Physical Access Control & Security Management System
Design Standard

PART - 1   Introduction

1.1   Purpose

The San Mateo County Community College District operates and maintains the systems that provide physical access control and security to its buildings and facilities. A blended approach of using electronic access control, mechanical key and video monitoring is the current standard deployed district wide. Collectively the systems are an economical solution to provide security and safety while maintaining convenience and flexibility.

The standards are based around the following manufacturers:

A. Access Control and Alarm Monitoring System (ACAMS): AMAG by Group 4 Technologies
B. Mechanical Key System: Schlage Classic and Schlage Primus
C. Video Surveillance System (VSS): exacq with exacqVision Video Management System (VMS)

This document details the existing standards, design criteria, implementation guidelines and programming protocols for these systems. It is not intended as a substitution for construction documents, but rather guides the engineer to design additions to the overall system during new and renovation construction projects.

1.2   Scope

A. The scope of this document includes the following information:

1. Architectural, Structural, Electrical, Mechanical, Elevator, and Telecommunication coordination and design requirements required to support the physical access control and security system during implementation.
2. Mechanical Locking Hardware and applications
3. Access Control and Alarm Monitoring System (ACAMS) Design Criteria
4. Video Surveillance System Design Criteria
5. Acceptable Products List

1.3   Application

A. Physical security plays a critical role in providing a safe environment for staff and students. Security for the district consists of Access Control and Alarm Monitoring System (ACAMS) and Video Surveillance System (VSS), which mitigate theft, vandalism, and general crimes of opportunity. Additionally, the system automates the opening and closing of the buildings on schedule, increasing the effective utilization of staff.

B. The requirements and criteria herein apply to each campus within the San Mateo County Community College District – the College of San Mateo (CSM) located in San Mateo, Skyline College located in San Bruno, and Cañada College located in Redwood City, as well as the District Office in San Mateo.

1.4   Arrangement of Information

A. This document is arranged by design discipline. Best practice has the Architect and Design Engineers reading the entire document and related documents. The Design Team should study the specific sections related to their discipline and review the other sections.

1.5   Roles and Responsibilities

A. The successful design and implementation of any component of the physical access controls and security management system requires coordination with the following entities throughout the delivery process:

1. Facilities Planning and Operations Department (FPO)
2. Construction Management Consultant
3. Information Technology Department (ITS)
4. User Groups
5. Security Design Engineer
6. Security Integrator

B. FPO Maintenance & Operations (M&O) personnel coordinate all aspects of e-key and mechanical key issuance, programmed privileges, ACAMS operation, programming requirements, lock master pinning, etc. They have an intimate and thoroughly trained knowledge of the ACAMS and mechanical key systems and how these systems operate at their College.

1. Only M&O personnel (specifically, the Director of Facilities Maintenance, the District Facilities Systems Manager, the Facilities Manager, the Chief Engineer and staff assistant) should engage end-users in discussions regarding ACAMS and mechanical key systems operation, key issuance and access privileges.

2. Construction and Planning staff, architects and other design consultants and their agents shall not engage directly with end-users on system operational requirements; this directive is based on the following:

   a. Those individuals are not typically trained and knowledgeable in SMCCCD's ACAMS and mechanical keying systems.

   b. Only authorized personnel can have access to the secure information needed for an uncompromised college campus security system, and as such the security information is classified information unavailable to construction managers, architects, contractors, etc.

C. Construction Management Consultant personnel act as capital project managers, ensuring that a project's scope, schedule and budget goals are achieved. Contact Construction Manager's Project Manager for specific project requirements.

D. ITS personnel coordinate all aspects of the ACAMS and video interfaces and connections with the LAN and/or WAN.

E. User Groups are the ultimate facility users who will interact with the mechanically keyed, ACAM'd and/or video surveilled facility. User group representatives will define specific program requirements for the security system, beyond the minimum standard deployed across all projects.

F. Security Design Consultant

1. Members of the design team who are designing the physical access controls and/or security management system shall have a thorough understanding, knowledge and successful experience in designing similar systems in similar applications. The design

team members (whether part of the prime consultant's design team or an associated consultant) shall be approved by SMCCCD prior to performing any design work.

2. Security design includes ACAMS, VSS, and associated infrastructure based on the physical security standards set by SMCCCD. The Design Engineer shall provide services in accordance with these standards.

3. The Design Team shall verify that all applicable portions of these standards are incorporated into the project's design, drawings, specification and final construction. Requests for variances from these standards are to be submitted in writing to the Project Manager, and will be scrutinized very carefully. Variances from any aspects of this physical access controls and security management system design standard will only be allowed with the explicit written consent of the Vice Chancellor of Facilities. We do not take security lightly, and do not expect to allow any variances from this design standard.

G. Security Integrator

1. Integrator firms minimally provide the "parts and smarts" for the ACAMS system. Integrators install the entire system (parts, smarts and wiring).

   a. In order to ensure that an Integrator is able to provide the level of service that SMCCCD requires, there are a number of qualifications that must be met. SMCCCD may, at its discretion, make exceptions based on demonstrated strengths in one area that outweigh a deficiency elsewhere.

   b. Documentation demonstrating compliance with the following criteria must be provided as a submittal prior to any work being done by the Integrator.

2. Required Qualification Criteria:

   a. Primary business locations from which project management, installation technicians and service personnel are dispatched must be within 50 miles of the city of San Mateo, to ensure response time for technical assistance within 4 hours.

   b. Personnel must have successful experience and demonstrated knowledge, skill and ability in working on an AMAG ACAMS at the Enterprise level. Personnel must also reside in the District's service area. Resumes of the proposed Project Manager, General Foreman, and Lead Technician(s) indicating role, years of experience, tenure, product certifications and training, listing of similar projects the individual performed in the role proposed for this project, along with client contact information for each shall be reviewed by SMCCCD to ensure proposed personnel are qualified. In addition, each proposed technician's AMAG Enterprise certification or other proof of factory training must be provided; this requirement ensures that the manufacturer has certified that the technician is trained in Enterprise level AMAG ACAMS installations.

   c. Integrator firms must be in contract with Group 4 Technologies, authorizing the firm to act as a reseller, installer, and warranty provider of the AMAG security system at the Enterprise Level. Certifications from AMAG for lower tiered product offerings are not acceptable. This requirement ensures that the manufacturer has qualified the Integrator to conduct business at the Enterprise level that is installed at SMCCCD.

PART - 2 Architectural

2.1   Equipment Rooms

A. Locate security equipment panels in telecommunications rooms unless space constraints do not allow. Wall mount panels to plywood backboard and coordinate space requirements. Verify at least one segment of 4' wide x 8' high plywood is reserved in each typical telecommunications room for security equipment. Depending on the magnitude of the project, some installations require more wall space. Coordinate rack space as required to support security systems. For example, network switches for IP cameras. Take security equipment into consideration when sizing the room. Refer to SMCCCD Telecommunications

Infrastructure Design Standards for additional information on room sizing requirements. Reference Figure 2.1 for a sample layout.
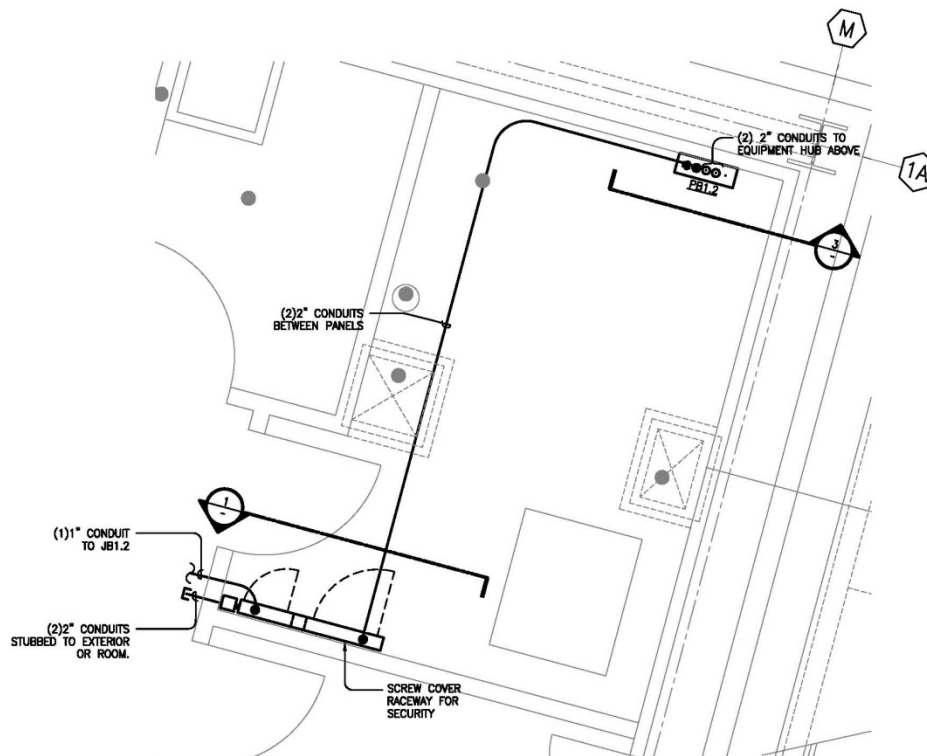

Figure 2.1: Sample Equipment Room

B. When space constraints do not allow for security equipment panels in the telecommunications rooms, locate equipment in spaces suitable for low-voltage equipment. Spaces shall be free from moisture, excess dust & dirt, and secured from the general public. Equipment panels shall mount to plywood backboard following the same requirements in telecommunications rooms.

C. Typically, telecommunications rooms are secured with a standard mechanical key-type lock. No access control or alarm monitoring is required for these spaces with the exception of the MPOE. Each MPOE or rooms with extremely critical infrastructure receive a card reader and associated security hardware as defined in Door Type A-Subsection 8.3 for additional information on door types.

2.2   Doors and Door Hardware

A. Exterior Doors

1. The District is committed to providing access for our disabled community and when appropriate will implement beyond code requirements. As an example, auto operators at the major entries to each building shall be provided even if not required.

    a. Operators shall be furnished with three-position rocker switches (on/off/hold open).

    b. Hard wiring of the operator buttons is strongly preferred. In retrofit installations or other installations where hard wiring is difficult, radio control receivers may be considered, but will only be allowed with the explicit written consent of the Vice Chancellor of Facilities prior to designing radio control receivers.

    c. Interlock the power assist's push plate actuators with the ACAMS when access control is required.

2. Exterior storefront doors that are equipped for ACAMS controlled unlocking shall have door hardware with latch retraction, and pull trim to allow the doors to operate in push/pull operation when in the unlocked mode

3. Exterior doors shall have continuous hinges, for added durability and security.

4. Exterior doors that are not aluminum storefront type doors shall be fiberglass reinforced polyester doors. Refer to SMCCCD's Division 08 16 13 FRP Doors Design Standard.

B. Interior Doors

1. Stained wood veneer doors and painted hollow metal doors are to be designed per SMCCCD's Division 08 11 13 / 08 14 16 Interior Hollow Metal and Flush Wood Doors Design Standard.

C. Overhead Coiling Doors

1. In the event of power outages, motorized overhead coiling doors shall be operable manually to allow maintenance and security staff to manually close and lock the doors. In the event that manual operation is not possible then battery back-up must be provided.

2. The reset mechanism that must be activated in the event of a power outage shall be accessible from floor level in an area visually adjacent to the door; the reset mechanism shall not be installed in the ceiling or any other location that requires a ladder and contortionist acrobatics to reset the door following a power outage. The reset mechanism shall be a labeled key switch, and it shall be placed behind a locked enclosure if it will be subject to tampering or vandalism.

D. Miscellaneous Door Hardware

1. Door closers shall be institutional quality, suitable for the type of use and abuse they will be subject to at our colleges. SMCCCD has determined that LCN closers 4000 series institutional quality closers are appropriate for our applications. LCN 4000 series door closers have the following attributes, meeting SMCCCD's criteria for durability, maintainability, life cycle cost, quality of construction: heavy duty cast iron bodies, forged steel arms for greatest strength with less bulk, heat treated forged steel pinions for shaft strength, insulating hydraulic fluid for all-weather, fire resistant use without the need for seasonal adjustments, 10 million cycle tests, chrome silicon springs for durability, special templates for ease of installation, parts availability for in-field repairs,

2. Kick plates are required on doors that are highly susceptible to damage from rolling carts (custodial carts, instructional carts, etc.). These include but are not limited to custodial closets, instructional labs and storage rooms where carts will be rolled in and out, restrooms.
   a. 18" and taller plates as needed.
   b. Provide 36" minimum and taller (lockset is installed onto kick plate) at main service/high card traffic doors.

3. Floor-mounted door stop/friction-type door holder combination units shall be institutional quality, suitable for the type of use and abuse they will be subject to at our colleges. SMCCCD has determined that Ives models FS40, FS41, FS42, or FS43 (depending on the door clearance) are appropriate for our non-fire-rated door stop applications. Ives FS40 series floor door stops have the following attributes, meeting SMCCCD's criteria for durability, maintainability, life cycle cost, quality of construction, intuitive ease of use: brass forged, intuitive use, series accommodates different field conditions, universal screw pack for ease of installation in varying door construction types. Specify a finish to match the other door hardware components. For exterior installations, specify stainless steel or bronze.

2.2.1   Application

A.   All doors must have mechanical lock.

1.   ACAMS electronic locks must have a manual override feature that allows for access in the event of ACAMS system downtime due to extended power outages or other system failures.

2.   Locked doors must be keyed to the College's master key system.

E.   This protocol facilitates emergency response, ease of use, departmental control, protection of SMCCCD assets, and the safety and security of faculty, staff and students. No exceptions to this protocol are allowed.

2.2.2   Manufacturer

A.   The mechanical key system installed at SMCCCD is *SCHLAGE.* SMCCCD uses a combination of Schlage Classic and Schlage Primus keys/cylinders.

2.2.3   Design Criteria

A.   Reference Appendix A for typical Lock hardware at SMCCCD.

F.   Style

1.   Schlage Locksets - Specify *Sparta (SPA)* levers.

a.   Exterior doors outfitted with Schlage lever locksets shall have the *Vandlgard* feature.

2.   Von Duprin lever trim – Specify Style #17.

3.   Finishes

a.   When matching to existing metal finishes in existing buildings, use oil rubbed bronze or other matching finish.

b.   If hardware is being completely replaced in an existing building, or for new installations in new construction, use satin chrome US26D (626).

G.   Keyways and Cores

1.   Each College has its specific Schlage keyway:

a.   Cañada College uses *Classic E* and *Primus EP*.

b.   College of San Mateo uses *Classic F* and *Primus FP*.

c.   District Office Building uses *Classic F* and *Primus FP*.

d.   Skyline College uses *Classic EF* and *Primus EFP*.

2.   Cores are to be 6-pin.

3.   All Primus locks are to be side pinned to SMCCCD's proprietary Schlage Primus code #006297.

a.   The College's Facilities Manager and Chief Engineer are signatories on Allegion's Primus release documentation, which must be signed as approved before Allegion will release to the contractor cores side pinned to SMCCCD's Primus code.

4.   Interchangeable Cores (IC Cores) are to be used unless an IC Core option is unavailable.

5.   Primus locks are to be used on:

a.   Any door that has been equipped with ACAMS controlled locking hardware.

b.   Custodian closets.

c.   College security office and locker room spaces.

d.   All mechanical and electrical rooms.

e.   All MDF, IDF, and telephone switching rooms.

f.   Maintenance storage areas.

        g.   All panic hardware mortise cylinders, used for dogging.

        h.   Any other doors that need higher levels of security, but not requiring ACAMS.

        i.   Any doors that permit roof access.

        j.   Any roof hatches regardless of location, lock shall be interior side.

        k.   Any door to a storage room or closet that houses the College's disaster preparedness supplies.

6. Classic locks are to be used on doors not listed above.

7. Master Pinning

    a.   All locks are to be pinned to the College's master key system codes. No exceptions to this requirement are allowed.

    b.   Pinning codes are classified information that shall not be available to unauthorized personnel. Authorized personnel are limited to FPO M&O management and engineering staff.

    c.   All Primus locks are to be side pinned to SMCCCD's proprietary Schlage Primus number.

8. Keys

    a.   Specify Schlage standard 6 pin bow key blanks.

    b.   All keys must be stamped by the manufacturer "DO NOT DUPLICATE"

9. Implementation

    a.   All permanent cylinders and keys are to be furnished directly to College's Chief Engineer for keying.

    b.   Specify the use of construction keying for doors requiring locking during construction; remove temporary inserts immediately prior to SMCCCD occupancy.

2.2.4 Miscellaneous locks

A. Padlocks: Padlocks are sometimes used in place of permanent hardware, for example on hasp locks, gates, chains/cables. However, the padlocks are to be keyed to the College's master key system nonetheless.

    i.   Padlocks shall be Schlage PL4001, PL4002 or PL4003 padlocks (depending on the shackle length), which have interchangeable cores.

H. Furniture & Casework: Furniture/casework that is planned to hold smart classroom audio/visual equipment shall be lockable, and keyed to the College's master key system.

1. Wood Cabinets for A/V Equipment: Specify an IC core whenever possible. Locks shall fit flush to the cabinetry surface.

2. Metal Cabinets for A/V Equipment: Locks shall fit flush to the cabinetry surface. Specify installation of spacers as required to ensure that the fit is flush with the surface.

    a.   Door cabinet lock

        1)   Manufacturer: Olympus Lock Inc.

        2)   Function: 777 Series

        3)   Description: Door cabinet lock, 1 7/16" throw for Schlage large format IC classic core. Core must be ordered separately (not supplied by Olympus).

        4)   Finish: generally 626, unless deliberately matching to another finish.

    b.   Drawer cabinet lock

        1)   Manufacturer: Olympus Lock Inc.

        2)   Function: 888 Series

3) Description: Door cabinet lock, 1 7/16" throw for Schlage large format IC classic core. Core must be ordered separately (not supplied by Olympus).

4) Finish: generally 626, unless deliberately matching to another finish.

3. Roof access hatch lock
   a. Refer to section 07 72 33 Roof hatch.
   b. Unless preauthorized by the Vice Chancellor of Facilities, the lock shall be Schlage L series mortise lock with Primus core.

2.3   Doors and Frames

For Exterior doors and door frames including storefront and curtain wall systems, refer to "Exterior Aluminum, HM Door Frames, Curtain Wall, Storefronts and Windows Design Standards" as well as this section 2.3.

2.3.1   New Construction

A. Factory prepare fire rated assemblies for security devices by the manufacturer prior to installation. SMCCCD's standard is factory-prepared solid wood doors, ready for electrified locks via a transfer hinge and a factory-prepped cored chase for wiring to the lock. No modifications to door or frame are allowed in the field. Field modifications void rating and require replacement of the entire rated assembly.

2.3.2   Renovation

A. Existing rated assemblies use a different modification approach. Utilize tape wire around the edge of the door from the electrified hinge to the electrified lockset instead of drilling through the door. Create a notch 3/4" wide by 1/4" deep around the edge of the door for the tape wire. Backfill notch and conceal tape wire with epoxy wood filler to match original finish.

