOR FIRE ALARM SYSTEMS

Purpose

The purpose of this document is to standardize the basic elements of the Fire Alarm system design process. The Design Standard has the purpose of creating a consistent application of Fire Alarm system design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. Deviations from this standard shall be approved by SCC.

Design Standard— Fire Alarm Systems (FAS)

Design standards ensure that the Fire Alarm System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. These EACS Standards require use of a specific brand (manufacturer) of the FAS, including control panels, alarm initiating devices, and alarm notification devices, to ensure uniformity in alarm reporting, and compatibility with the existing FAS in use on the SCCD campus. The standards will also facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

Fire Alarm System Criteria

1. SCCD will continue to utilize a standardized Fire Alarm System at all campus locations, compatible with the existing Fire Alarm systems.

2. For new construction, the contractor shall provide a new Fire Alarm Control Panel (FACP), GE model EST3. The FACP shall be connected to the campus-wide Fire Alarm system network via fiber optic cable using a multi-priority peer-to-peer token ring protocol.

3. The FACP will be programmed to display system status and all alarms at the FACP, and on the existing Fireworks graphics workstations using the EST3 Life Safety Network.

4. All alarms and trouble conditions will also report to the UL-approved 24 hour central station service (Sacramento Valley Alarm) via the existing Digital Alarm Communicator Transmitter (DACT) located inside the Building 1800B FACP.

5. For retrofit/remodel projects, the contractor shall utilize the existing GE EST3 FACP found in each of the existing buildings. All alarm initiating devices and alarm notification devices shall be connected to the FACP in the affected building.

6. For buildings not located on the main SCCD campus, the FACP shall include a DACT connected via phone line to the UL-approved 24 hour central station monitoring service.

7. Consideration should be given to potential future integration of the FAS with the Emergency Mass Notification System (EMNS) when an EMNS is designed and put into place on the SCCD campus.

Fire Alarm System Design Criteria

1. All Fire Alarm System (FAS) alarm initiation devices shall be intelligent addressable type, and shall display specific device ID, type, and location on the FACP, and on the FireWorks graphic workstation annunciator.

2. All alarms and trouble conditions will report to the UL-approved 24 hour central station service (Sacramento Valley Alarm) via the existing system dialer located in Building 1800B.

3. The FAS design shall include intelligent manual pull stations at all building exits.

4. The FAS design shall include intelligent photoelectric smoke detectors at all Code required locations.

5. The FAS design shall include intelligent heat detectors at all Code required locations.

6. The FAS design shall include intelligent photoelectric duct-mounted smoke detectors for all supply fans > 2,000 CFM. Provide NEMA-3R enclosures for all duct smoke detectors mounted in exterior and/or exposed locations. Provide fan shutdown upon alarm of the associated duct smoke detector.

7. The FAS shall monitor fire protection (sprinkler) system water flow alarm and valve tamper switches.

8. The FAS shall monitor all auxiliary alarm systems (fire suppression, etc.) as required by Code.

9. The FAS shall provide audible and visual alarm notification throughout the affected building in the event of an alarm. All strobe alarm lights shall be synchronized, and installed in compliance with ADA regulations.

10. All alarms and trouble conditions will report to the UL-approved 24 hour central station service (Sacramento Valley Alarm) via the existing system dialer located in Building 1800B.

11. The Fire Alarm contractor shall be responsible for all required permits.

12. The Fire Alarm contractor shall provide complete system documentation, including product data, associated CSFM listing sheets, and installation shop drawings, and shall submit documentation and obtain approval from the Division of the State Architect prior to the start of construction.

13. The Fire Alarm contractor shall conduct a test and commissioning of the installed system, and shall obtain approval from the Authority Having Jurisdiction (AHJ) prior to building occupancy.

14. The Fire Alarm Contractor and manufacturer guarantee installation, equipment, software, software support and all parts and labor for one year from written notification of acceptance by the Owner.

15. The Fire Alarm contractor shall provide record drawings showing the as-built condition/location of all equipment, devices, and wiring installed on the project.

Approved Manufacturers

GE EST3 Fire Alarm Control Panel

Edwards Intelligent Addressable Alarm Devices

Edwards Alarm Notification Devices

System Sensor Alarm Notification devices

Substitutes Allowed

None noted.

Associated Code References and Construction Specifications

Associated Code References (current approved issue):

- ADA – Title 3 of the Americans with Disabilities Act
- CCR – Titles 19 and 24 of the California Code of Regulations
- CBC – 2012 International Building Code with 2013 CA Amendments
- CEC – 2011 National Electrical Code with 2013 CA Amendments
- CFC – 2012 International Fire Code with 2013 CA Amendments
- CMC – 2012 International Mechanical Code with 2013 CA Amendments
- NEMA – National Electrical Manufacturers' Association
- NFPA 72 – 2010 National Fire Protection Association Standards
- UL – Underwriters Laboratories, Inc.
-

Construction Specifications:

- 28 31 00 Fire Alarm Systems

End of Document

DESIGN STANDARD FOR ELECTRONIC SAFETY AND SECURITY

Purpose

The purpose of this document is to standardize the basic elements of the Electronic Safety and Security systems design process. The Design Standard has the purpose of creating a consistent application of Electronic Safety and Security systems design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. Deviations from this standard shall be approved by SCC.

Table of Contents

Abbreviations

- **SSA** – Security Sensitive Areas
- **P&P's** – Policies & Procedures
- **LED** – Light Emitting Diode (type of lighting with preferable heat generation and energy consumption characteristics over traditional incandescent luminaires)
- **PV** – Photovoltaic (solar panels)
- **EMNS** – Emergency Mass Notification Systems
- **PA** – Public Address (overhead speakers)
- **AV** – Audiovisual
- **LAN** – Local Area Network (IP network based Ethernet data network)
- **IDS** – Intrusion Detection System (burglar alarm)
- **PIN code** – Personal Identification Number (numerical code entered on arming station keypad to arm or disarm an Intrusion Detection System)
- **ARM** – arming station keypad used to arm or disarm an Intrusion Detection System
- **MD** – Motion Detector (intrusion detection sensor)
- **EACS** – Electronic Access Control System
- **ACP** – Access Control Panel
- **CCTV** – Closed Circuit Television (older, traditional term for analog video surveillance system)
- **VMS** – Video Management System (newer term for IP network based video surveillance system)
- **NVR** – Network Video Recorder
- **PTZ** – Pan Tilt Zoom video surveillance camera (remotely operable in lieu of fixed)

Design Standard – Security Systems Ownership

An effective security program requires comprehensive administrative and operational planning, direction, oversight, and control. With regard to security electronics systems – including electronic access control, video surveillance, intrusion detection, and emergency communications – the "ownership" of the security systems by various associated parties must be clarified, codified in policy, assigned, and accepted.

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4. Provides the lead role in coordinating the efforts of the Security Systems Contractor/Integrator with SCC Executive Leadership, IT, project design team, and the work of other trades and contractors.

Design Standard—Electronic Access Control System (EACS)

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Design standards ensure that Electronic Access Control System installations, retrofits, replacements, and upgrades maintain system consistency and compatibility – regardless of project timing or funding source. These EACS Standards also support a single system database to avoid redundancy, duplication, and error, facilitate system administrator training and back-up, facilitate service and maintenance, and act as a record document that can be periodically updated to reflect new developments and requirements.