B. Coordinate color of security devices on walls and ceilings to best match the mounting surface finish. Devices should not stand out. This applies to security field devices such as card readers, request-to-exit sensors, contacts, glass break sensors, and camera housings.
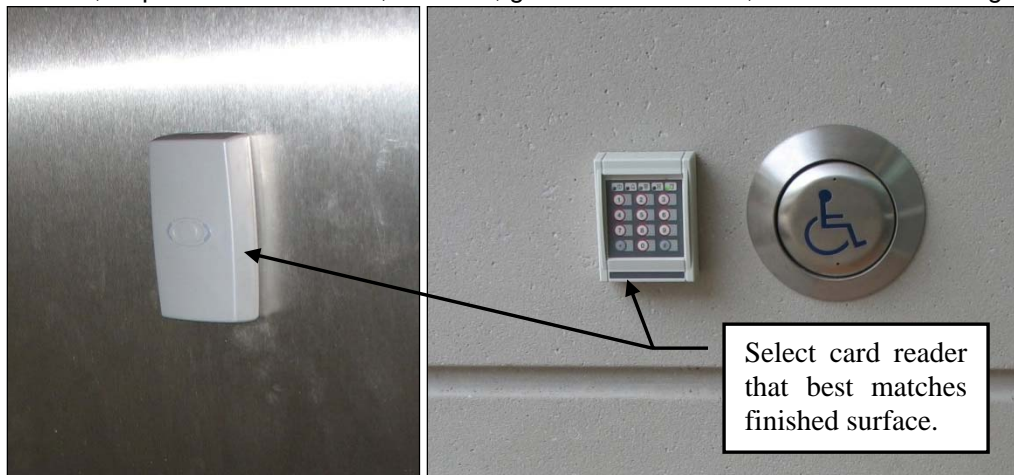

Select card reader that best matches finished surface.

Figure 2.2: Card Reader & Finish

C. When installed on light colored walls, the standard keypad card reader color is ash grey (which appears white). Black and Charcoal grey readers are acceptable if installed on a darker surface finish.

PART - 3   Structural

3.1   New Construction

A.   Seismic Bracing of Equipment Racks, in Telecommunications Rooms

1.   Equipment racks, possibly both floor-mounted and wall-mounted, will be installed into Telecommunications Rooms.

2.   The Structural Engineer shall be responsible to confirm the seismic bracing designs (including structural calculations and details as required by the Project), and provide recommendations as necessary.

3.2   Renovation

A.   Floor Anchoring for Equipment Racks

1.   Floor-standing equipment racks and cabinets shall be anchored to the structural floor via devices pre-approved by DSA. Examples of such devices include Hilti Kwik-Bolt 3. The structural engineer shall determine the applicability of the anchoring device set in the floor system, including minimum embedment depth.

B.   Wall Anchoring for Equipment Racks and Cabinets

1.   Wall-mounted equipment racks and cabinets shall be anchored to the wall via fasteners pre-approved by Division of State Architect (DSA). Examples of such fasteners include woods screws into plywood backboard and expansion anchors into concrete wall.

2.   The structural engineer shall determine the applicability of the fasteners depending upon the mounting substrate, including minimum embedment depth.

C.   Fasteners

1.   The following chart is a guide to the fasteners generally approved for mounting backboards, equipment, etc.

Wall Type	Fastener Required
Concrete Wall	TAPCON, 3/16" x 1¼" with 1" min embedment
CMU Wall	TAPCON, 3/16" x 1¼" with 1" min embedment
Metal Stud Framed Wall, 1 Layer Gypsum	Into metal stud: no. 8 x 2" self-tapping metal screw for metal studs
	Into gypsum wallboard: TOGGLER toggle bolt BA (3/16" x 24)
Wood Stud Framed Wall, 1 layer Drywall	Into wood stud: no. 8 x 2" wood screw
	Into gypsum wallboard: TOGGLER toggle bolt BA (3/16" x 24)
Plaster Wall	TOGGLER toggle bolt BA (3/16" x 24)
Plywood Backboard	no. 8 x 2" wood screw

Chart 3.1 - Approved Fasteners Chart

PART - 4   Electrical

4.1   Power Requirements

4.1.1   Equipment Hubs

A.   Coordinate power at each security equipment hub location, typically in the telecommunications rooms. Provide two 120 VAC, 20 amp dedicated circuits to each security equipment hub location. Connections to security equipment transformers or power supplies are hardwired unless a receptacle is specifically indicated.

B. Coordinate UPS power requirements for Network Video Recorders (NVRs) as they are added to each campus to support new cameras. If centralized UPS power is not available, provide a rack-mount dedicated unit. Coordinate exact power requirements and locations.

4.1.2   Locking Hardware

C. Review door locking hardware requirements on the latest door hardware schedule. Verify if any hardware requires a local power supply or booster, such as a Von Duprin PS 873, provided by the door hardware installer. Power supplies are cabled no further than 25 feet from the electrified lock. Provide 120 VAC to each lock power supply.

4.1.3   Field Devices

D. Coordinate power at field locations for remote security device power supplies.
  1. Review site security requirements and provide a 120 VAC 20 amp circuit to each remote security power supply location, security power supplies used to power cameras, detection devices, or remote security panels. Obtain locations from security Design Engineer.
  2. Provide power to any vehicular gate operator system. These are typically not provided by the security Design Engineer or Integrator but interface the ACAMS in several ways.
  3. Provide 120 VAC power to camera power supplies supporting exterior fixed and pan-tilt-zoom cameras at site locations. These cameras typically require a power supply within 50 feet of the camera location.
  4. Provide 120 VAC power to site network equipment required to support security cameras when located on site/parking lots areas. This equipment typically require a power supply within 30 feet of the camera location.

4.2   Pathways

4.2.1   Horizontal

A. Horizontal pathways consist of device boxes, conduit, j-hangers, and cable tray used to home run the security cable from each device to the closest telecommunication room. Security equipment typically requires a 4-square device box installed on a wall or ceiling. Conduit is run from the device to the closest accessible ceiling or directly into a cable tray when tray is utilized. Dedicated security j-hangers are used in accessible ceilings to support all security cable. Coordinate main j-hanger runs with other trades to minimize interference issues. Pathways shall be concealed in walls and accessible ceiling wherever possible.

B. Site conduit for remote security devices such as vehicle detection loops and cameras shall be coordinated with the security system Design Engineer. Plan for conduits to run underground in a joint trench into the closest telecommunications equipment room.

C. Conduit is required between any elevator termination enclosures and the ACAMS equipment panels. The elevator termination enclosure is the termination point between the ACAMS and elevator controller. Refer to article 6.0 for additional requirements.

4.2.2   Riser/Equipment Rooms

D. Security cable in equipment rooms must always run in conduit. Security equipment hubs should utilize a 6" high x 6" deep x 4' long screw cover metallic raceway above security equipment hub locations. Sizing of the raceway will vary from project to project. Provide EMT conduit from the raceway to security equipment hub raceways above and below as needed. Provide the appropriate quantity of EMT conduit run from the raceway to the nearest accessible ceiling for security devices located on the same floor. See Figure 4.1 for sample layout.
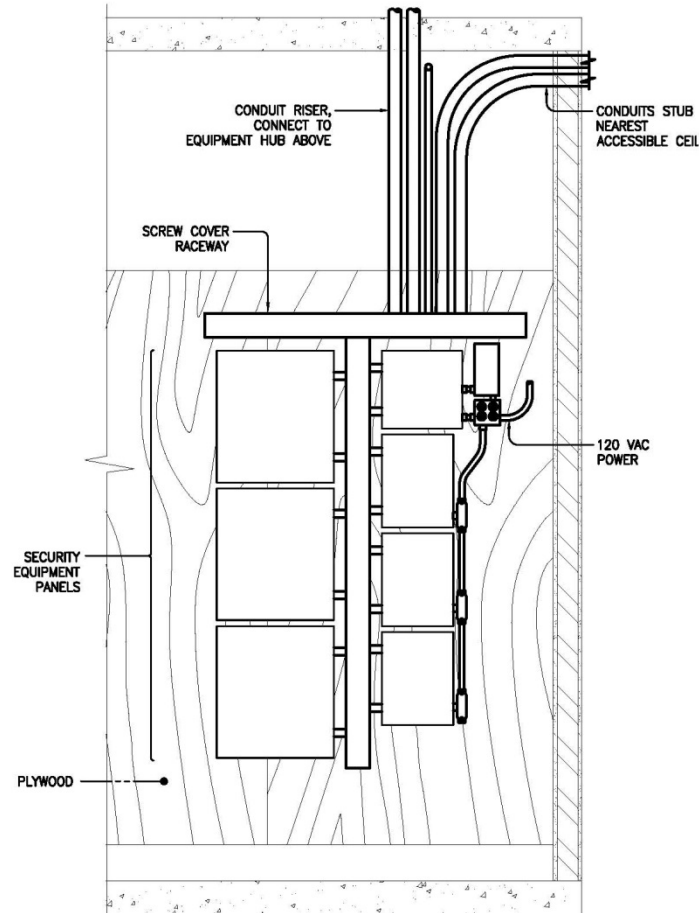
Figure 4.1: Sample Conduit & Equipment

4.3   Fire Detection/Life Safety

    4.3.1   Means of Egress

        A.   When required by code, provide output from the fire alarm system to any ACAMS controlled door that falls in a path of egress. Connect the output directly to the ACAMS panel that controls these specific doors.

    4.3.2   Magnetic Door Holders

        A.   Every classroom and equipment lab door should be outfitted with hardware that allows it to be held open.
            1.   If the door is in a fire corridor, a magnetic door holder shall be tied into the fire alarm system.
            2.   If the door is not in a fire corridor, a mechanical door holder may be used. However, mechanical door holders shall not be installed on doors with ACAMS; in these instances, use a magnetic door holder tied to the ACAMS (but not the fire alarm) system, or a door closer with an electronic hold open.
                a.   LCN is the approved manufacturer. LCN produces a number of closers that have electronic hold-opens; they hold the door in the open position until current interruption releases the holding mechanism, allowing the door to close. The most likely model is the 4040SE series.

        B.   Corridor Separation doors should be outfitted with hardware that allows the doors to be held open.

1. If the corridor separation doors are not in a fire corridor, they can be outfitted with a mechanical door holder.

    a. The exception to this is if the doors are to be used to secure part of the building off for operational purposes; in that case, magnetic door holders must be used and tied into the ACAMS to release and secure the corridor at the programmed time.

2. If the corridor separation doors are fire doors, the magnetic door holders shall be tied into the fire alarm system.

    a. If the doors are to be used to secure an area of the building off, then the magnetic door holders must also be tied into the ACAMS to release at the programmed time.

PART - 5 Mechanical

5.1 Equipment Rooms

A. Security equipment generates heat and may require cooling depending on the type of equipment. Wall-mount equipment such as access control panels and power supplies don't create as much heat as rack mounted security equipment. Calculate heat load for security equipment and coordinate with telecommunications designer if equipment is located in a telecommunication room. These rooms typically have some form of environmental cooling. Refer to Telecommunications Infrastructure Design Standards for additional information on equipment room cooling requirements.

PART - 6 Elevator

6.1 Applications

6.1.1 In-Cab Reader

A. When specific floors require restricted access, interface ACAMS to the elevator controller to disable and enable specific floor select buttons. Surface mount card reader in the elevator cab either above or below the floor select buttons. Card readers to be mounted behind a smoked plastic window in the car operating panel. Coordinate exact location with SMCCCD and Design Team. Coordinate card reader cable requirements for the traveler cable and terminate cable to an elevator demarcation enclosure.

6.1.2 Hall-Call Reader

B. When elevator access is restricted on a specific floor by the ACAMS a card reader shall be located adjacent to the elevator hall-call button. ACAMS should interface the elevator controller to disable the call button. Coordinate output from ACAMS to location of elevator demarcation enclosure.

6.1.3 Elevator Machine Room Connections

C. Cables from the elevator cab and controller do not terminate directly on ACAMS control panels. The elevator contractor or electrical contractor shall provide a demarcation enclosure with terminal strips for interface to ACAMS. This enclosure is usually mounted in the elevator machine room or a coordinated accessible space nearby. Conduit is required between the enclosure and both the elevator controller and the ACAMS equipment panels.

D. Provide demarcation terminal strip. Coordinate with the elevator contractor. Terminate ACAMS cabling to one side of the terminal strip. The other side of the terminal strip is used for the elevator controller interface wiring terminated by the elevator contractor.

PART - 7 Telecommunications

7.1 Network Connections

A. Connection to the SMCCCD network is required at each ACAMS security equipment hub for primary communications to the District ACAMS server. This is typically a TCP/IP 10/100BASE-T connection through the existing campus security network. Coordinate active network ports with District ITS department and provide IP addresses to security contractor.

B. Networked video encoding devices require one TCP/IP 10/100BASE-T connection each. This enables users to view video from traditional analog cameras, where IP cameras are not supported due to physical limitations, using the ACAMS workstations. Provide active network port and IP address to security contractor.

C. IP cameras require one TCP/IP 10/100BASE-T connection each. Coordinate rack space and patch panels with District ITS department. Provide Ethernet cable and test with the same standards as other data cables for a certified network cable.

D. Jacks for security devices shall be green, to distinguish them from orange data jacks.

7.2 Voice Connections

A. Backup communications to the ACAMS server requires a live analog phone line at each security equipment hub. This line is for automatic fail over to RS232 dial up communications for alarm routing during the event of scheduled or unscheduled network downtime. Provide a live analog phone line to security enclosure for the backup communications.

PART - 8 ACAMS

8.1 Existing Systems

A. The District has a fully commissioned and operating AMAG Enterprise Edition head end in a virtual environment hosted by the ITS Department at the District Office data center for centralized card management and backup. Each campus has access to the enterprise server, web server, and administrative workstations are located in the main telecom room (MPOE), all networked to the District Office data center.

B. Operational and Deployment Conditions
   1. Daily District administrative functions, including Central Card Management and campus specific administrative functions such as cardholder access privileges, are performed using terminal services and web browser access.
   2. Vendor and administrative functions not supported by terminal services, such as defining new hardware, occur at an Admin/Coms workstation located in the IT switch rooms at each campus.
   3. The Enterprise server performs scheduled database backups over the District WAN.

   4. The System synchronizes with the District IT departments "Active Directory" for an automated administrative tool in adding/deleting cardholder records.
   5. ACAMS panels for buildings on a specific campus connect to the local network and communicate events and alarms in real time over the WAN.
   6. Alarms are transmitted to a third party central station monitoring company. Through programming, the District has the ability to configure which alarms or group of alarms are monitored remotely.

C. The District does not utilize AMAG for video monitoring. Instead, video monitoring is provided via exacqVision's VMS software on commercial-off-the-shelf servers with IP cameras

connected directly to the network while analog cameras connect through networked video encoders.

8.2   Application

A.   ACAMS controls access into the buildings and select interior doors. Intrusion alarm monitoring comprised of door contacts, glass break detectors, and duress buttons is consolidated to the ACAMS system eliminating the need for a conventional burglar alarm panel.

B.   ACAMS electronic locks are used on doors that are deemed critical to security of expensive assets subject to a high possibility of theft, confidential records, or other areas of critical nature. These doors are typically locked at all times by the ACAMS.

C.   ACAMS locks may also be used on doors that are not deemed "critical", but have other operational requirements that make ACAMS a good solution, such as building entrances. These doors are locked or unlocked based on a programmed schedule.

D.   Doors specified to have electronic access control must tie into the College's existing ACAMS system.   Create schedules to automate the opening and closing of the building including unlocking doors, bypassing alarms and enabling the auto operator at main entrances.

E.   No other security systems may be used in lieu of or in addition to the AMAG for ACAMS.

F.   Card readers and card readers with integrated keypads:
1.   The AMAG S820 is the standard proximity reader for SMCCCD. Utilize this reader at all ACAMS controlled locations unless reader does not fit or additional functionality is required.
2.   The AMAG S830, micro proximity reader shall be used in locations where the S820 does not fit.
3.   The AMAG S840 "Command Card" readers with integrated keypads allow select cardholders to execute pre-programmed commands such as unlocking and disarming user defined zones along with associated intrusion devices using the reader numerical keypad. Reference article 8.6 for programming requirements. Utilize "Command Card" readers only where specific functionality is required.

G.   Interconnect ACAMS to auto operators for secure after hours operation.
1.   Interlock exterior ADA push plates with aux relay on PS-873
2.   When door is locked exterior push plate is disabled
3.   When door unlocked, even momentarily, ADA push plate is enabled.

H.   ACAMS monitors all intrusion devices including glass breaks, door contacts, duress buttons, etc. Alarms are sent to a dialer panel at each campus for alarm monitoring. Refer to article 1.6, Existing Systems for additional alarm monitoring information.
1.   The District has standardized on utilizing glass break sensors in lieu of motion detectors. Motion detectors have not worked well in spaces controlled with the command key function.

I.   Security enclosures require tamper switches monitored by the ACAMS. Supervision of power supplies and batteries is required.

J.   Utilize stranded, plenum-jacketed cable and route on dedicated security J-Hangers through the building's accessible ceiling. Home run cable to nearest security equipment hub typically located in telecommunications rooms.   Do not share conduits with fire alarm or telecommunications systems. Utilize plenum jacketed cable when required.
1.   Provide plenum rated cable by an approved manufacturer such as Westpenn, Belden, Commscope, or equal. Refer to Appendix B for approved manufacturers.
a.   #22-4 conductor unshielded: door contacts, glass break detectors, request-to-exit sensors

b. #16-2 conductor unshielded: lock power

c. #22/2 pr unshielded: Card reader data

d. #18-2 conductor: Card reader power

e. CAT6A patch cords – Provide patch cords based on District IT Standards.

f. CAT6A horizontal cabling – Provide by Telecommunication contractor.

2. Hybrid cables are acceptable when combining multiple cable types. Hybrid cable must meet performance of individual cable it's replacing.

K. Reference Appendix 1 for approved list of ACAMS products.

8.3   ACAMS Door Typology

A. The following table lists standard ACAMS door typology used by SMCCCD. Each typology has an identifying letter used to indicate the door's security function. All types include intrusion monitoring. When programming ACAMS design with end-user groups, use SMCCCD's door typology naming convention.

Door Type	Description	How it Works
A	Card Reader Door with Standard Card Reader (no keypad)	Can be programmed to unlock/lock on a schedule. When not scheduled unlocked, a card or fob must be presented to unlock the door.
A_k	Same as A, but with Keypad Style Card Reader	Same as A, but allows for command controls using the keypad reader.
B	Scheduled Unlock Door	Automatically locks or unlocks on a schedule that has been programmed into the ACAMS.
C	Monitored Door with Authorized Exiting	Allows for egress without an alarm
D	ADA Card Reader Door with Standard Reader (no keypad)	Uses a card reader, like "A", but in conjunction with an automatic door operator.
D_k	Same as D, but with Keypad Style Card Reader	Same as D, but allows for command controls using the keypad reader.
E	Emergency Exit Door with Local Alarm	Monitored like "C", exiting through this door will set off an audible alarm near the door as well as at the ACAMS.
F	In/Out Standard Card Reader with Door Management Alarm	A card or fob must be presented to use this door to exit or enter, otherwise an audible alarm near the door will sound.
F_k	Same as F, but with Keypad Style Card Reader	Same as F, but allows for command controls using the keypad reader.
G	ADA In/Out Card Reader	A combination of door types "D" and "F".
G_k	Same as G, but with Keypad Style Card Reader	Same as G, but allows for command controls using the keypad reader.
H	Monitored Only	Monitored by the ACAMS to determine door position (open or closed).
I	Card Reader Coiling Door	Card reader + keyed control switch.

I$_k$	Same as I, but with Keypad Style Card Reader	Same as I, but with command controls using keypad reader.
K	Key Controlled Monitoring	A physical key is used to enable or disable monitoring of a space.
K$_{la}$	Same as K, but with a local alarm	Same as K, but with a local audible alarm.
L	Card Reader Sliding Storefront	Card reader outside to enter, momentary key switch inside to exit, magnetic lock on the first sliding panel.
L$_k$	Same as L, but with Keypad Style Card Reader	Same as L, but with command controls using keypad reader.

Figure 8.1: SMCCCD ACAMS Door Type Naming Convention
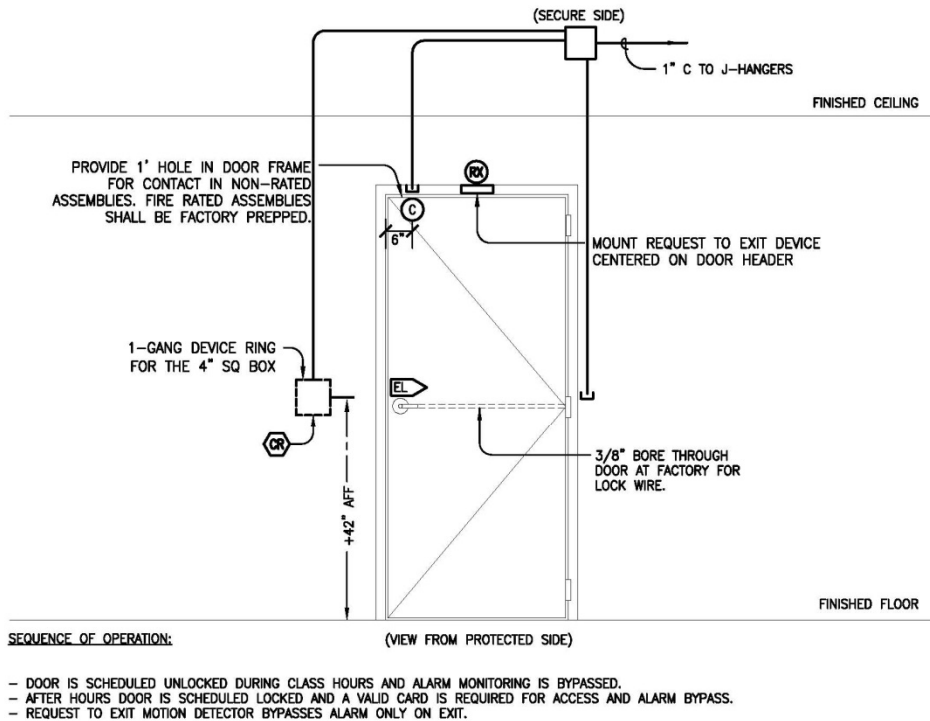
Figure 8.4: Door Type A

8.4   Alarm Monitoring Locations

A. All devices connected to the ACAMS are monitored. Each security device is monitored through the ACAMS server and logged in the software. Specific alarm points are programmed in the ACAMS to dial out an alarm to a central monitoring location. These include:

1. Building perimeter consisting of all perimeter door contacts.

2. Areas with assets and/or critical information consisting of contacts on door to the space and glass break sensors.

3. Duress buttons at cash transaction counters and other high-risk locations.

B. SMCCCD has standardized on glass break detectors in lieu of motion detectors. Utilize glass break detectors inside buildings on perimeter glass accessible by normal exterior pedestrian access. Reference device product manual for exact coverage and locate appropriately.

8.5   Labeling and Naming Conventions

A. ACAMS Location Descriptor Protocol

1. The standardization of descriptors within the system facilitates operator training and allows for quicker identification of device locations when programming or in response to alarms or trouble signals. It may also be used to facilitate quicker response time by local law enforcement in the event of forced entry into a protected area.

2. In order to facilitate ease of operation for SMCCCD, the following descriptor protocol shall be used during the ACAMS system programming.

3. Protocol:

a. Descriptors for the ACAMS systems shall follow this standard SMCCCD protocol: College, Building Number, Floor Number, Location Description, Device

i.   If there is more than one door entering into a single space, these doors are to be differentiated by use of location descriptive narrative. (e.g., CSM B-18 F-1 Rm 18-101 west).

ii.   If the device is monitoring a space, then that device's identifier shall immediately follow the location. (e.g., CSM B-18 F-1 Rm 101 GB).

b. The type of device is identified by an abbreviation or code from the following table.

Device Abbreviations	
CR	Card Reader
DC	Door Contact
DB	Duress Button
EL	Electrified Lock
GB	Glass Break
LA	Local Alarm
MD	Motion Detector
PS	Power Supply
SJB	Security Junction Box
WC	Window Contact
C	Fixed Camera
CP	Pan Tilt Zoom Camera

Figure 8.5: Security Device Abbreviations

B. Wire and Cable labels shall be self-laminating adhesive laser labels and machine printable with a laser printer. Standard label color shall be white with black 12 point Verdana, Sans Serif, or Arial text. Identify wire and cable clearly with permanent labels wrapped about the full circumference within one inch of each connection. Assign wire or cable designations consistently throughout a given system; i.e., each wire or cable shall carry the same labeled designation over its entire run, regardless of intermediate terminations. Additionally, provide labels where wire and cable first enter and exit from conduit, junction or distribution boxes; labels shall be located within six (6) inches of the point of exit.
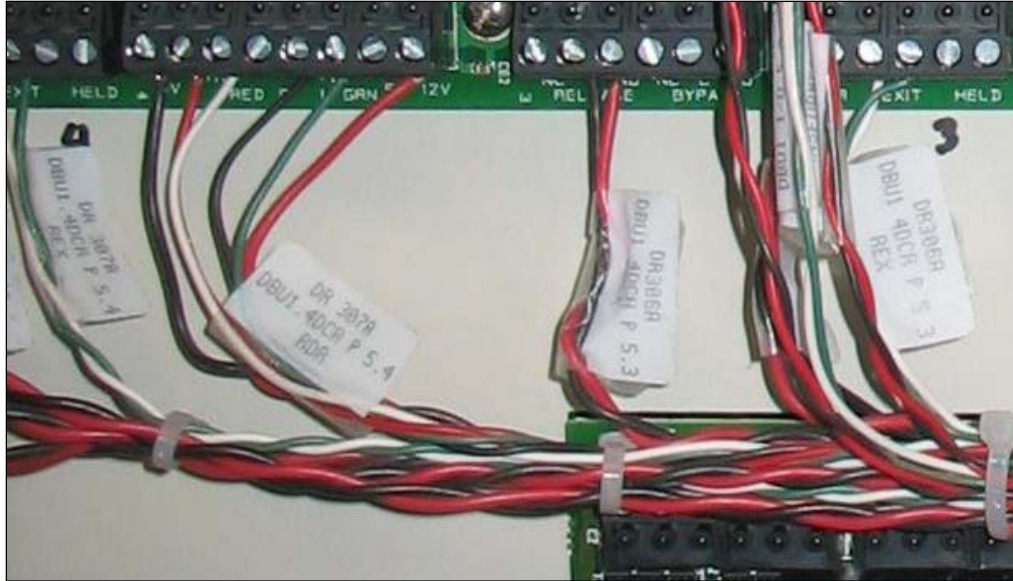
Figure 8.6: Cable Label Sample

    C.   Label Security equipment enclosures, junction boxes, and power supplies associated with the security system with adhesive backed phenolic label. Use 12 point Verdana, Sans-Serif, or Arial text.

8.6   Programming

    A.   The SMCCCD FPO and Construction Planning Department, Design Engineer, and Contractor shall hold a meeting prior to the completion of construction to discuss the programming criteria and access to the District head end. Discuss the following topics:

       1.   Door Names

       2.   Device Names

       3.   Alarm groups

       4.   Schedules and time codes

       5.   Action/responses from individual input points

       6.   Action response from card commands

       7.   Alarm groupings for programming ASCII data to alarm dialer at Campus Regional Headend

    B.   Contractor shall program and setup all system hardware such that no additional programming other than entering new access cards, time codes, and adding doors to existing access privilege groups is required.

    C.   Program any Type B, scheduled unlock doors which access the same space as a Type A, card reader door to unlock with when the space is switched to an unlocked/disarmed state via keypad command.

    D.   Program the AMAG software to make conditional commands a control panel function instead of a server function. Conditional "if" statements shall have up to eleven "then" commands. If keypad conditional commands are programmed with a 1 to 1 "if/then" only the first command will execute.

8.7   Coordination

    A.   The ACAMS can interface many different disciplines making coordination extremely important. Reference all other disciplines covered in this document and coordinate ACAMS requirements

for each project. Attend design team coordination meetings during design and hold a construction kick off meeting at the start of construction.

8.8 Electronic Keys

Provide electronic keys on each project. Specify ten (10) HID ProxKey II key fobs per card reader per project.

8.9 Extra Materials

A. Provide extra materials, also referred to as "attic stock" of installed equipment depending on each project. Small projects consisting of less than five ACAMS doors shall not receive any attic stock other than fuses. Standard projects with five or more ACAMS doors shall receive one of each installed device listed below.

B. Provide attic stock consisting of modules, devices, and accessories including:
1. Network Interface Module
2. Input/Output Module
3. Card Readers (each type)
4. Door Contact
5. Glass Break Sensor
6. Request-to-Exit Sensor
7. Duress Button/Switch
8. Fuses (5 of each type in each enclosure required)

Attic stock items on each campus shall be replenished as soon as stock has been depleted. Attic stock shall not exceed five of each item listed above.

C. Do not provide attic stock of equipment that could potentially become obsolete within 3-5 years such as security equipment panels and batteries.

8.10 Commissioning and Closeout

A. The purpose of system commissioning and closeout is to ensure the security system operates properly when it is needed most. Security systems are very complex from both equipment and programming standpoints, and thorough testing is necessary to ensure correct operation prior to the building's occupancy.

B. Perform a 100% pre-test of all system aspects to verify correct operation prior to scheduling the final test or punch walk. The pre-test results shall be documented and submitted to the District's Project Manager. Once the Project Manager has determined the security system is ready for testing, the Design Engineer shall perform the final test or punch walk. The Contractor should be present and demonstrate the security system functionality during the punch walk. Reference security system commissioning specification 28 08 00 for closeout procedures.

PART - 9 Video Monitoring

9.1 Existing System

A. The current exacqVision VMS software supports video management for both IP cameras and analog cameras connected through networked IP video encoders.

B. Each campus has a security office used to monitor and program the ACAMS and VSS. Utilize existing multi-monitor client workstation in each security office for ACAMS and VSS. Use one monitor primarily for the ACAMS interface and the other monitors to display a user defined virtual matrix of live video.

C. System Operators on each campus only monitor VSS at their campus during normal hours of operation. Typically, individual departments or building occupants don't monitor cameras unless SMCCCD has a special situation, for example bookstores. In these instances, Facilities assigns privileges to those System Operators with viewing capabilities.

9.2 Application

A. The video monitoring system consists of interior and exterior cameras. Almost all cameras installed should be IP based and connected to Power-over-Ethernet (PoE) switches located in telecommunications rooms. In some instances, analog cameras will be required and connect to network IP video encoders. These devices encode analog video signals to digital IP video and forward the video to local campus-wide storage servers. System operators view video through client workstations requesting live or recorded footage through the SMCCCD security network.

 1. Centralized video management servers on each campus will control and store digital video from IP cameras or encoded through IP video encoders. A dedicated security network on each campus transports the digital video from IP cameras and video encoders to the centralized servers.

B. Most operators do not view live footage from the video monitoring system. They use the system as an investigative tool to view activity associated with alarm events. Some cameras located in specialty areas such as bookstores or libraries may have live viewing requirements. Coordinate each location's requirements during programming meetings with the System Operators and Facilities. Reference the following examples:

 1. Each campus bookstore utilizes a standalone video monitoring system. These systems consist of analog cameras connected to networked NVRs. Cameras are viewed locally at each bookstore allowing staff in the building to view live and archived video directly from the NVR without utilizing network bandwidth. The overall video monitoring system can also view these bookstore cameras.

 2. The Cañada Library Learning Center provides System Operators in the building the ability to monitor areas that are out of their normal view. The lack of staff and the large floor plan drove the live viewing requirement.

C. The exacqVision software consists of a scalable video monitoring and management software platform that provides an unlimited number of client interfaces to the video monitoring system. Facilities will assist in defining video image quality and frame rate according to scheduled times and alarm events. Utilize the dedicated campus workstation on any campus or global head end to view live footage or review recorded footage.

 1. Utilize a rack-mount commercial off-the-shelf server with exacqVision software as the video management and storage server. The server manages up to 32 standard 720p or 1080p resolution cameras. Megapixel cameras decrease the maximum number of cameras a particular server can manage. A camera count beyond 32 standard cameras, or lower depending on megapixel cameras, will require a more powerful server as technology allows or an additional video management and storage server. See Section 9.6 for storage requirements.

 2. Program interior cameras to continuously capture video but only mark activity associated with motion detection. This prevents the recording of video without an associated alarm. Exterior cameras capture video continuously at a lower frame rate, 12 frames a second. These exterior cameras should use video motion detection and time schedules to assist in marking alarm events. Note that video management software does not provide pre and post alarm recording. Program these functions on cameras as needed.

 3. Set standard video image quality to the device's highest native resolution and recording frame rate to 6 or 8 frames per second. Program recording rate to 12 or 15 images a second during alarm events or after normal hours of operation. Some cameras may require

recording frame rates of 30 frames per second such as license plate capture cameras. Verify special function camera recording frame rates with the District.

4. Program PTZ cameras to view preset locations upon alarm activation. Review each preset location with Facilities and System Operators during the programming meeting.

5. Utilize 180 degree and 360 degree fixed IP megapixel cameras for special applications requiring maximum coverage. Coordinate additional site lighting requirements for outdoor applications.

D. When IP cameras aren't used because of distance or other prohibitive reasons, provide IP video encoders to encode video from either one to four analog cameras. Encoder units shall accept both fixed and PTZ cameras. Mount video encoders in wall-mount enclosures next to ACAMS equipment panels to consolidate security equipment. Reference Section 2.1, Equipment Rooms, for wall mounting requirements.

1. Rack-mount IP video encoders in IDF room racks if no wall space exists on renovation projects. Coordinate exact locations and power requirements with SMCCCD ITS Department, FPO Department and Construction Manager

2. Power IP video encoders from existing ACAMS controller power supplies. Provide a separate power supply if configuration requires, or for standalone applications.

3. Program IP video encoders to transfer encoded video to the campus centralized video management server. Utilize the security network.

E. Video monitoring equipment enclosures require tamper switches monitored by the ACAMS. Provide supervision of power supplies and batteries.

F. Homerun cable to nearest security equipment hub or data rack supporting video, usually located in telecommunications rooms. Do not share conduits with fire alarm. See Site Video and Interior Video Sections 9.4 and 9.5 for specific cabling requirements.

1. Refer to telecommunications standards for structured cabling requirements supporting IP cameras. Ethernet cable will terminate on patch panels and PoE switch provided by SMCCCD ITS. Coordinate camera quantities and locations with telecommunications designer and ITS.

2. Provide appropriate rated cable by an approved manufacturer such as Westpenn, Belden, Commscope, or equal.

G. Follow ACAMS labeling and naming convention for video monitoring labeling. Refer to Section 8.5 for detailed information.

H. Extra Materials

1. Provide extra materials, also referred to as "attic stock" of installed equipment depending on project requirements. Small projects consisting of less than ten fixed cameras shall not receive any attic stock other than fuses. Larger projects with ten or more fixed cameras shall receive one of each installed device listed below.

   a. Fuses (5 of each type in each enclosure required)

   Include related modules and accessories. Attic stock items on each campus shall be replenished as soon as stock has been depleted. Attic stock shall not exceed five of each item listed above.

2. Do not provide attic stock of equipment that could potentially become obsolete within 3–5 years such as video servers, IP cameras, and PTZ cameras.

I. Reference Section 8.10 for video monitoring system commissioning and closeout information.

J. Reference Appendix C for approved list of video monitoring products.

9.3   Programming

A. SMCCCD's FPO, ITS, and Public Safety Departments, Facilities Systems Manager, Construction Manager, the Design Engineer, Security Integrator and Contractor shall hold a meeting prior to the completion of construction to discuss the programming criteria and access to the District head end. Discuss the following topics:

1. Camera Names

2. PTZ camera Presets

3. Schedules and recording parameters including video quality and frame rate (including video motion detection)

4. Special ACAMS integration requirements

5. Video archiving schedule

6. Live-viewing requirements

7. Security workstation user levels for defining which levels have access to specific ACAMS and video monitoring features

B. Contractor shall program and setup all system hardware to eliminate additional programming other than entering new PTZ camera presets, recording parameters, and scheduled archiving.

9.4   Site Video

A.   Provide analog cameras and video encoder where IP cameras become economically prohibitive.

B. Utilize fixed megapixel cameras when viewing locations where the detail of one megapixel camera can replace two or more standard resolution cameras. Large parking lots or courtyards can benefit from the use of megapixel cameras. Review each location with FPO and System Operators prior to design completion and execution.

C. Utilize video monitoring at all public vehicle entry points. Locate fixed cameras to view the overall road and vehicles that enter/exit the campus. Utilize a secondary camera to capture vehicle license plates. Tie activation of the license plate capturing camera to a motion detection device signaling when cameras should record. License plate capture cameras should record at 30 frames per second.

D. Install cameras to view parking lots and major public transportation stops with increased potential for vandalism. Cameras should view the overall parking lot or area. Provide PTZ cameras as needed for additional viewing capabilities.

1. Utilize video motion detection on IP cameras or on IP video encoder device to initiate alarms and capture video on a System Operator-defined schedule when ACAMS alarms are not available to trigger recording.

2. Where possible, position cameras such that one site camera can view another.

E. Locate fixed and PTZ cameras to view large congregation or high traffic areas such as plazas, courtyards, and major walkways through campus.

F. Fixed and PTZ cameras must function under various lighting conditions. Provide day/night cameras that include wide dynamic range and automatic switching between black/white and color modes.

G. Exterior site cameras mounted to poles, buildings, or other structures require an outdoor-rated enclosure with a heater and blower to prevent moisture buildup on and within the camera's housing. When a camera is located on a building, avoid placing power supplies outside to minimize additional exterior high voltage circuits.

H. Provide outdoor-rated, single camera power supply mounted adjacent to camera for remote camera locations. Coordinate 120VAC power requirements with electrical.

I. Provide a multiple camera power supply located in a NEMA 4 rated lockable enclosure for site cameras grouped together. Locate power supply enclosure in a concealed location within 50 feet of the camera. Consider power loss on longer cable runs and refer to manufacturer's guidelines.

J. Utilize watertight outdoor rated cable and route in underground conduit to the nearest building on the campus security network. If no security network switch exists, coordinate installation with SMCCCD ITS department and project team.

   1. Provide appropriate rated cable by an approved manufacturer such as Westpenn, Belden, Commscope, or equal.

      a. RG59/U 75 ohm Coaxial: camera video (analog) distance less than 800 feet.

      b. RG6/U 75 ohm Coaxial: camera video (analog) from distances from 800 feet to 1200 feet.

      c. #22/2 pr unshielded: PTZ data signal

      d. #18-2 conductor: camera power (larger gauge cable acceptable as needed)

      e. CAT6A cable – Provide cable based on District IT Standards.

K. Cameras located beyond 270 feet from a security network switch require an alternate means of IP video signal transmission. Utilize analog cameras with associated cables and an IP video encoder device for these conditions not to exceed 1200 feet.

L. Cameras located beyond 1200 feet from a security network switch require an alternate means of video signal transmission. Utilize fiber optic media converters and fiber optic cable or extend the security network using fiber optic cable for these conditions. Locate media converters in the same enclosure housing the camera power supply.