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible Electronic Access Control System at all campuses
2. System will primarily consist of card readers, electrified locking door hardware, alarm contacts, request-to-exit (REX) sensors and access control server hardware/software

3. System will secondarily consist of wireless locksets which communicate with the centralized access control server hardware/software

4. Electrified locking door hardware should be hardwired for low-voltage power

5. Electronically access controlled doors shall be capable of being locked and unlocked in an automated manner based on schedules in the EACS software

6. All access control points shall communicate with the centralized access control server hardware/software and shall not be 'stand-alone'; all electronic access control devices shall provide wireless or hardwired communication to the standardized centralized access control system software platform

7. Access to access control system cardholder and access rights database shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

8. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights end-user with control over a limited subsection of the cardholder and access rights database

The Electronic Access Control System shall:

1. Be purpose-built for access control functionality

2. Support wireless and hardwired access control locking door hardware

3. Support integration with software for the maintenance of the traditional "hard key" Keying System

4. Supported by numerous local competitive contractors

5. Should not require recurring licensing fees

6. Support the use of technology-based access credentials whether photo ID badge or key ring fob or other form factors; credentials shall be programmed for customizable specific access rights per individuals

Access Control Application Criteria

Electronic access control with electrified locking door hardware shall be designed, provided, and installed on the following doors in the following order of priority:

1. Building exterior entry/exit doors: these are entryways which provide the primary access to the building; these are the doors which are intended to be capable of being locked/unlocked on a

scheduled basis. The number of designated entry/exit doors should be limited in number to funnel traffic to these doors, the doors must have door closers and no door prop mechanisms, and must unlock without unlatching when “open” according to the pre-programmed schedule.

2. Building interior additional doors shall be installed with electronic access control devices pending confirmation by Solano Community College on a project-specific case-by-case basis in coordination with the project teams:

    a. MDF/IDF data network equipment closets

    b. Computer labs

    c. Smart classrooms

    d. Lost & Found or other asset storage areas

    e. Security Sensitive Areas

The following doors have access control considerations other than electronic access control with electrified locking door hardware:

1. Emergency exit only doors shall have no exterior trim (no exterior lockset knobs/lever handles or key cylinders) unless required by SCC or the Authority Having Jurisdiction. These doors shall be used for exiting only and should not be used as entry doors into the building.

    a. They may be locally alarmed with door prop alarms to indicate that the door has been left open, these locations shall be determined on a project-specific case by case basis.

    b. Where door prop alarms are used they should be hardwired for low-voltage power and supported by appropriate signage.

Design Standard—Video Management System (VMS)

System Criteria

1. SCC will deploy a single standardized, centralized, and compatible video surveillance system at all campuses

2. System will consist of cameras, cabling, Power-Over-Ethernet (PoE) data network switches, and Network Video Recorder (NVR) hardware/software

3. System shall be IP network (Ethernet) based; no analog cameras or other system components shall be specified, provided, or installed

4. Cameras shall primarily be homerun hardwired with cabling; cabling shall be Ethernet cabling of a Category confirmed by SCC; this CAT cable shall be Power-Over-Ethernet (PoE) to provide signal and low-voltage power in a single homerun cable

5. Cameras shall secondarily be on wireless point-to-point connections only where the costs of providing a hardwired connection is greater than the costs of providing a wireless link (e.g. parking lots)

6. Access to live or recorded video shall be through the use of authorized client software only; authorized persons shall be issued a secure unique login and password

7. Authorized client access to system shall be customized based on the user's role: for example: full-privilege rights system administrator versus limited-privilege rights "view/search only" end-user

8. System will primarily consist of fixed cameras; Pan-Tilt-Zoom (PTZ) remotely operable cameras shall be specified, provided, or installed only on a project-specific case-by-case basis. PTZ cameras may be a required programmatic system component to be specified at the discretion of SCC, such as Cafeteria and Quad areas.

9. Where a camera is installed near an electronic access control door the door should be in the field of view of the installed camera

10. 30 days recording minimum

Camera Application Criteria

Video surveillance cameras shall be designed, provided, and installed at the following areas in the following order of priority; camera placements shall be coordinated with projects that are pending in the SCC Master Plan so that projects are not installing cameras that will subsequently be removed:

1. Primary campus vehicular entry/exit lanes; though these cameras are not intended to be software-based "License Plate Recognition (LPR)" cameras they should be mounted low with IR illuminators in order to provide views of vehicles and license plates. These installations typically leverage an available local power source such as a light-pole and may utilize underground conduit runs or wireless point-to-point to send the video signal to a building where the recording equipment is installed.