   1. Coordinate 120 VAC power to enclosure and pathway requirements to the nearest IDF with electrical.

   2. Coordinate fiber optic requirements with telecommunications engineer and District ITS Department.

9.5 Interior Video

A. Utilize IP PoE cameras compatible with exacqVision VMS software package.

B. Utilize fixed megapixel cameras when viewing large lobbies or locations where detailed facial recognition is required. Review each location with FPO and System Operators prior to design completion and execution.

C. Locate fixed cameras at building perimeter entrances and lobbies. Set video monitoring system to record events indicated on the ACAMS such as door forced and door held alarms. Exterior cameras looking at these locations require vandal proof enclosures and must function under various lighting conditions.

D. Provide fixed cameras to view cash transaction counters and other locations with duress buttons. Set camera recording to high quality settings with a frame rate of at least 12 frames per second upon activation of a duress button.

   1. Set a PTZ camera preset to each counter duress button location when a PTZ is located within view of the counter.

   2. Consider as a potential location for a megapixel camera.

E. Locate fixed or PTZ cameras in large congregation areas such as cafeterias or libraries and high asset locations such as bookstores or computer/technology labs. Review each location with FPO and System Operators prior to design completion and execution.

F. Utilize plenum-jacketed cable and route on dedicated security J-Hangers through the building's accessible ceiling. Non-plenum jacketed cable is allowed for runs completely in conduit. Homerun cable to nearest security network PoE switch supporting video, typically located in telecommunications rooms. Do not share conduits with fire alarm systems.

   1. Provide appropriate rated cable by an approved manufacturer such as Belden, Commscope, or equal.

      a. CAT6A cable – Provide cable based on District IT Standards.

9.6   Archiving

A. Each campus has a centralized video management server. Assess existing storage space and determine how many additional cameras it can accommodate. Notify FPO and ITS if an additional server is required on any campus.

B. Provide additional IP video camera software licenses and server to support the storage needs of any cameras beyond the capacity of the existing server. Many variables define the long-term storage requirements for a single camera. As a guideline, review long-term storage needs with the district for every video monitoring project.

   1. Increase storage in large increments to prevent the need to add small amounts for each camera installed. Plan to have spare capacity after each project.

C. Coordinate network connections to IP video encoders with telecommunications designer and ITS. The video network between buildings runs on dedicated security fiber to prevent interference with the overall campus network.

D. Program video management system to groom video footage older than 30 days using the first-in-first-out method on each long-term storage device. Export video to DVD or other storage media if needed for a longer period of time. Video monitoring workstations allow for time and alarm indexed searches through archived video.

E. Provide ability to export to CD/DVD rewriteable disc or exportable to mobile storage drive as needed for analysis. Fingerprint each video clip through a mathematical algorithm during the video capture process. The fingerprint becomes part of the clip and used by the playback software to verify the video has not been altered.

PART - 10   Associated Design Standards and Construction Specifications

A. Division 08 11 13 / 08 14 16 Hollow Metal & Wood Doors Design Standard
B. Division 08 16 13 RFP Doors Design Standard
C. Division 28 00 00 Basic Security System Requirements Construction Specification
D. Division 28 05 13 Security System Cabling Standard Construction Specification
E. Division 28 05 53 Security System Labeling Standard Construction Specification
F. Division 28 08 00 Security System Commissioning Construction Specification
G. Division 28 13 00 Access Control and Alarm Monitoring System Construction Specification
H. Division 28 23 00 Video Monitoring System Construction Specification
I. Telecommunications Infrastructure Design Standard

APPENDIX A: APPROVED LOCKING HARDWARE

	Door type (typical)	Specified Locking Hardware
1	Doors with Panic Hardware without ACAMS (Classroom, labs, instructional rooms, assembly rooms) Fire-rated doors Non-rated doors	 Von Duprin AX99L-2SI-F-996L with XB13-088 rim cylinder EZ Thumb turn dogging Von Duprin CDSI-AX99NL-90NL with XQ13 – 115 mortise cylinder EZ Thumb turn dogging
2	Doors with Panic Hardware with ACAMS Fire-rated doors Non-rated doors	Electrified storeroom lock Von Duprin EL99-L-17-F-US26D Von Duprin EL99-L-17-US26D
3	Corridor separation doors with ACAMS	Electrified storeroom lock Schlage ND80RDEU
4	Corridor separation doors without ACAMS	Classroom lock Schlage ND70RD
5	General classroom doors without ACAMS	Classroom security lock Schlage ND50RD
6	Laboratory doors (science, computer, etc.) with ACAMS	Electrified storeroom lock Schlage ND80RDEU
7	Laboratory doors (science, computer, etc.) without ACAMS	Classroom security lock Schlage ND50RD
8	Mail rooms, copy rooms, staff work rooms	Storeroom lock Schlage ND80RD
9	Division offices with ACAMS	Electrified storeroom lock Schlage ND80RDEU
10	Division suite entry doors without ACAMS	Office lock Schlage ND50RD
11	Faculty and staff offices without ACAMS	Office lock Schlage ND53RD
12	Public restrooms without ACAMS	Classroom lock Schlage ND70RD
13	Public restrooms with ACAMS	Electrified storeroom lock Schlage ND80RDEU
14	Staff restrooms without ACAMS	Restroom Indicator lock Schlage S280RD x B571 IND x NEP
15	Mechanical rooms without ACAMS	Storeroom lock Schlage ND80RD
16	Electrical rooms without ACAMS	Storeroom lock Schlage ND80RD
17	Data/telephone rooms without ACAMS	Storeroom lock Schlage ND80RD
18	Custodial closets without ACAMS	Storeroom lock Schlage ND80RD
19	Maintenance storage rooms without ACAMS	Storeroom lock Schlage ND80RD
20	Meeting Rooms without ACAMS	Office lock Schlage ND53RD
21	Break Rooms without ACAMS	Classroom lock Schlage ND53
22	Faculty/Staff Locker Room without ACAMS	Storeroom lock Schlage ND80RD or Restroom Indicator lock Schlage S280RD x B571 IND x NEP
23	Student Locker Room without ACAMS	Classroom lock Schlage ND70RD
24	Music Practice Rooms without ACAMS	Schlage King Cobra KC5000 Series 2 Cylindrical Lock Storeroom function

APPENDIX B: APPROVED ACAMS PRODUCTS

Description	Mfg.	Model #	Comment	Substitute Allowed
Access Controller	AMAG	M2150	CAB 4 Enclosure w/ DBU & 48DCU	No
Input/Output Boards	AMAG	I/O		No
Network Comm	AMAG	N/A		No
Card Reader, Standard Prox	AMAG	S820		No
Card Reader, Mullion	AMAG	S830		No
Card Reader w/ Keypad	AMAG	S840		No
Access Key Fob	HID	ProxKey II	125kHz Prox, 26-bit Weigand	Yes
Access Key Card	HID	ProxCard Plus	125kHz Prox, 26-bit Weigand	Yes
Request-to-Exit Sensor	Detection Systems	DS160/DS161	No substitution allowed for aesthetic consistency	No
Door Contact	Sentrol	1076D	Recessed in frame, 1" Diameter, DPDT	Yes
Glass Break Sensor	GE Security	ShatterPro 3	Refer to specifications for performance requirements.	Yes
Emergency Exit Alarm	DSI	ES4300A	Rim cylinder required, keyed to SMCCCD standard	Yes
Device Power Supply	Altronix	AL600ULX	Must maintain campus product consistency for maintenance	No
Lock/Relay Power Supply	Altronix	AL600ULACM	Must maintain campus product consistency for maintenance	No
Power Transformer	ACME	T-81052	Rated to power (3) controllers	Yes
Enclosures	Westpenn, Belden, Commscope, or equal	Various	Include tamper switches	Yes
#22-4 cable	West Penn Belden, Commscope, or equal	Various	Used for sensors	Yes
#16-2 cable	West Penn Belden, Commscope, or equal	Various	Used for lock power	Yes

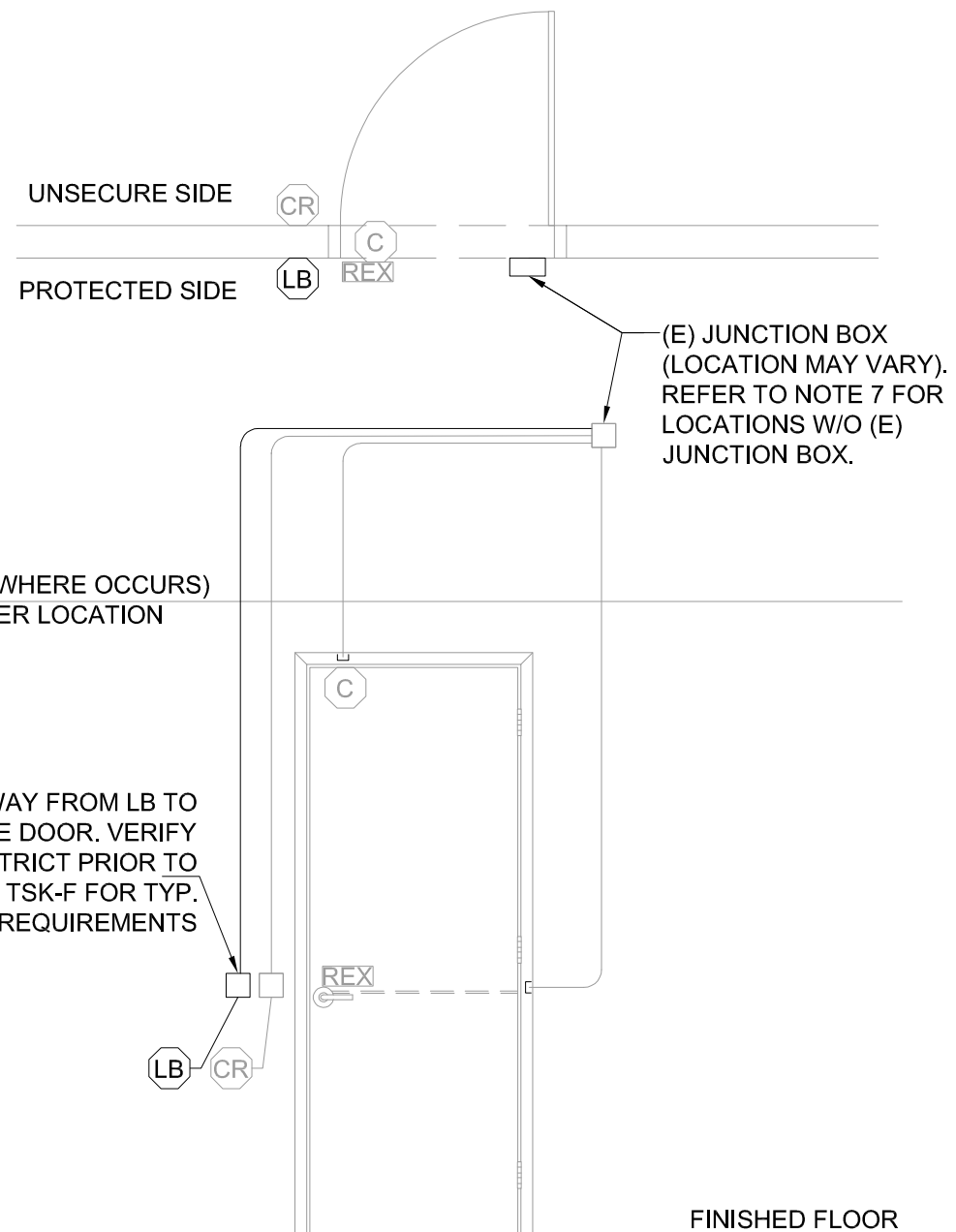| Description	Mfg.	Model #	Comment	Substitute Allowed
#22/2 UTP cable	West Penn Belden, Commscope, or equal	Various	Used for card reader data	Yes
#18-2 cable	West Penn Belden, Commscope, or equal	Various	Used for card reader power	Yes
STI Stopper Station with Shield	Safety Technology International Inc	SS22A9LD-EN	Refer to specifications – Attachments A,B,C	No

APPENDIX C: APPROVED VIDEO MONITORING PRODUCTS

Description	Mfg.	Model #	Comment	Substitute Allowed
Rack mount server computer	Dell	PowerEdge Series	Refer to specification for specifics and update if outdated	Yes
Network Video Recorder Software	exacqVision	exacqVision VMS	Provide latest version	No
Camera Channel License	exacqVision	EVIP-xx	xx refers to the quantity of cameras	No
Network Video Encoder Server	AXIS	Q7401 Q7404	Single channel and 4-channel options	Yes
IP Fixed Dome Interior	AXIS, Arecont Vision,	refer to specification 28 23 00	Verify substitute compatible with exacqVision software	Yes
IP Fixed Dome Exterior	AXIS, Arecont Vision,	refer to specification 28 23 00	Verify substitute compatible with exacqVision software	Yes
IP Fixed Exterior	AXIS, Arecont Vision,	refer to specification 28 23 00	Verify substitute compatible with exacqVision software	Yes
IP Pan-Tilt-Zoom Camera	AXIS, Sony	refer to specification 28 23 00	Verify substitute compatible with exacqVision software	Yes
Analog Pan-Tilt-Zoom Camera	Pelco	Spectra IV	Select best mounting option for each location	No
Exterior Fixed Dome	Panasonic	WV-CW484	with heater unit	No
Wall Mount	Pelco	SWM Series		Yes
Parapet Mount	Pelco	PP350		Yes
Indoor CCTV Power Supply	Pelco	MSC-16-10SB		Yes
Outdoor CCTV Power Supply	Pelco	WCS 1-4		Yes
Misc Device Power Supply	Altronix	AL600ULX	Must maintain campus product consistency for maintenance	No
Fiber Converters	IFS, Fiber Options, or equal	Various	Use for camera cable distances greater than 1200 feet	Yes
Lightning Protection	PolyPhaser, DITEK, or equal	Various		Yes

Description	Mfg.	Model #	Comment	Substitute Allowed
#18-2 cable	West Penn Belden, Commscope, or equal	Various	for camera power	Yes
RG-59/U Coaxial cable	West Penn Belden, Commscope, or equal	Various	for video signal	Yes
RG-6/U Coaxial cable	West Penn Belden, Commscope, or equal	Various	for video signal	Yes
Fiber Optic Cable and CAT6	Refer to telecom standards	Refer to telecom standards	Refer to telecom standards	Refer to telecom standards

END OF SECTION

PLAN VIEW

UNSECURE SIDE

CR — C — REX

LB

PROTECTED SIDE

(E) JUNCTION BOX
(LOCATION MAY VARY).
REFER TO NOTE 7 FOR
LOCATIONS W/O (E)
JUNCTION BOX.

CEILING (WHERE OCCURS)
VARIES PER LOCATION

PROVIDE CABLE PATHWAY FROM LB TO
JUNCTION BOX ABOVE DOOR. VERIFY
PATHWAY TYPE WITH DISTRICT PRIOR TO
INSTALLATION. REFER TO TSK-F FOR TYP.
MOUNTING HEIGHT REQUIREMENTS

C

REX

LB CR

FINISHED FLOOR

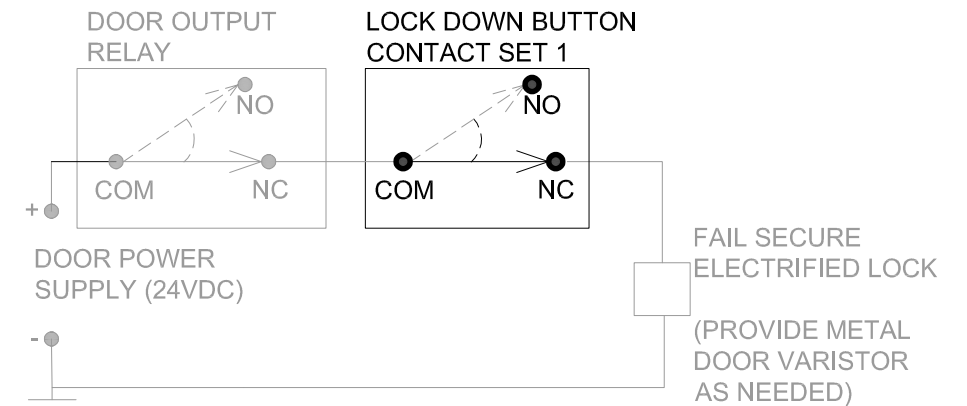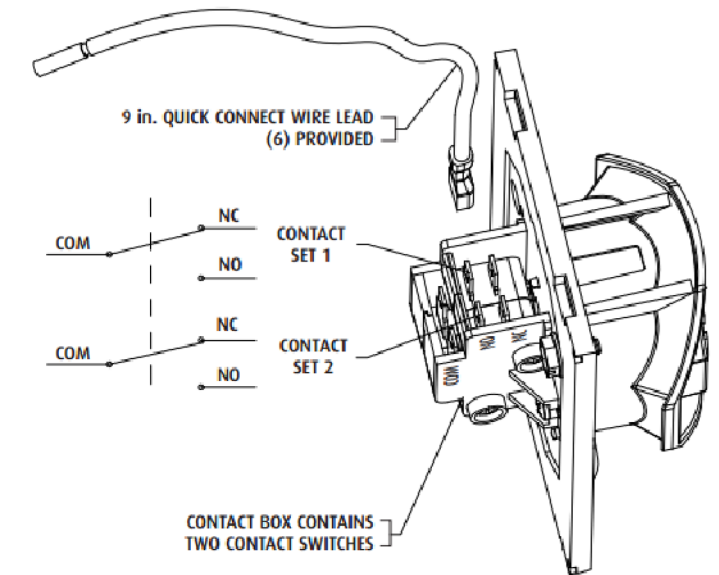### ELEVATION (FIELD CONDITION MAY VARY)

SEQUENCE OF OPERATION:
- DOOR IS CLOSED AND LOCKED FROM EXTERIOR WITH ALARM MONITORING.
- PRESENTING VALID ACCESS CARDS FOR ENTRY OR PASSIVE EXITING UNLOCKS DOOR AND BYPASSES ALARM.
- ACTIVATING THE LOCK DOWN BUTTON DISCONNECTS THE POWER SIGNAL TO THE DOOR.
    - FAIL SECURE DOOR LOCKS FROM THE UNSECURED SIDE AND REMAINS LOCKED UNTIL LOCAL LOCKDOWN
      BUTTON IS RESET OR DOOR IS MECHANICALLY UNLOCKED FROM UNSECURED SIDE BY PUBLIC SAFETY.
    - PASSIVE MECHANICAL EGRESS IS MAINTAINED WHILE DOOR IS LOCKED DOWN.