2. Parking lots general views as confirmed in design projects by SCC; coordinated with obstructions, trees/landscaping, and PV panels; may include bus stop and drop-off/pick-up curbs

3. Building primary pedestrian entry/exit doors associated with electronic access controlled doors

4. Building secondary pedestrian entry/exit and emergency exit only doors

5. Building second floors points of vertical transportation and corridors

6. Quad (clock tower)

7. Cafeteria

8. Building Security Sensitive Areas (SSA) doors such as IDF's, computer labs, and asset/equipment storage closets associated with electronic access controlled doors, specifically including but not limited to any associated money handling areas

9. Specific areas where past incidents have occurred and/or future incidents are anticipated to occur, specifically including but not limited to Financial Aid, Check Cashing, Veterans, and Counseling

Design Standard—Intrusion Detection System (IDS)

System Criteria

1. SCC will deploy industry standard intrusion alarm panels at designated campuses buildings or designated high-value rooms within buildings for the detection and monitoring of unauthorized entry

2. Intrusion alarm panels do not have to be of a single consistent type, this equipment is essentially a commodity and the functionality between various products is similar. However, from the point of view of contractor support and SCC service and maintenance the College should consider standardizing on a single product type

3. Intrusion detection system alarm control panels shall be installed in a locked enclosure with a locked room

4. PIN-code arming/disarming keypad station shall be installed just inside the main authorized user entry door

    a. The keypad station should not be visible from the exterior of the building or room to be protected

    b. The main authorized user entry door associated with the keypad station shall be programmed as an entry/exit delay in the system in order to give the authorized user time to enter and disarm, or exit after arming, the system

c. Do not install a motion detection sensor that covers the area of the keypad station, or the authorized user will not be able to enter and disarm the system without activating the alarm, and they will not be able to arm the system without generating a system fault

5. Primary alarm signal communication shall be via a telephone line dialer module

   a. SCC shall contract monitoring service for each alarm panel from a UL-Listed 3rd party commercial Central Station monitoring service

   b. Alarm signal communication telephone line shall be a supervised circuit to produce a 'trouble' or 'comm loss' alarm signal on disruption or loss of the alarm signal communication telephone line

   c. Each alarm panel shall require a dedicated analog telephone line (outside service line, not an analog line out from a digital PBX)

6. Each authorized user shall have their own unique PIN-code for arming and disarming of the system

   a. PIN-codes shall be maintained in a centrally controlled list and changed periodically (minimum annually)

   b. PIN-codes shall be removed from the system on turnover of a previously authorized user; this step should be included in the termination or exit interview HR processes along with retrieving any traditional door lock keys and access control card badge credentials

   c. Alarm panels may be programmed to arm and disarm on schedule in addition to a manual process

<u>Intrusion Detection System Application Criteria</u>

Intrusion Detection System equipment, cabling, and sensor devices shall be designed, provided, and installed on the following doors, windows, and rooms for an entire building or a specific interior area to be monitored:

1. Exterior doors leading into the building or area: door position switch alarm contacts

   a. Mounted concealed in the door and frame header rabbet

   b. On certain existing doors surface-mounted door position switch alarm contacts may need to be installed on the interior door and frame header face; installation shall limit the amount of exposed cabling and wiring by using armored flex conduit to a junction box

DESIGN STANDARD FOR ELECTRONIC SAFETY AND SECURITY

Purpose

The purpose of this document is to standardize the basic elements of the Electronic Safety and Security systems design process. The Design Standard has the purpose of creating a consistent application of Electronic Safety and Security systems design throughout the Solano Community College (SCC) District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects. Deviations from this standard shall be approved by SCC.