SYMBOLS LEGEND

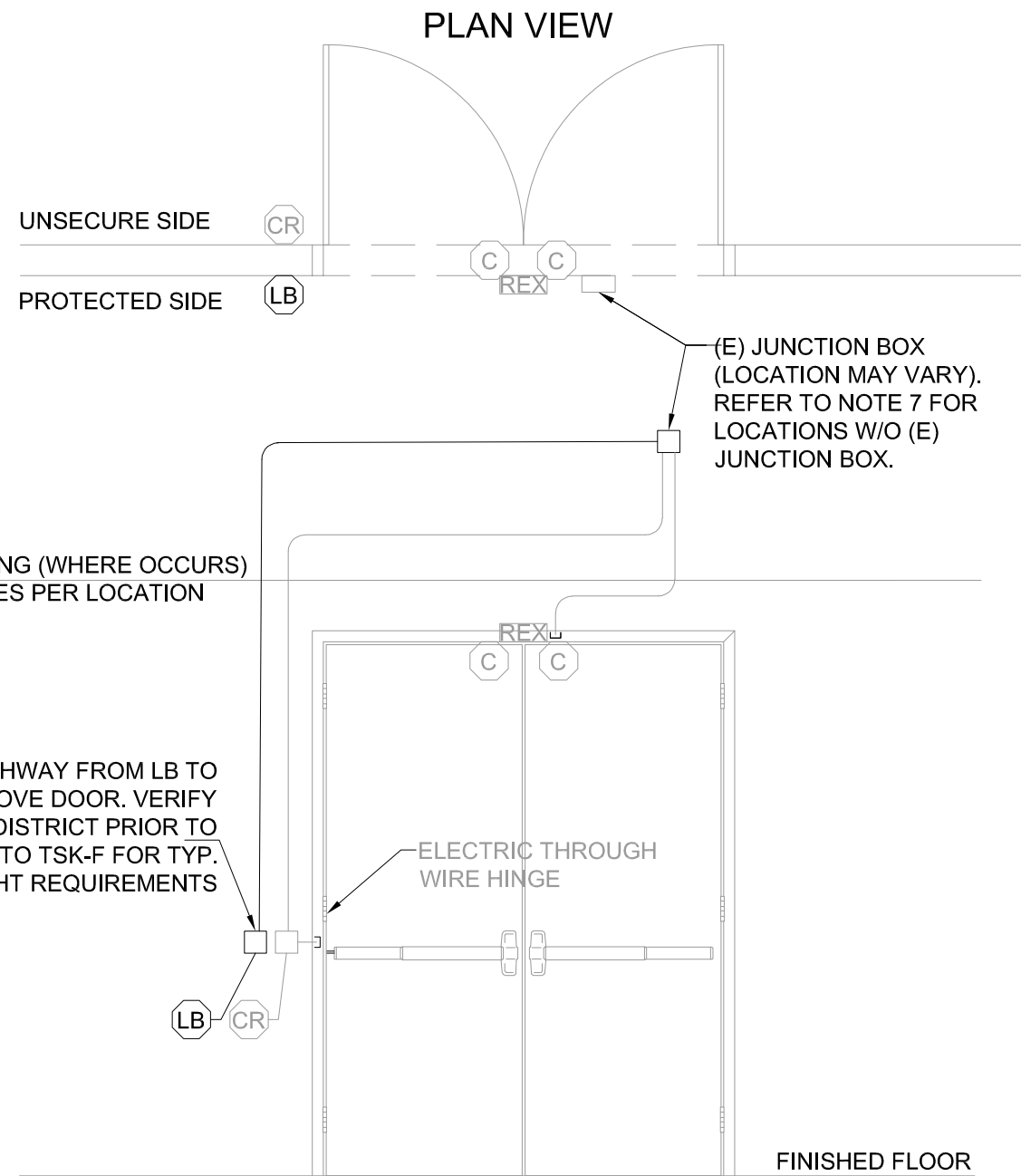| C | (E) DOOR CONTACT |
CR	(E) CARD READER
LB	DOOR LOCKDOWN BUTTON
REX	(E) REQUEST TO EXIT SENSOR

GENERAL NOTES

1. PROVIDE NEW LOCKDOWN BUTTON (DEVICE AND INFRASTRUCTURE), AND EOL RESISTORS (IF NECESSARY) AS SHOWN ON ELEVATION AND WIRING DIAGRAM. ALL OTHER DEVICES SHOWN ARE EXISTING.

2. PROVIDE 1-GANG BACKBOX FOR LOCKDOWN BUTTON WITH MANUFACTURER RECOMMENDED MIN. INTERNAL DEPTH OF 1.45"

3. FLUSH MOUNT LOCKDOWN BUTTON WHERE POSSIBLE. FOR MOUNTING TO CONCRETE, GLASS OR MULLION, SURFACE MOUNT BUTTON W/ STI BACK BOX KIT 71100A-Y. PROVIDE A DISTRICT APPROVED SURFACE MOUNT CABLE RACEWAY TO ABOVE THE FINISHED CEILING. WHERE NO CEILING, PROVIDE RACEWAY TO JUNCTION BOX.

4. FOR MOUNTING LB TO GYPSUM DRYWALL, PROVIDE CABLE RACEWAY RECESSED INSIDE WALL TO ABOVE FINISHED CEILING AND TERMINATE INSIDE J-BOX.

5. HIGH LEVEL DIAGRAM SHOWN FOR REFERENCE ONLY. VERIFY SPECIFIC DOOR CONDITIONS IN FIELD.

6. VERIFY ALL DOORS ARE FAIL SECURE.

7. FOR LOCATIONS WITHOUT AN (E) JUNCTION BOX, FIND AND INTERCEPT DOOR POWER CABLING AND PROVIDE JUNCTION BOX AT SPLICE POINT AS REQUIRED PER CALIFORNIA BUILDING CODE.

9 in. QUICK CONNECT WIRE LEAD
(6) PROVIDED

COM — NC — CONTACT SET 1
NO

COM — NC — CONTACT SET 2
NO

CONTACT BOX CONTAINS
TWO CONTACT SWITCHES

DOOR OUTPUT RELAY

LOCK DOWN BUTTON CONTACT SET 1

NO

COM   NC

NO

COM   NC

+

DOOR POWER SUPPLY (24VDC)

-

FAIL SECURE ELECTRIFIED LOCK

(PROVIDE METAL DOOR VARISTOR AS NEEDED)

*FOR LOCATIONS WHERE DISTRICT HAS INDICATED TO INTEGRATE LOCKDOWN SWITCH WITH ELECTROMAGNETIC DOOR HOLDERS, USE SECOND SET OF SWITCH CONTACTS TO DEACTIVATE ELECTROMAGNETIC DOOR HOLDERS.

LOCK DOWN BUTTON WIRING DIAGRAM

TYPICAL LOCKDOWN BUTTON SINGLE DOOR DETAIL

TSK-A

PLAN VIEW

UNSECURE SIDE

(CR)

PROTECTED SIDE

(C) (C)

(LB)

REX

(E) JUNCTION BOX
(LOCATION MAY VARY).
REFER TO NOTE 7 FOR
LOCATIONS W/O (E)
JUNCTION BOX.

CEILING (WHERE OCCURS)
VARIES PER LOCATION

REX

(C) (C)

PROVIDE CABLE PATHWAY FROM LB TO
JUNCTION BOX ABOVE DOOR. VERIFY
PATHWAY TYPE WITH DISTRICT PRIOR TO
INSTALLATION. REFER TO TSK-F FOR TYP.
MOUNTING HEIGHT REQUIREMENTS

ELECTRIC THROUGH
WIRE HINGE

(LB) (CR)

FINISHED FLOOR

ELEVATION (FIELD CONDITION MAY VARY)
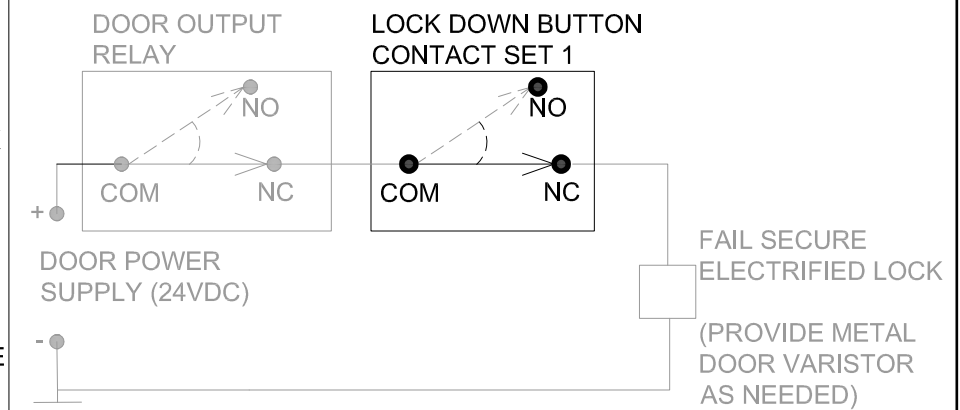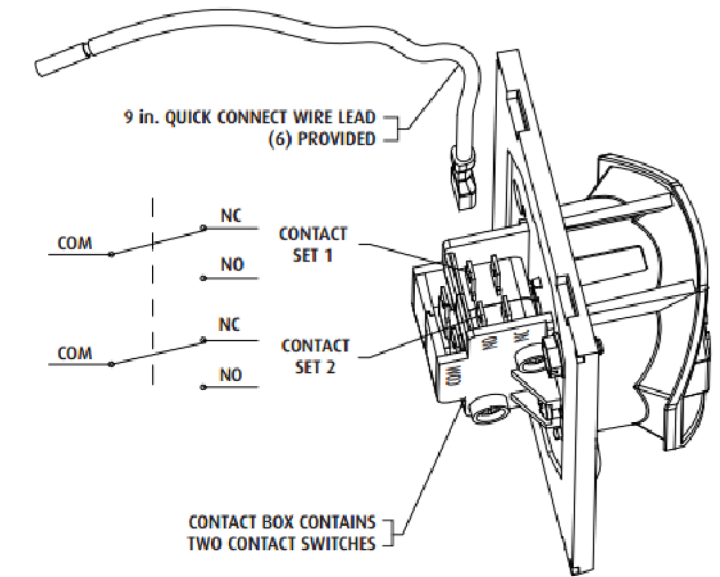
SEQUENCE OF OPERATION:
- DOOR IS CLOSED AND LOCKED FROM EXTERIOR WITH ALARM MONITORING.
- PRESENTING VALID ACCESS CARDS FOR ENTRY OR PASSIVE EXITING UNLOCKS DOOR AND BYPASSES ALARM.
- ACTIVATING THE LOCK DOWN BUTTON DISCONNECTS THE POWER SIGNAL TO THE DOOR.
  - FAIL SECURE DOOR LOCKS FROM THE UNSECURED SIDE AND REMAINS LOCKED UNTIL LOCAL LOCKDOWN
    BUTTON IS RESET OR DOOR IS MECHANICALLY UNLOCKED FROM UNSECURED SIDE BY PUBLIC SAFETY.
  - PASSIVE MECHANICAL EGRESS IS MAINTAINED WHILE DOOR IS LOCKED DOWN.

SYMBOLS LEGEND

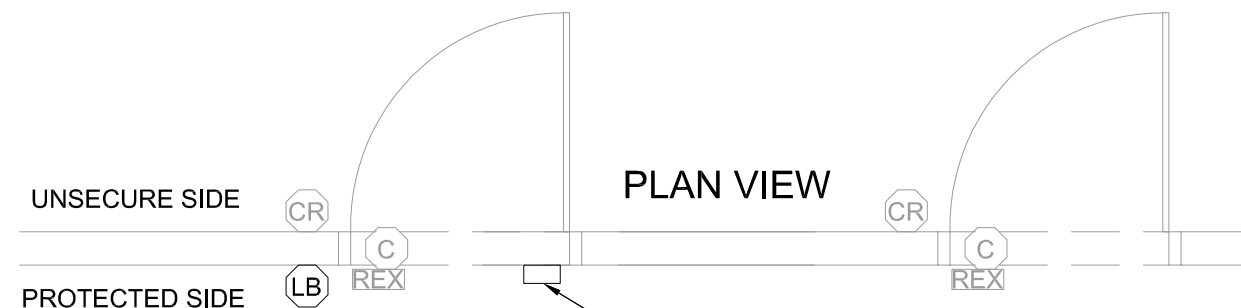|	
(C)	(E) DOOR CONTACT
(CR)	(E) CARD READER
(LB)	DOOR LOCKDOWN BUTTON
(REX)	(E) REQUEST TO EXIT SENSOR

GENERAL NOTES

1. PROVIDE NEW LOCKDOWN BUTTON (DEVICE AND INFRASTRUCTURE), AND EOL RESISTORS (IF NECESSARY) AS SHOWN ON ELEVATION AND WIRING DIAGRAM. ALL OTHER DEVICES SHOWN ARE EXISTING.

2. PROVIDE 1-GANG BACKBOX FOR LOCKDOWN BUTTON WITH MANUFACTURER RECOMMENDED MIN. INTERNAL DEPTH OF 1.45".

3. FLUSH MOUNT LOCKDOWN BUTTON WHERE POSSIBLE. FOR MOUNTING TO CONCRETE, GLASS OR MULLION, SURFACE MOUNT BUTTON W/ STI BACK BOX KIT 71100A-Y. PROVIDE A DISTRICT APPROVED SURFACE MOUNT CABLE RACEWAY TO ABOVE THE FINISHED CEILING. WHERE NO CEILING, PROVIDE RACEWAY TO JUNCTION BOX.

4. FOR MOUNTING LB TO GYPSUM DRYWALL, PROVIDE CABLE RACEWAY RECESSED INSIDE WALL TO ABOVE FINISHED CEILING AND TERMINATE INSIDE J-BOX.

5. HIGH LEVEL DIAGRAM SHOWN FOR REFERENCE ONLY. VERIFY SPECIFIC DOOR CONDITIONS IN FIELD.

6. VERIFY ALL DOORS ARE FAIL SECURE.

7. FOR LOCATIONS WITHOUT AN (E) JUNCTION BOX, FIND AND INTERCEPT DOOR POWER CABLING AND PROVIDE JUNCTION BOX AT SPLICE POINT AS REQUIRED PER CALIFORNIA BUILDING CODE.

9 in. QUICK CONNECT WIRE LEAD
(6) PROVIDED

COM — NC
NO — CONTACT SET 1

COM — NC
NO — CONTACT SET 2

CONTACT BOX CONTAINS
TWO CONTACT SWITCHES

DOOR OUTPUT RELAY

NO

COM — NC

LOCK DOWN BUTTON
CONTACT SET 1

NO

COM — NC

DOOR POWER
SUPPLY (24VDC)

FAIL SECURE
ELECTRIFIED LOCK
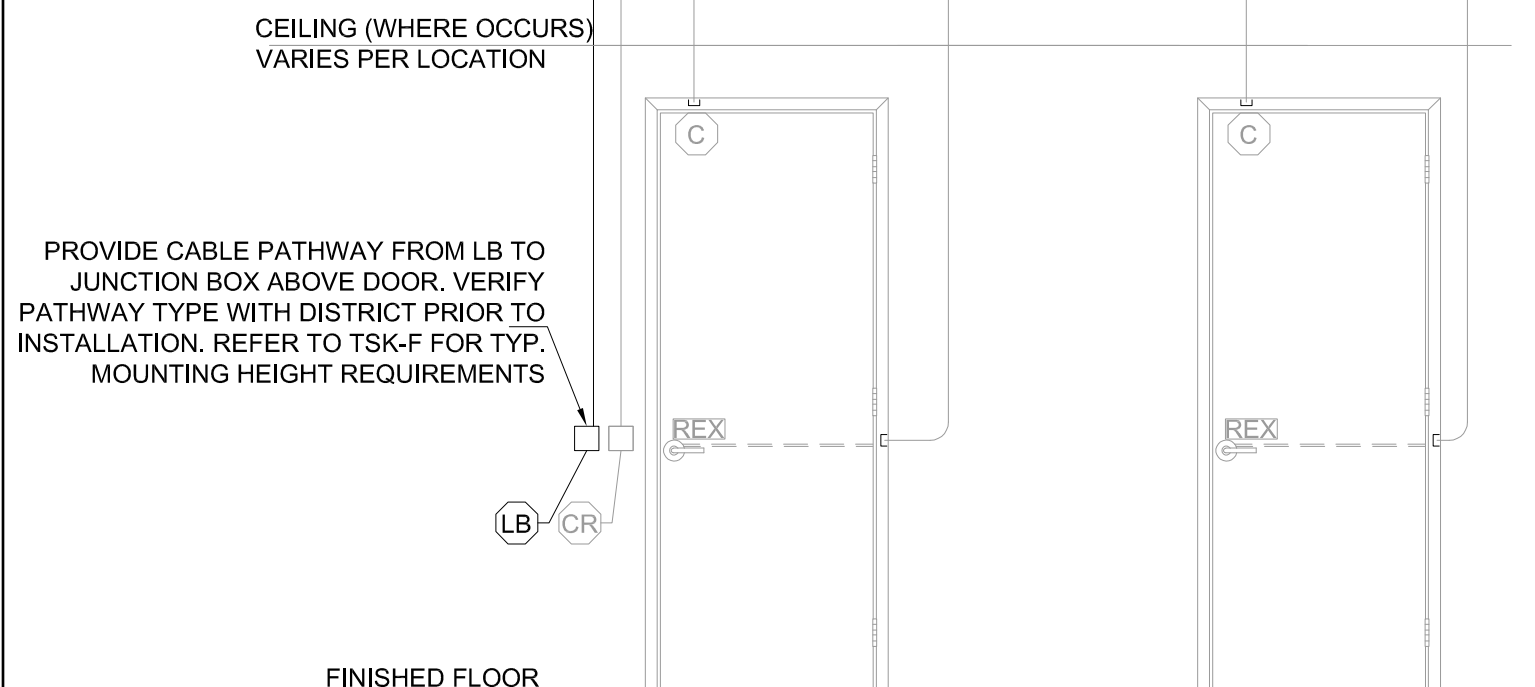
(PROVIDE METAL
DOOR VARISTOR
AS NEEDED)

*FOR LOCATIONS WHERE DISTRICT HAS INDICATED TO
INTEGRATE LOCKDOWN SWITCH WITH HALLWAY DOORS,
USE SECOND SET OF SWITCH CONTACTS TO DEACTIVATE
ELECTROMAGNETIC DOOR HOLDERS.

LOCK DOWN BUTTON WIRING DIAGRAM

TYPICAL LOCKDOWN BUTTON DOUBLE DOOR DETAIL

TSK-B

PLAN VIEW

UNSECURE SIDE

PROTECTED SIDE

(E) JUNCTION BOX (LOCATION MAY VARY). REFER TO NOTE 7 FOR LOCATIONS W/O (E) JUNCTION BOX.

CEILING (WHERE OCCURS) VARIES PER LOCATION

PROVIDE CABLE PATHWAY FROM LB TO JUNCTION BOX ABOVE DOOR. VERIFY PATHWAY TYPE WITH DISTRICT PRIOR TO INSTALLATION. REFER TO TSK-F FOR TYP. MOUNTING HEIGHT REQUIREMENTS

FINISHED FLOOR

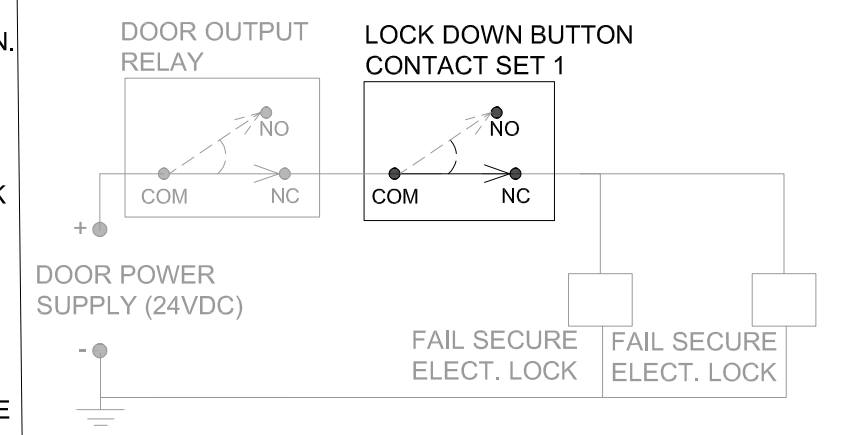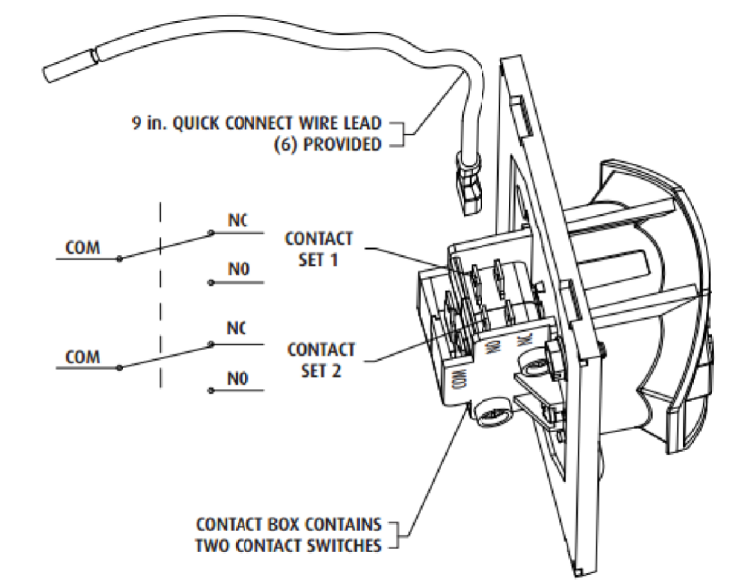## ELEVATION (FIELD CONDITION MAY VARY)

SEQUENCE OF OPERATION:
- DOOR IS CLOSED AND LOCKED FROM EXTERIOR WITH ALARM MONITORING.
- PRESENTING VALID CARDS FOR ENTRY OR PASSIVE EXITING UNLOCKS DOOR AND BYPASSES ALARM.
- ACTIVATING THE LOCK DOWN BUTTON DISCONNECTS THE POWER SIGNAL TO THE MULTIPLE DOORS.
    - FAIL SECURE DOOR LOCKS FROM THE UNSECURED SIDE AND REMAINS LOCKED UNTIL LOCAL LOCKDOWN BUTTON IS RESET OR DOOR IS MECHANICALLY UNLOCKED FROM UNSECURED SIDE BY PUBLIC SAFETY.
    - PASSIVE MECHANICAL EGRESS IS MAINTAINED WHILE DOOR IS LOCKED DOWN.

SYMBOLS LEGEND

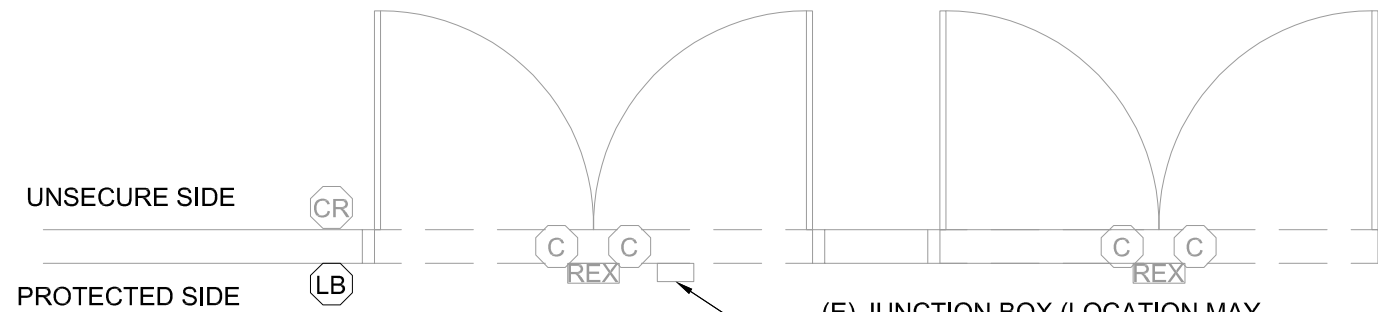|	
C	(E) DOOR CONTACT
CR	(E) CARD READER
LB	DOOR LOCKDOWN BUTTON
REX	(E) REQUEST TO EXIT SENSOR

GENERAL NOTES

1. PROVIDE NEW LOCKDOWN BUTTON (DEVICE AND INFRASTRUCTURE), AND EOL RESISTORS (IF NECESSARY) AS SHOWN ON ELEVATION AND WIRING DIAGRAM. ALL OTHER DEVICES SHOWN ARE EXISTING.

2. PROVIDE 1-GANG BACKBOX FOR LOCKDOWN BUTTON WITH MANUFACTURER RECOMMENDED MIN. INTERNAL DEPTH OF 1.45"

3. FLUSH MOUNT LOCKDOWN BUTTON WHERE POSSIBLE. FOR MOUNTING TO CONCRETE, GLASS OR MULLION, SURFACE MOUNT BUTTON W/ STI BACK BOX KIT 71100A-Y. PROVIDE A DISTRICT APPROVED SURFACE MOUNT CABLE RACEWAY TO ABOVE THE FINISHED CEILING. WHERE NO CEILING, PROVIDE RACEWAY TO JUNCTION BOX.

4. FOR MOUNTING LB TO GYPSUM DRYWALL, PROVIDE CABLE RACEWAY RECESSED INSIDE WALL TO ABOVE FINISHED CEILING AND TERMINATE INSIDE J-BOX.

5. HIGH LEVEL DIAGRAM SHOWN FOR REFERENCE ONLY. VERIFY SPECIFIC DOOR CONDITIONS IN FIELD.

6. VERIFY ALL DOORS ARE FAIL SECURE.

7. FOR LOCATIONS WITHOUT AN (E) JUNCTION BOX, FIND AND INTERCEPT DOOR POWER CABLING AND PROVIDE JUNCTION BOX AT SPLICE POINT AS REQUIRED PER CALIFORNIA BUILDING CODE.

9 in. QUICK CONNECT WIRE LEAD (6) PROVIDED

COM — NC / NO — CONTACT SET 1

COM — NC / NO — CONTACT SET 2

CONTACT BOX CONTAINS TWO CONTACT SWITCHES

DOOR OUTPUT RELAY

LOCK DOWN BUTTON CONTACT SET 1

NO / COM NC

NO / COM NC

DOOR POWER SUPPLY (24VDC)

FAIL SECURE ELECT. LOCK

FAIL SECURE ELECT. LOCK

*FOR LOCATIONS WHERE DISTRICT HAS INDICATED TO INTEGRATE LOCKDOWN SWITCH WITH ELECTROMAGNETIC DOOR HOLDERS, USE SECOND SET OF SWITCH CONTACTS TO DEACTIVATE ELECTROMAGNETIC DOOR HOLDERS.IF ADDITIONAL CONTACTS REQUIRED REFER TO 1/TSK-F FOR WIRING DIAGRAM WITH ADDITIONAL DPDT RELAYS.
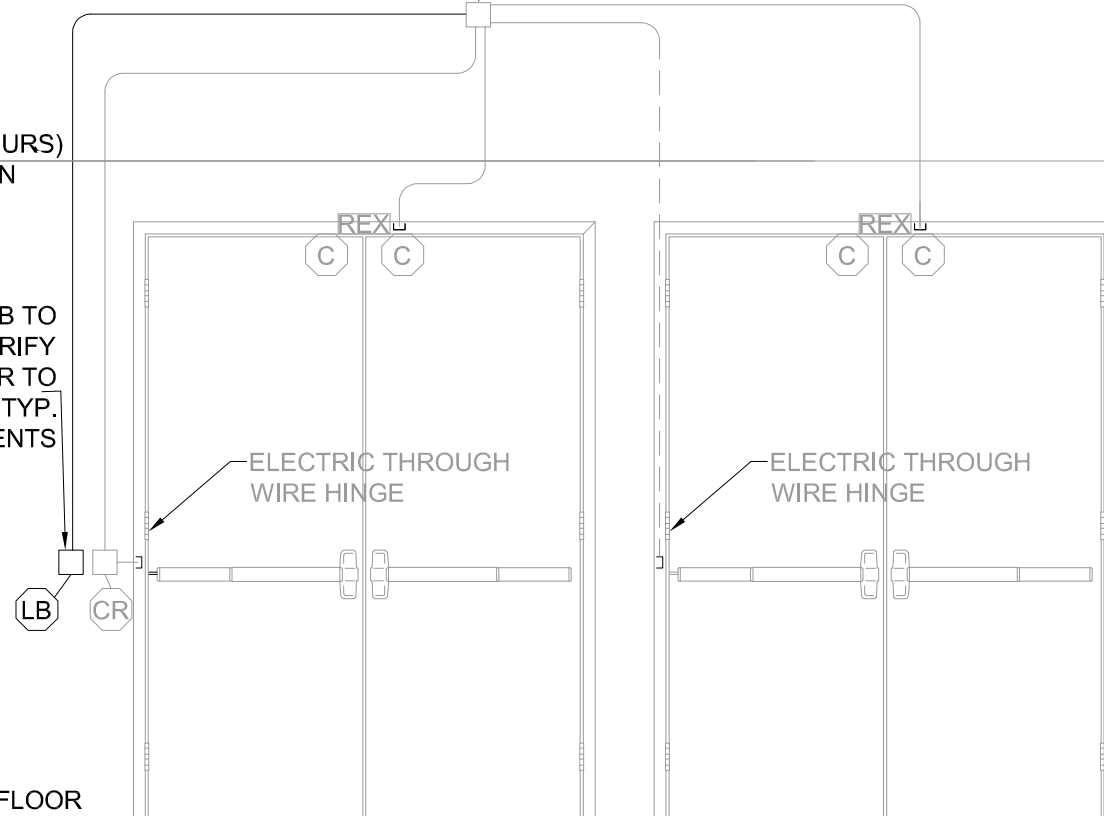
LOCK DOWN BUTTON WIRING DIAGRAM

PLAN VIEW

UNSECURE SIDE

PROTECTED SIDE

CR
LB

C C
REX

C C
REX

(E) JUNCTION BOX (LOCATION MAY VARY). REFER TO NOTE 7 FOR LOCATIONS W/O (E) JUNCTION BOX.

CEILING (WHERE OCCURS) VARIES PER LOCATION

PROVIDE CABLE PATHWAY FROM LB TO JUNCTION BOX ABOVE DOOR. VERIFY PATHWAY TYPE WITH DISTRICT PRIOR TO INSTALLATION. REFER TO TSK-F FOR TYP. MOUNTING HEIGHT REQUIREMENTS

REX
C C

REX
C C

ELECTRIC THROUGH WIRE HINGE

ELECTRIC THROUGH WIRE HINGE

LB CR

FINISHED FLOOR

ELEVATION (FIELD CONDITION MAY VARY)
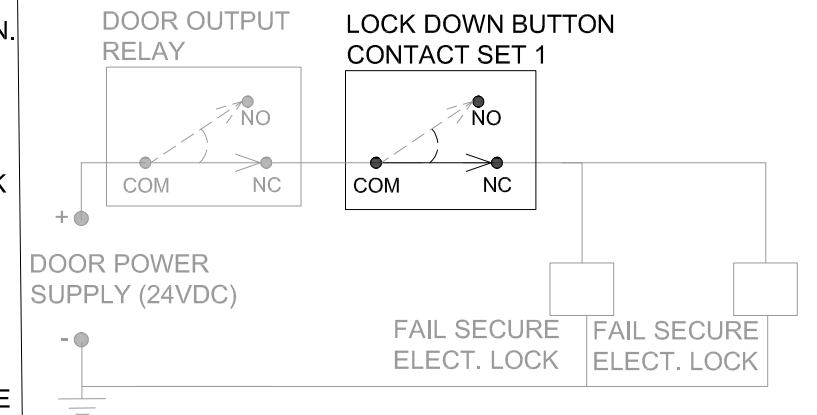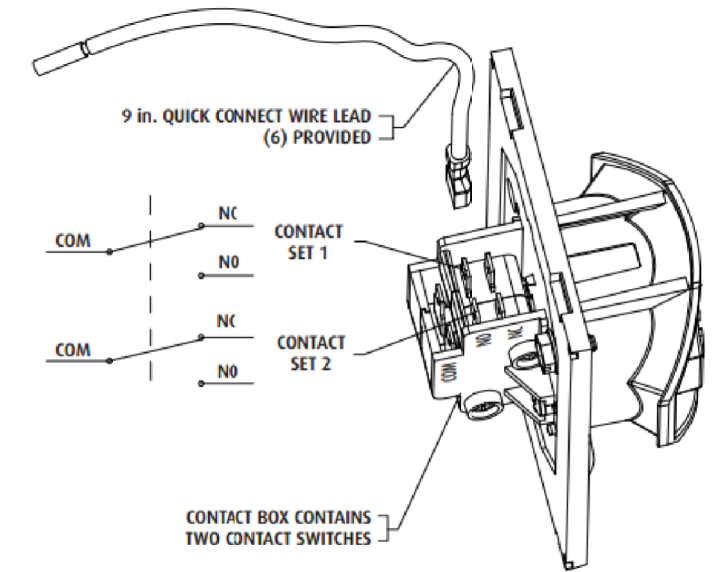
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- PRESENTING VALID CARDS FOR ENTRY OR PASSIVE EXITING UNLOCKS DOOR AND BYPASSES ALARM.
- ACTIVATING THE LOCK DOWN BUTTON DISCONNECTS THE POWER SIGNAL TO THE MULTIPLE DOORS.
  - FAIL SECURE DOOR LOCKS FROM THE UNSECURED SIDE AND REMAINS LOCKED UNTIL LOCAL LOCKDOWN BUTTON IS RESET OR DOOR IS MECHANICALLY UNLOCKED FROM UNSECURED SIDE BY PUBLIC SAFETY.
  - PASSIVE MECHANICAL EGRESS IS MAINTAINED WHILE DOOR IS LOCKED DOWN.

SYMBOLS LEGEND

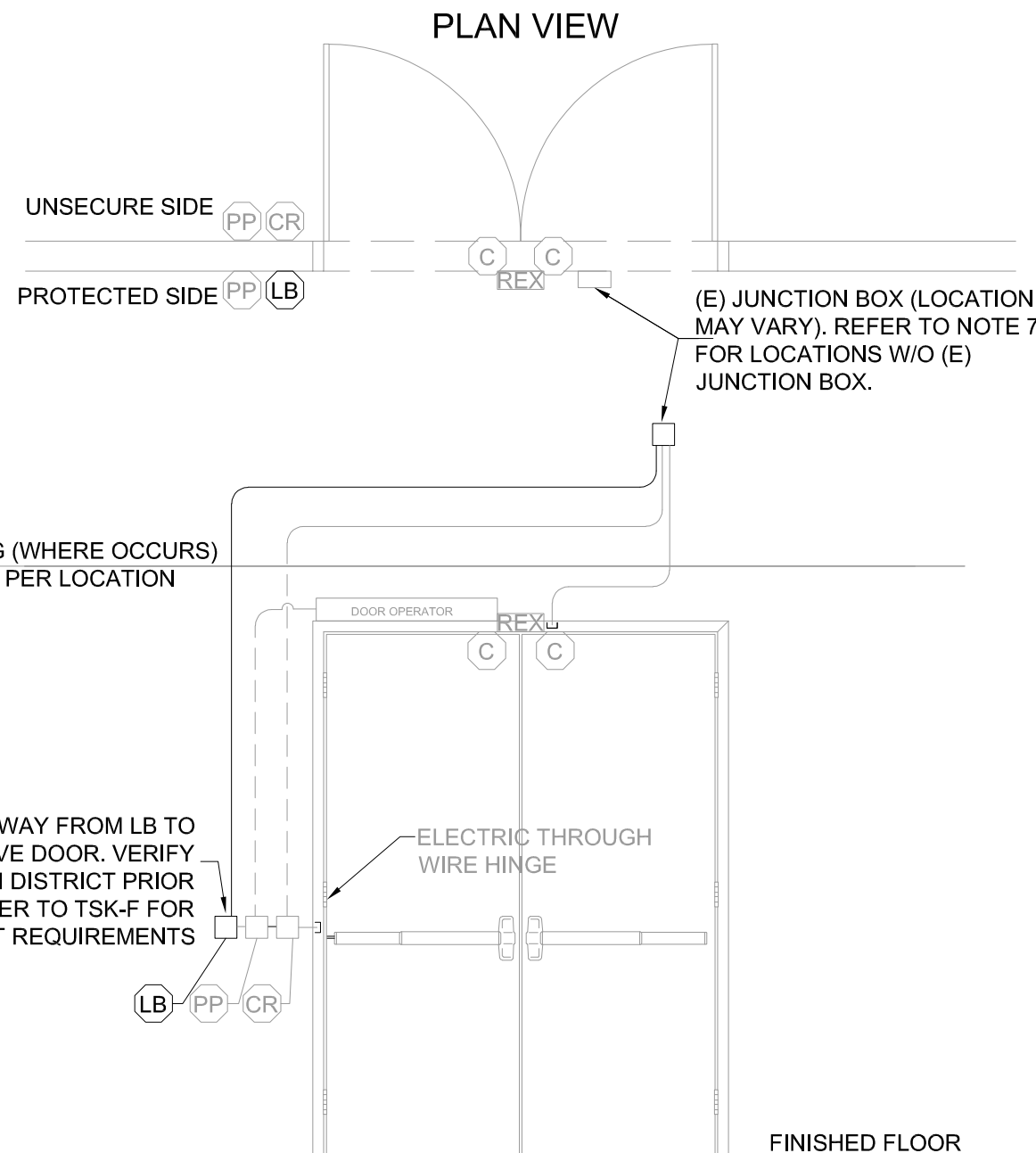|	
C	(E) DOOR CONTACT
CR	(E) CARD READER
LB	DOOR LOCKDOWN BUTTON
REX	(E) REQUEST TO EXIT SENSOR

GENERAL NOTES

1. PROVIDE NEW LOCKDOWN BUTTON (DEVICE AND INFRASTRUCTURE), AND EOL RESISTORS (IF NECESSARY) AS SHOWN ON ELEVATION AND WIRING DIAGRAM. ALL OTHER DEVICES SHOWN ARE EXISTING.

2. PROVIDE 1-GANG BACKBOX FOR LOCKDOWN BUTTON WITH MANUFACTURER RECOMMENDED MIN. INTERNAL DEPTH OF 1.45"

3. FLUSH MOUNT LOCKDOWN BUTTON WHERE POSSIBLE. FOR MOUNTING TO CONCRETE, GLASS OR MULLION, SURFACE MOUNT BUTTON W/ STI BACK BOX KIT 71100A-Y. PROVIDE A DISTRICT APPROVED SURFACE MOUNT CABLE RACEWAY TO ABOVE THE FINISHED CEILING. WHERE NO CEILING, PROVIDE RACEWAY TO JUNCTION BOX.

4. FOR MOUNTING LB TO GYPSUM DRYWALL, PROVIDE CABLE RACEWAY RECESSED INSIDE WALL TO ABOVE FINISHED CEILING AND TERMINATE INSIDE J-BOX.

5. HIGH LEVEL DIAGRAM SHOWN FOR REFERENCE ONLY. VERIFY SPECIFIC DOOR CONDITIONS IN FIELD.

6. VERIFY ALL DOORS ARE FAIL SECURE.

7. FOR LOCATIONS WITHOUT AN (E) JUNCTION BOX, FIND AND INTERCEPT DOOR POWER CABLING AND PROVIDE JUNCTION BOX AT SPLICE POINT AS REQUIRED PER CALIFORNIA BUILDING CODE.