Table of Contents

Abbreviations

- **SSA** – Security Sensitive Areas
- **P&P's** – Policies & Procedures
- **LED** – Light Emitting Diode (type of lighting with preferable heat generation and energy consumption characteristics over traditional incandescent luminaires)
- **PV** – Photovoltaic (solar panels)
- **EMNS** – Emergency Mass Notification Systems
- **PA** – Public Address (overhead speakers)
- **AV** – Audiovisual
- **LAN** – Local Area Network (IP network based Ethernet data network)
- **IDS** – Intrusion Detection System (burglar alarm)
- **PIN code** – Personal Identification Number (numerical code entered on arming station keypad to arm or disarm an Intrusion Detection System)
- **ARM** – arming station keypad used to arm or disarm an Intrusion Detection System
- **MD** – Motion Detector (intrusion detection sensor)
- **EACS** – Electronic Access Control System
- **ACP** – Access Control Panel
- **CCTV** – Closed Circuit Television (older, traditional term for analog video surveillance system)
- **VMS** – Video Management System (newer term for IP network based video surveillance system)
- **NVR** – Network Video Recorder
- **PTZ** – Pan Tilt Zoom video surveillance camera (remotely operable in lieu of fixed)

Design Standard – Security Systems Ownership

An effective security program requires comprehensive administrative and operational planning, direction, oversight, and control. With regard to security electronics systems – including electronic access control, video surveillance, intrusion detection, and emergency communications – the "ownership" of the security systems by various associated parties must be clarified, codified in policy, assigned, and accepted.

There are 4 primary parties that must be assigned and must accept responsibility and accountability for various functions of service and maintenance as well as daily operation of the security systems. Importantly, such accountability cannot be reasonably and successfully assigned unless the associated party is also granted the authority, staffing, and funding to carry out the responsibility.

SCC Executive Leadership

1. Provides the authority, authorization, oversight, and funding for systems deployment and use.
2. Issues Policies & Procedures.
3. Determines the appropriate end-users of the system from both law enforcement professional security personnel and departmental staff personnel.
4. Coordinates the functional and operational system requirements between Academic and departmental representatives.

SCC IT

1. Provides network connectivity and support.
2. May provide computing hardware such as servers and computer workstations for use by the Security Systems Contractor/Integrator.
3. Ensures appropriate network security, firewalls, and encryption issues are addressed and documented.
4. Maintains scheduled maintenance of security systems software versions, licenses, and firmware (when such activities are not outsourced to the Security Systems Contractor/Integrator).
5. Maintains scheduled maintenance of security systems hardware operating system, antivirus software, utilities, and system activity logs.
6. Coordinates authorized login UserID and passwords with the network domain identity structure.

13. The Fire Alarm contractor shall conduct a test and commissioning of the installed system, and shall obtain approval from the Authority Having Jurisdiction (AHJ) prior to building occupancy.

14. The Fire Alarm Contractor and manufacturer guarantee installation, equipment, software, software support and all parts and labor for one year from written notification of acceptance by the Owner.

15. The Fire Alarm contractor shall provide record drawings showing the as-built condition/location of all equipment, devices, and wiring installed on the project.

Approved Manufacturers

GE EST3 Fire Alarm Control Panel

Edwards Intelligent Addressable Alarm Devices

Edwards Alarm Notification Devices

System Sensor Alarm Notification devices

Substitutes Allowed

None noted.

Associated Code References and Construction Specifications

Associated Code References (current approved issue):

- ADA – Title 3 of the Americans with Disabilities Act
- CCR – Titles 19 and 24 of the California Code of Regulations
- CBC – 2012 International Building Code with 2013 CA Amendments
- CEC – 2011 National Electrical Code with 2013 CA Amendments
- CFC – 2012 International Fire Code with 2013 CA Amendments
- CMC – 2012 International Mechanical Code with 2013 CA Amendments
- NEMA – National Electrical Manufacturers' Association
- NFPA 72 – 2010 National Fire Protection Association Standards
- UL – Underwriters Laboratories, Inc.
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Construction Specifications:

- 28 31 00 Fire Alarm Systems

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