9 in. QUICK CONNECT WIRE LEAD (6) PROVIDED

COM — NC — CONTACT SET 1
 — NO —

COM — NC — CONTACT SET 2
 — NO —

CONTACT BOX CONTAINS TWO CONTACT SWITCHES

DOOR OUTPUT RELAY

LOCK DOWN BUTTON CONTACT SET 1

NO
COM NC

NO
COM NC

DOOR POWER SUPPLY (24VDC)

FAIL SECURE ELECT. LOCK

FAIL SECURE ELECT. LOCK

*FOR LOCATIONS WHERE DISTRICT HAS INDICATED TO INTEGRATE LOCKDOWN SWITCH WITH ELECTROMAGNETIC DOOR HOLDERS, USE SECOND SET OF SWITCH CONTACTS TO DEACTIVATE ELECTROMAGNETIC DOOR HOLDERS.IF ADDITIONAL CONTACTS REQUIRED REFER TO 1/TSK-F FOR WIRING DIAGRAM WITH ADDITIONAL DPDT RELAYS.
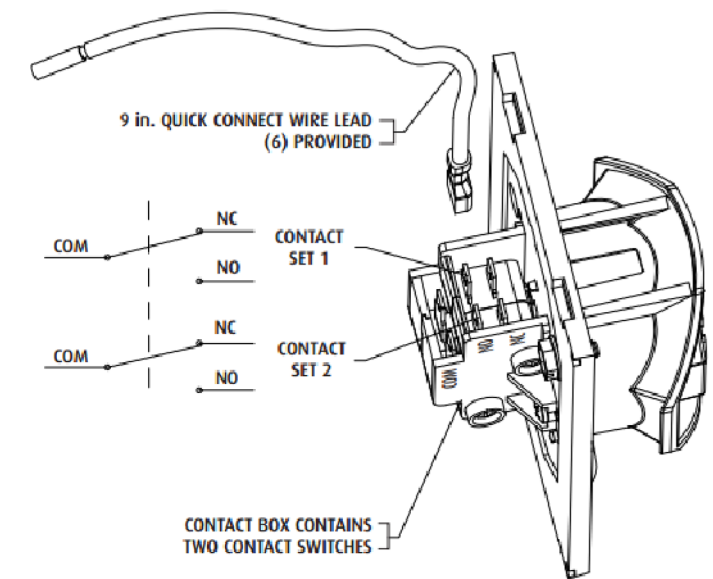
LOCK DOWN BUTTON WIRING DIAGRAM

LOCKDOWN DETAIL FOR MULTIPLE DOUBLE DOORS W/ SINGLE RELAY CONTROL

TSK-D

PLAN VIEW

UNSECURE SIDE (PP)(CR)

PROTECTED SIDE (PP)(LB)

(C)(C)
REX

(E) JUNCTION BOX (LOCATION MAY VARY). REFER TO NOTE 7 FOR LOCATIONS W/O (E) JUNCTION BOX.

CEILING (WHERE OCCURS) VARIES PER LOCATION

DOOR OPERATOR
REX
(C)(C)

ELECTRIC THROUGH WIRE HINGE

PROVIDE CABLE PATHWAY FROM LB TO JUNCTION BOX ABOVE DOOR. VERIFY PATHWAY TYPE WITH DISTRICT PRIOR TO INSTALLATION. REFER TO TSK-F FOR TYP MOUNTING HEIGHT REQUIREMENTS

(LB)(PP)(CR)

FINISHED FLOOR

ELEVATION (FIELD CONDITION MAY VARY)

SEQUENCE OF OPERATION:
- DOOR IS CLOSED AND LOCKED FROM EXTERIOR WITH ALARM MONITORING.
- PRESENTING VALID CARDS FOR ENTRY OR PASSIVE EXITING UNLOCKS DOOR AND BYPASSES ALARM.
- ACTIVATING THE LOCK DOWN BUTTON DISCONNECTS THE POWER SIGNAL TO THE DOOR.
    - FAIL SECURE DOOR LOCKS FROM THE UNSECURED SIDE AND REMAINS LOCKED UNTIL LOCAL LOCKDOWN BUTTON IS RESET OR DOOR IS MECHANICALLY UNLOCKED FROM UNSECURED SIDE BY PUBLIC SAFETY.
    - REMOVING POWER FROM THE DOOR DISABLES THE DOOR OPERATOR MOTOR.
    - PASSIVE MECHANICAL EGRESS IS MAINTAINED WHILE DOOR IS LOCKED DOWN.

SYMBOLS LEGEND

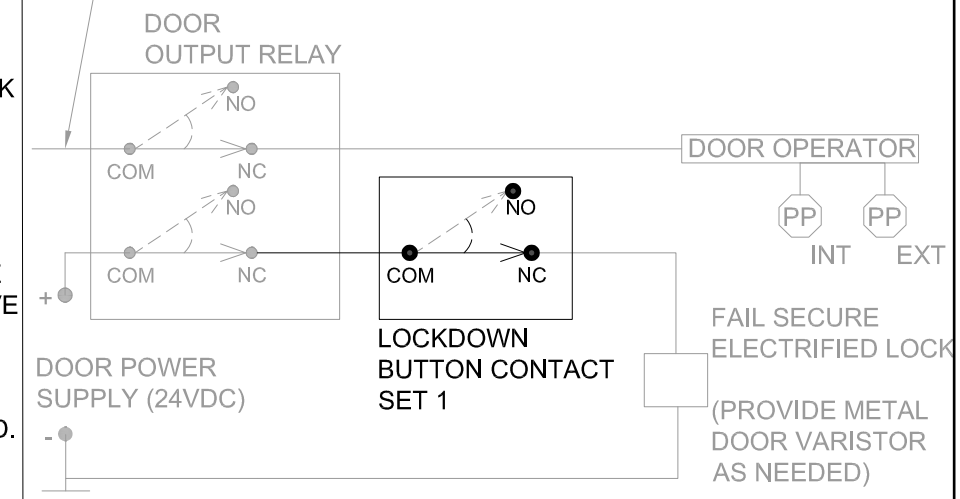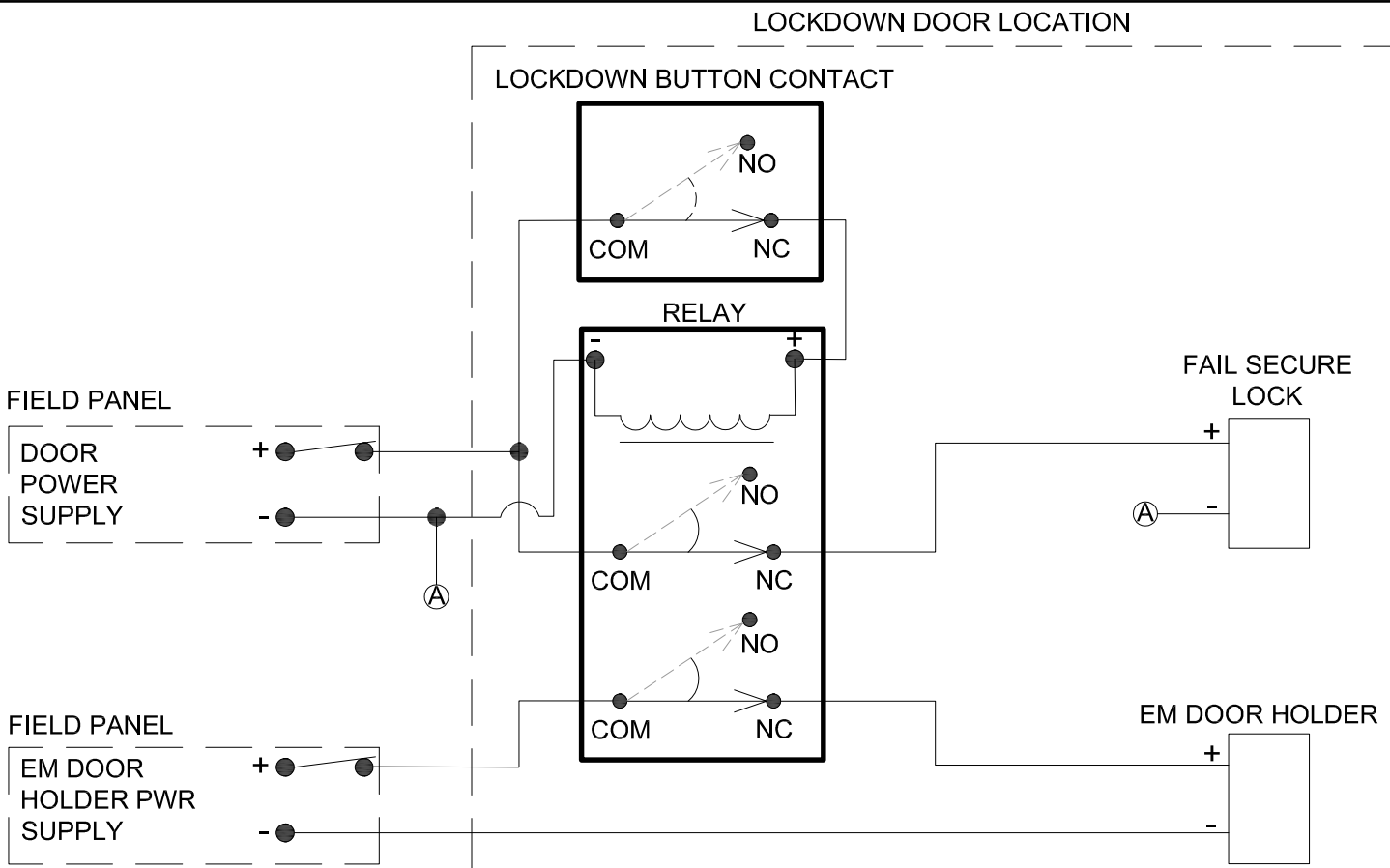|	
(C)	(E) DOOR CONTACT
(CR)	(E) CARD READER
(LB)	DOOR LOCKDOWN BUTTON
(PP)	(E) DOOR OPERATOR PUSH PLATE ACTUATOR
REX	(E) REQUEST TO EXIT SENSOR

GENERAL NOTES

1. PROVIDE NEW LOCKDOWN BUTTON (DEVICE AND INFRASTRUCTURE), AND EOL RESISTORS (IF NECESSARY) AS SHOWN ON ELEVATION AND WIRING DIAGRAM. ALL OTHER DEVICES SHOWN ARE EXISTING.

2. PROVIDE 1-GANG BACKBOX FOR LOCKDOWN BUTTON WITH MANUFACTURER RECOMMENDED MIN. INTERNAL DEPTH OF 1.45"

3. FLUSH MOUNT LOCKDOWN BUTTON WHERE POSSIBLE. FOR MOUNTING TO CONCRETE, GLASS OR MULLION, SURFACE MOUNT BUTTON W/ STI BACK BOX KIT 71100A-Y. PROVIDE A DISTRICT APPROVED SURFACE MOUNT CABLE RACEWAY TO ABOVE THE FINISHED CEILING. WHERE NO CEILING, PROVIDE RACEWAY TO JUNCTION BOX.

4. FOR MOUNTING LB TO GYPSUM DRYWALL, PROVIDE CABLE RACEWAY RECESSED INSIDE WALL TO ABOVE FINISHED CEILING AND TERMINATE INSIDE J-BOX.

5. HIGH LEVEL DIAGRAM SHOWN FOR REFERENCE ONLY. VERIFY SPECIFIC DOOR CONDITIONS IN FIELD.

6. VERIFY ALL DOORS ARE FAIL SECURE.

7. FOR LOCATIONS WITHOUT AN (E) JUNCTION BOX, FIND AND INTERCEPT DOOR POWER CABLING AND PROVIDE JUNCTION BOX AT SPLICE POINT AS REQUIRED PER CALIFORNIA BUILDING CODE.

9 in. QUICK CONNECT WIRE LEAD (6) PROVIDED

COM — NC / NO — CONTACT SET 1
COM — NC / NO — CONTACT SET 2

CONTACT BOX CONTAINS TWO CONTACT SWITCHES

(E) ACAM CONTROLLED RELAY TO DISABLE DOOR OPERATOR MOTOR WHEN DOOR IS LOCKED.

DOOR OUTPUT RELAY

NO
COM   NC
NO
COM   NC

DOOR POWER SUPPLY (24VDC)

LOCKDOWN BUTTON CONTACT SET 1
NO
COM   NC

DOOR OPERATOR
(PP) (PP)
INT   EXT

FAIL SECURE ELECTRIFIED LOCK

(PROVIDE METAL DOOR VARISTOR AS NEEDED)

LOCK DOWN BUTTON WIRING DIAGRAM

TYPICAL LOCKDOWN BUTTON DETAIL FOR DOOR WITH AUTOMATIC OPERATOR

TSK-E

LOCKDOWN DOOR LOCATION

LOCKDOWN BUTTON CONTACT

NO
COM   NC

RELAY

-          +

FAIL SECURE
LOCK

FIELD PANEL

DOOR
POWER
SUPPLY

+

-

A

NO
COM   NC

+

A   -

NO
COM   NC

FIELD PANEL

EM DOOR
HOLDER PWR
SUPPLY

+

-

EM DOOR HOLDER

+

-

*NOTE: PROVIDE COMPATIBLE, ICE CUBE STYLE, PLUG IN RELAY. PROVIDE JUNCTION BOX
EXTENDERS IF ADDITIONAL SPACE IS REQUIRED

FOR LOCKDOWN BUTTON CONNECTED TO A SECOND DOOR WITH ELECTROMAGNETIC
DOOR HOLDER, PROVIDE A SECOND RELAY.

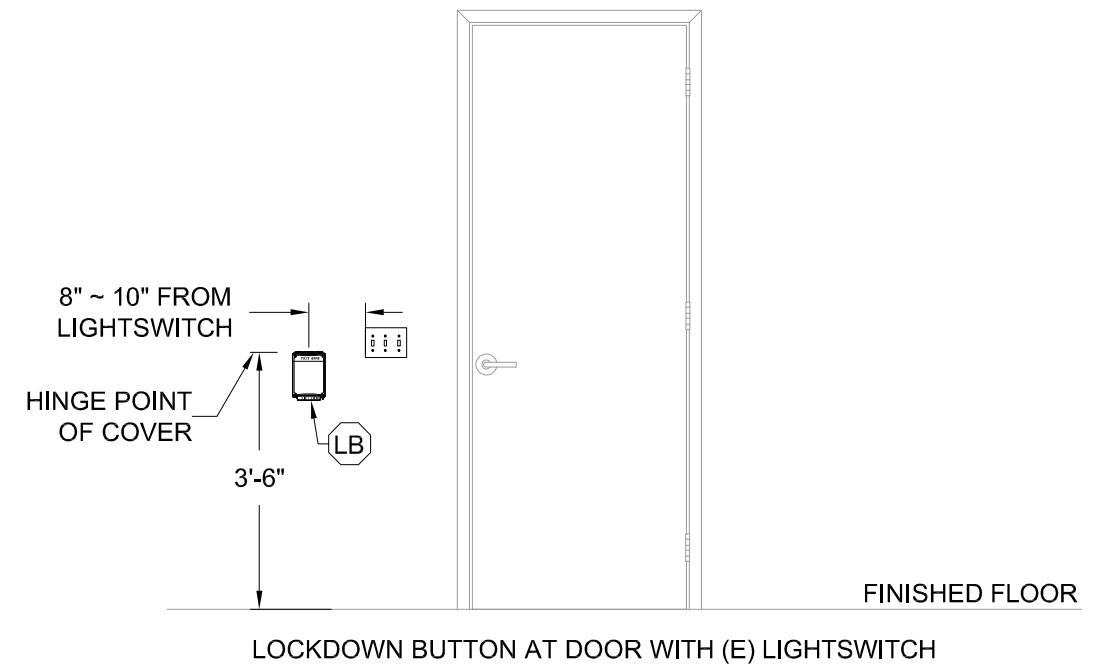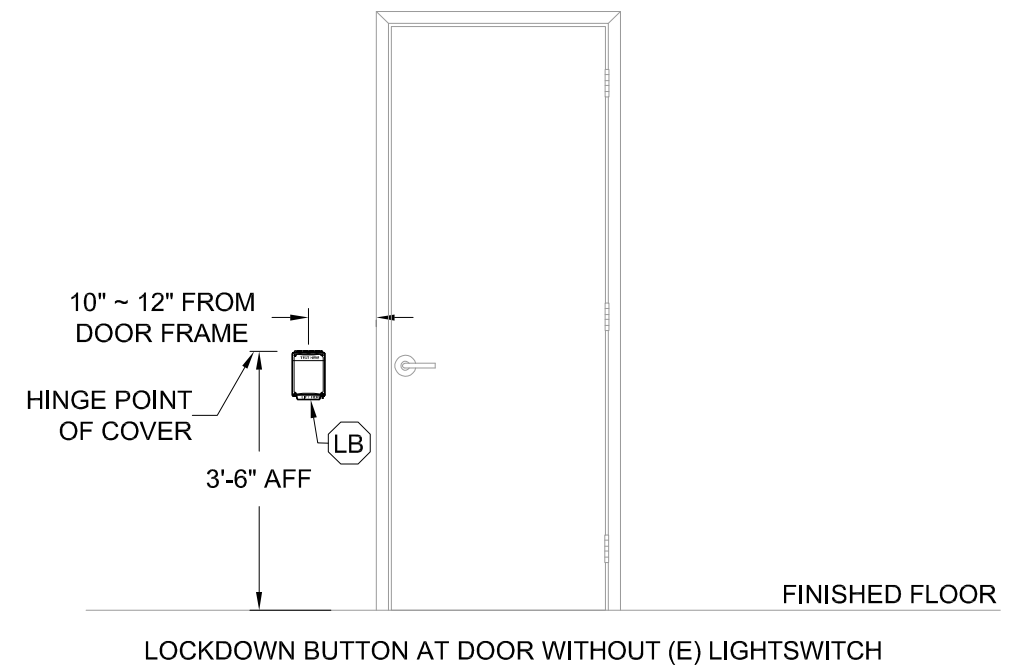1 WIRING DIAGRAM FOR ADDITIONAL RELAYS
   NTS

STI Safety Technology
         International

Stopper® Stations

MODEL NUMBER: SS22A9LD-EN

Build this North American style, ADA
Compliant, multipurpose push button
switch

2 LOCKDOWN BUTTON
   NTS

10" ~ 12" FROM
DOOR FRAME

HINGE POINT
OF COVER

LB

3'-6" AFF

FINISHED FLOOR

LOCKDOWN BUTTON AT DOOR WITHOUT (E) LIGHTSWITCH

8" ~ 10" FROM
LIGHTSWITCH

HINGE POINT
OF COVER

LB

3'-6"

FINISHED FLOOR

LOCKDOWN BUTTON AT DOOR WITH (E) LIGHTSWITCH

*NOTE: WHERE FIELD CONDITION DOES NOT ALLOW FOR THESE DIMENSIONS,
CONTRACTOR TO MAKE RECOMMENDATIONS TO DISTRICT PM.

3 LOCKDOWN BUTTON HEIGHT DETAIL
   NTS

Physical Access Control & Security Management Design Standards - Attachment A

TYPICAL LOCKDOWN BUTTON MOUNTING HEIGHT

TSK-F

STI STOPPER®
STATION SERIES

KEY FEATURES

General Information

· Multipurpose push button switches cover a wide range of applications both indoors and outdoors.

· Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).

Design

· Unique, curved design helps protect against accidental activation.

Construction

· Station housing molded of tough polycarbonate.

· UL Listed to U.S. and Canadian safety standards.

· Stainless steel backplate.

· Push buttons are ADA Compliant (excludes "3" key switch button).

Installation

· 5VA flammability rating on backplate and spacer.

· Typical working properties of polycarbonate are -40° to 250°F (-40° to 121°C).

· Polycarbonate complies with FDA regulations for food contact applications.

Options

· Your choice of colors — red, green, yellow, white or blue.

· Standard or custom text or hi-res logo.

· Custom text in any language.

· Protect with STI indoor/outdoor protective covers.

PRODUCT OVERVIEW

These ADA Compliant, multipurpose push button switches cover a wide range of applications both indoors and outdoors. They're called Stopper Stations. They incorporate a unique, patented design that helps dramatically to stop accidental activation. A number of standard models are available or we can create custom units to meet your needs exactly. You have your choice of any of five universal shell colors, several button styles, standard or custom wording and language.

HOW THEY WORK

Because of their superior, patented design combined with quality construction throughout, you can expect outstanding performance for years to come. In fact, many STI customers are surprised to find that all this quality is available at no increase in price. Plus, customers appreciate the option to protect the switches with STI protective covers that carry a three year guarantee against breakage in normal use, one year on electro mechanical and electronic components. For indoor applications, you can order your Stopper Station with a pre-alarm cover to help stop malicious and accidental activation.

Safety Technology
International, Inc.

STI Stopper® Station Series

Dimensions and Technical Information

UNIQUE BUTTON FEATURES

Models SS2xy0, SS2xy1, SS2xy3, SS2xy4

- Interchangeable or replaceable N.O. or N.C., SPST gold-plated contact blocks rated for 6 amps @ 600 VAC or 1 amp @ 250 VDC.
- Standard switch includes one N.O. and one N.C. contact. Holds up to three sets of isolated contacts.

Note: some standard single gang boxes need additional depth. To add 5/8" depth, order KIT-102722-color (B=blue, G=green, R=red, Y=yellow, W=white)
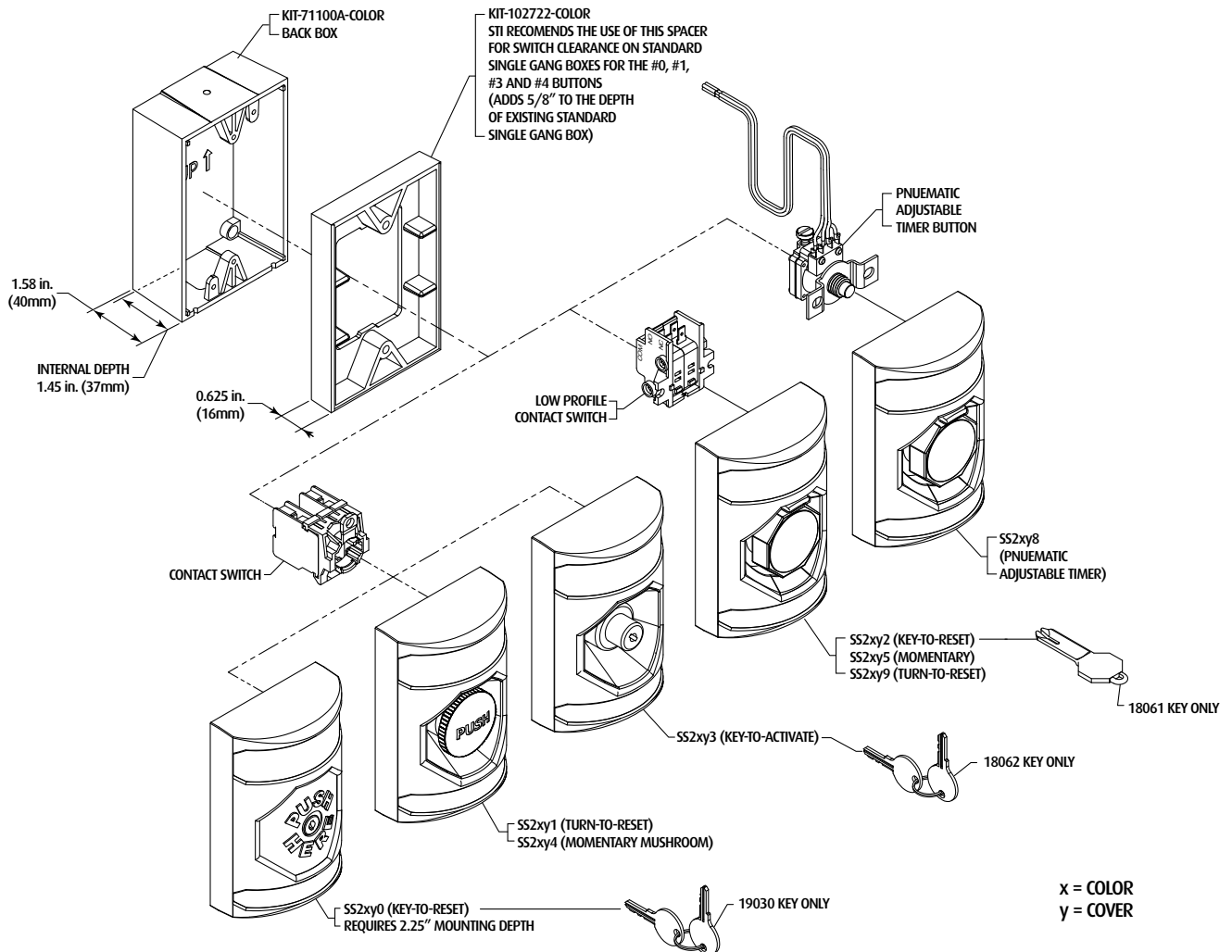
Models SS2xy2, SS2xy5, SS2xy9

- Two (2) Form "C" contacts, DPDT, rated 10 amps @ 125/250 VAC, 1/2 HP, 6 amps @ 30 VDC.

Models SS2xy8

- Switch rating 10 amps @ 240 VAC resistive and has a timer range: 2 - 60 seconds (± 15%).
- Indoor use only. Not recommended for outdoor/water applications, temperature range of button 15° to 120°F (-9° to +49°C).
- Timer life of over 1,000,000 operations.
- Pneumatic adjustable timer opens or closes a circuit and has a timed delay before reset. No electricity to operate.
- Ideal for security applications.
- 1 Form Z, 1 N.O. and 1 N.C. contact.

*Note: x = color, y = cover, see page 4 for details.

KIT-71100A-COLOR BACK BOX

KIT-102722-COLOR
STI RECOMENDS THE USE OF THIS SPACER FOR SWITCH CLEARANCE ON STANDARD SINGLE GANG BOXES FOR THE #0, #1, #3 AND #4 BUTTONS (ADDS 5/8" TO THE DEPTH OF EXISTING STANDARD SINGLE GANG BOX)

PNUEMATIC ADJUSTABLE TIMER BUTTON

1.58 in. (40mm)

INTERNAL DEPTH 1.45 in. (37mm)

0.625 in. (16mm)

LOW PROFILE CONTACT SWITCH

CONTACT SWITCH

SS2xy8 (PNUEMATIC ADJUSTABLE TIMER)

SS2xy2 (KEY-TO-RESET)
SS2xy5 (MOMENTARY)
SS2xy9 (TURN-TO-RESET)

18061 KEY ONLY

SS2xy3 (KEY-TO-ACTIVATE)

18062 KEY ONLY

SS2xy1 (TURN-TO-RESET)
SS2xy4 (MOMENTARY MUSHROOM)

SS2xy0 (KEY-TO-RESET)
REQUIRES 2.25" MOUNTING DEPTH

19030 KEY ONLY

x = COLOR
y = COVER

STI Stopper® Station Series

Dimensions and Technical Information

APPROVALS & WARRANTY

TESTING

It has been tested and approved or listed by:
- Underwriter Laboratories and Canadian Underwriter Laboratories UL No. S7255. Complies with UL 2017. UL Listed for indoor and outdoor use ("8" button indoor only, temperature range 15° to 120°F). When mounting outdoor, must use an STI weather cover.
- ADA Compliant (excludes "3" button)

WARRANTY

Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).

Accessories

LT-1UL	UL Latching/Timer Module
KIT-71100A-Color	Back box - Red, Green, Yellow, White and Blue for 2, 5, 8 and 9 switch
KIT-E10196	N.O. contact for 0, 1, 3 or 4 switch
KIT-M10197H	Replacement contact holder for 0, 1, 3 & 4 switch
KIT-E10198	N.C. contact for 0, 1, 3 or 4 switch
KIT-71101A-Color	Back box & Spacer Kit for 1, 3 or 4 switch in Red, Green, Yellow, White and Blue
KIT-102722-Color	Plastic Spacer - Red, Green, Yellow, White and Blue adds 5/8" depth
KIT-H19030	One Extra Key for 0 switch
KIT-H18061	One Extra Key for 2 switch
KIT-H18062	One Extra Key for 3 switch

"A" - Contact Depth

SS2xy0*	2.16"
SS2xy1	2.04"
SS2xy2	1.00"
SS2xy3*	2.13"
SS2xy4	2.04"
SS2xy5	1.00"
SS2xy8	1.4"
SS2xy9	1.00"

* If extra depth needed in electrical box order KIT-102722-color.
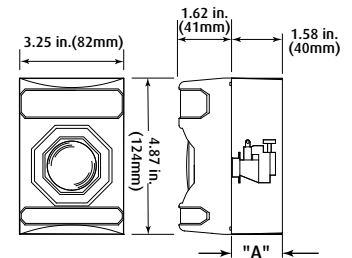
Covers to protect your STI Stopper Station from damage or weather and to help stop malicious or accidental activation.

**Stopper® Station Shield
(Cover 2, A)**

This inexpensive and highly durable cover, without alarm, was invented to mount directly onto the Stopper Station series of buttons with two tabs that snap into the Stopper Station shell. It takes hard knocks in stride while protecting the button against vandalism, damage and accidental activation. Ideal for use when space is limited. Cover available with sound, with sound and wireless or cover only.

No labeling can be placed on the Stopper Station shield.

**Universal Stopper®
(Covers 3, 4, 7, 8)**

This indoor/outdoor cover helps stop false fire alarms and can protect Stopper Stations against damage as well as malicious or accidental activation. It consists of a clear polycarbonate shield that fits easily over any STI Stopper Station model. When it is lifted to gain access to the Stopper Station, the optional piercing 105 dB warning horn sounds. Legitimate activation is not affected. The protective cover options include: dome or low profile, with or without horn, flush mount, surface mount.

Additional labeling may be placed on the Universal Stopper.

Note:

Stopper Stations are approved for outdoor use with an outdoor rated protective cover. Excludes pneumatic buttons.

STI Stopper® Station Series

Dimensions and Technical Information

SS2 _ _ _ _ - _

Color
0. Red
1. Green
2. Yellow
3. White
4. Blue

Cover
Flush
3. Universal Stopper, label shell
4. Universal Stopper, horn
Surface
7. Universal Stopper, label shell
8. Universal Stopper, horn
Flush or Surface
2. Shield
A. Shield with sound

0. No Cover

Switch Configuration
2. Key-to-Reset (Illuminated)
5. Momentary (Illuminated)
9. Turn-to-Reset (Illuminated)
8. Pneumatic (Illuminated)
0. Key-to-Reset
1. Turn-to-Reset
3. Key-to-Activate
4. Momentary

Text
AB = ABORT
EM = EMERGENCY
EX = EMERGENCY EXIT
PO = EMERGENCY POWER OFF
ES = EMERGENCY STOP
EV = EVACUATION
XT = EXIT
PS = FUEL PUMP SHUT DOWN
HV = HVAC SHUT DOWN
LD = LOCKDOWN
PX = PUSH TO EXIT
NT = No Text
ZA = Custom Text

Language
EN = English
ES = Spanish
FR = French
ZL = Other Language

CUSTOMIZE YOUR TEXT - text option ZA.

CUSTOM TEXT FOR TOP OF SHELL: 1 LINE, 13 CHARACTERS MAXIMUM
                                                                2 LINES, 20 CHARACTERS EACH (INCLUDES SPACES)

CUSTOM TEXT FOR BOTTOM OF SHELL: 1 LINE, 20 CHARACTERS MAXIMUM

CUSTOM TEXT COVER 3, 4, 7, 8: 2 LINES, 40 CHARACTERS EACH (INCLUDES SPACES)

Black text on white and yellow; white text on blue, red and green.

Safety Technology International, Inc.

2306 Airport Road
Waterford, Michigan
48327, USA

Tel: 248-673-9898
Fax: 248-673-1246
Toll-free: 800-888-4784
info@sti-usa.com
www.sti-usa.com

Taylor House
34 Sherwood Road
Bromsgrove, Worcestershire
B60 3DR, England

Tel: +44 (0)1527 520 999
Fax: +44 (0)1527 501 999
info@sti-europe.com
www.sti-europe.com

Subject to change without notice.   09/16

STI STOPPER® STATION SHIELD

STI-6517

KEY FEATURES

General Information

· Protects against vandalism, damage and accidental activation.

· Raised molded "LIFT HERE."

· Three year guarantee against breakage of polycarbonate in normal use (one year on electro mechanical and electronic components).

Design

· Cover specifically designed to fit STI Stopper Stations with notched mounting slots (see reverse).

Construction

· Cover is molded from thick, tough polycarbonate material.

· Cover is UV-stabilized.

Installation

· Ideal for use when space is limited.

· Tabs snap into Stopper Station shell allowing for fast and easy installation.

· Polycarbonate rated -40° to 120°F (-40° to 49°C).

Electronics

· STI-6517A has a selectable 65 or 85 dB alert when lifted.

· STI-6517B is wireless and has a selectable 65 or 85 dB alert when lifted.

· STI-6517C sends wireless signal when cover is lifted or button is pressed.

· STI-6517D sounds a 65 or 85 dB alert and sends wireless signal when button is pressed.

Options

· Available with alert or alert and wireless.

· Standard French and Spanish label available.

PRODUCT OVERVIEW

This inexpensive and highly durable cover was invented to mount directly onto the Stopper® Station series of buttons. With two tabs that snap into the Stopper Station, the cover easily mounts over the push button. It takes hard knocks in stride while protecting the button against vandalism, damage or accidental activation.

BACKED BY A THREE YEAR GUARANTEE

As all STI protective covers, this Stopper Station Shield is backed by a three year guarantee against breakage in normal use. It is also highly cost effective and easy to install.

For more information, call 1-800-888-4784 (4STI) or visit www.sti-usa.com

Safety Technology International, Inc.

STI Stopper® Station Shield

Dimensions and Technical Information

MODELS AVAILABLE

STI-6517   Stopper Station Shield
STI-6517A   Stopper Station Shield with sound
STI-6517B*   Wireless Stopper Station Shield with sound
STI-6517C*   Stopper Station Shield with Wireless Transmitter
STI-6517D*   Stopper Station Shield with Button Sound and
                  Transmitter
STI-6517/FRE Shield with "LEVEZ ICI"
STI-6517/SPA Shield with "LEVANTE AQUI"

NOTE: Special order. Please contact STI sales for ordering
         information.

*Requires STI-34104 4-Channel Receiver, STI-V34104 4-Channel
 Voice Receiver or STI-34108 8-Channel Receiver.
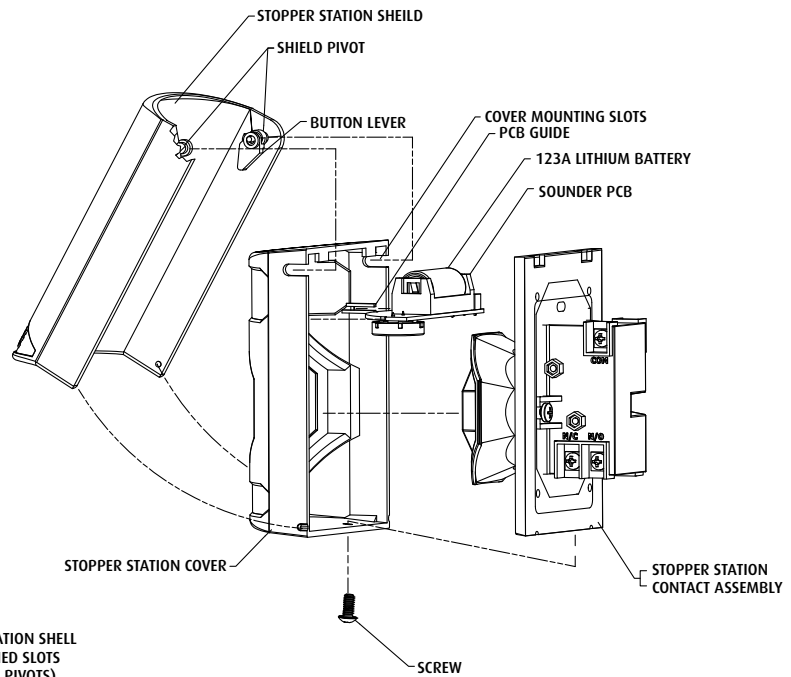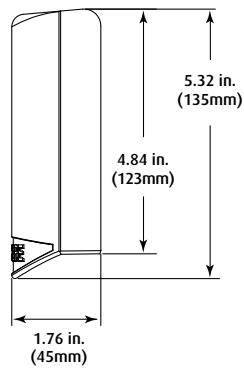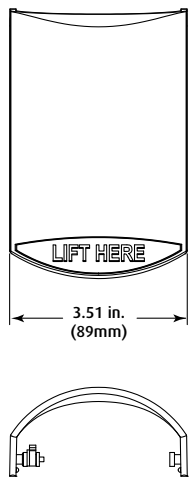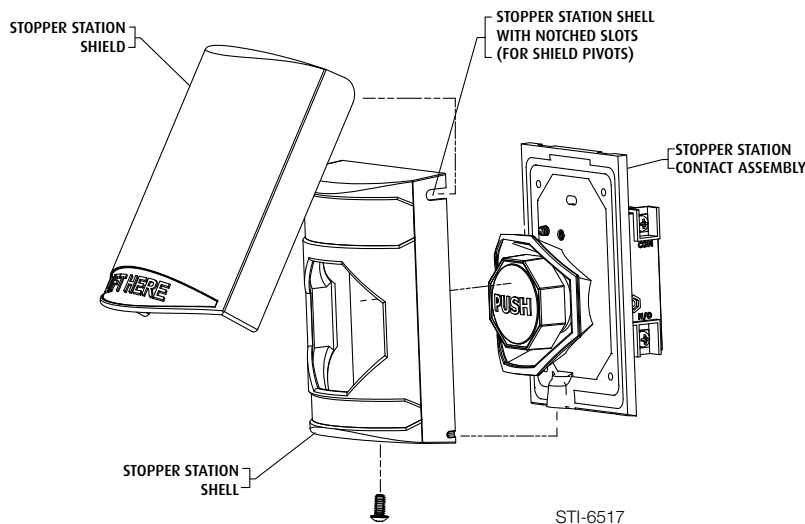
APPROVALS & WARRANTY

TESTING
· UL and cUL S7255

STI-6517B
· FCC & IC Compliant

WARRANTY
Three year guarantee against breakage of polycarbonate in
normal use.

5.32 in. (135mm)

4.84 in. (123mm)

3.51 in. (89mm)

1.76 in. (45mm)

LIFT HERE

STOPPER STATION SHEILD
SHIELD PIVOT
BUTTON LEVER
COVER MOUNTING SLOTS
PCB GUIDE
123A LITHIUM BATTERY
SOUNDER PCB
STOPPER STATION COVER
STOPPER STATION CONTACT ASSEMBLY
SCREW

STI-6517A & STI-6517B

STOPPER STATION SHIELD
STOPPER STATION SHELL WITH NOTCHED SLOTS (FOR SHIELD PIVOTS)
STOPPER STATION CONTACT ASSEMBLY
PUSH
STOPPER STATION SHELL

STI-6517

Subject to change without notice.   08/15