

Cherokee Nation

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REQUEST FOR SEALED BIDS

SEQUOYAH HIGH SCHOOL ACCESS CONTROL

**Location: Tahlequah, Oklahoma
Cherokee County, Oklahoma**



On behalf of
Information Technology Department

CHEROKEE NATION
P.O. Box 948
Tahlequah, OK 74465
(918) 453-5000

Cherokee Nation

BID PACKAGE

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**CHEROKEE NATION
REQUEST FOR BID
SUMMARY ANNOUNCEMENT
SEQUOYAH HIGH SCHOOL
ACCESS CONTROL
Location: Tahlequah, Oklahoma
Cherokee County, Oklahoma**

The Cherokee Nation is seeking sealed bids from qualified contractors for the complete installation of an access system for Sequoyah High School located in Tahlequah, Cherokee County, Oklahoma. Interested parties are to provide a bid to furnish all labor, quality control, materials, supplies, and supervision to complete the entire project. The project must be fully completed as stipulated: within One Hundred Eighty (180) consecutive calendar days. The scope of work, specifications, and construction plans are available in the bid packet. The bid packet contains all information and all necessary form documents and is posted on the Nation's free public bid website www.cherokeebids.org. Interested parties may contact Cherokee Nation Purchasing Department for a bid packet; Michelle Parsons at michelle-parsons@cherokee.org or Pam Jumper at pam-jumper@cherokee.org. There will be a mandatory site visit on **February 25, 2022 at 10:00 a.m. at the Sequoyah High School Rec Room located in the new gym. All vendors will need to check in at the high school office before going over to the rec room. Physical address for Sequoyah High School 17091 S. Muskogee Ave., Tahlequah, Ok 74464.** Bids will be accepted from Indian and Non-Indian bidders who have received the bid packet and attended the mandatory pre-bid meeting. Indian preference will be given only to bidders who provide proof of current certification from the Cherokee Nation Tribal Employments Office (TERO) located in Tahlequah, Oklahoma, telephone number (918) 453-5000. Proof of TERO certification must accompany and be included in sealed bid submittal. Detailed announcement and deadline information are available at www.cherokeebids.org or by contacting Cherokee Nation Acquisition Management at (918) 453-5593.

**CHEROKEE NATION
REQUEST FOR BID
DETAILED ANNOUNCEMENT
SEQUOYAH HIGH SCHOOL
ACCESS CONTROL
Location: Tahlequah, Oklahoma
Cherokee County, Oklahoma**

The Cherokee Nation is seeking sealed bids from qualified contractors for the complete installation of an access system for Sequoyah High School located in Tahlequah, Cherokee County, Oklahoma. Interested parties are to provide a bid to furnish all labor, quality control, materials, supplies, and supervision to complete the entire project. The project must be fully completed as stipulated: within One Hundred Eighty (180) consecutive calendar days. The scope of work, specifications, and construction plans are available in the bid packet. The bid packet contains all information and all necessary form documents and is posted on the Nation's free public bid website www.cherokeebids.org. Interested parties may contact Cherokee Nation Purchasing Department for a bid packet; Michelle Parsons at michelle-parsons@cherokee.org or Pam Jumper at pam-jumper@cherokee.org. **There will be a mandatory site visit on February 25, 2022 at 10:00 a.m. at the Sequoyah High School Rec Room located in the new gym. All vendors will need to check in at the High School office before going over to the rec room. Physical address for Sequoyah High School 17091 S. Muskogee Ave., Tahlequah, Ok 74464.** Additional site visits may be scheduled by contacting: Jeff Carroll at (918) 822-2466. NOTE: THE MANDATORY SITE VISIT MUST BE ATTENDED. For this project Wage Rates OK20220067 are applicable and included; any state or Tribal law requiring the payment of wage rates that exceed the corresponding Federal rate is inapplicable and shall not be enforced. Bids will be accepted from Indian and Non-Indian bidders who have received the bid packet and attended the mandatory pre-bid meeting. Indian preference will be given only to bidders who provide proof of current certification from the Cherokee Nation Tribal Employments Office (TERO) located in Tahlequah, Oklahoma, telephone number (918) 453-5000. Proof of TERO certification must accompany and be included in sealed bid submittal. All contracting pursuant to this Agreement shall comply with procedures for selection of contractors and sub-contractors set forth within § 5307 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 5301 *et seq.*), as well as the Cherokee Nation Acquisition Management Policies and Procedures. To that end, the parties to this Agreement shall, to the greatest extent feasible, give preference and opportunities for training and employment to Indian and Alaska Natives, and preference in the award of contracts to Indian organizations and Indian-owned economic enterprises. This clause shall be included in every subcontract in connection with the Project, and Contractor shall, at the direction of Cherokee Nation, take appropriate corrective action in the event of a finding by Cherokee Nation of a violation hereof by a contractor or subcontractor. Bid will be awarded to the lowest, most responsive/responsible bid. The subsequent contract must be fully executed within ten (10) days of award or the bid will become null and void, and the next lowest most responsive/responsible bid will be considered. Award of contract will

be subject to availability of funds. Cherokee Nation TERO Office requirements apply including fee of ½ of 1% of contract award. Successful bidder must complete TERO Labor Agreement and pay all applicable fees, including \$25.00 per day for every non-Indian employee working on this project in accordance with the current Cherokee Nation Legislative Act for this project. The successful bidder must have fees and all paperwork submitted to TERO for contract to be considered fully executed. Sealed bid may be mailed to the Cherokee Nation Acquisition Management, Attn: Michelle Parsons or Pam Jumper, P.O. Box 948, Tahlequah, Oklahoma 74465; or bid may be hand delivered to Cherokee Nation Acquisition Management, Attn: Michelle Parsons or Pam Jumper, 17665 S. Muskogee Avenue, Tahlequah, Oklahoma 74464. **Bids must be received on or before March 16, 2022 by 5:00 p.m. CT by the Cherokee Nation Purchasing Department.** Bid must be sealed and clearly marked “SEALED BID, DO NOT OPEN, SOLICITATION: ACCESS CONTROL SHS”. **Due to the current circumstances with the Covid virus and the need to social distance, there will be no public bid opening. For transparency, the bid tabulation will be available to responding parties the next business day.** Cherokee Nation reserves the right to reject any and all proposals. Cherokee Nation reserves the right to determine if a proposal meets stated requirements, and to award a contract for bid that is in the best interest of the Cherokee Nation including but not limited to the total cost and capability of the bidder. Bidders are responsible for any and all costs associated with the preparation and submission of bids. No bidder may withdraw their bid within 30 days after proposal due date.

Information for Bidders

(1) Receipt and Opening of Bid

- a) The Cherokee Nation (hereinafter "NATION"), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the NATION at the **Purchasing Department until March 16, 2022 at 5:00 p.m. CT.** "The envelopes containing the bids must be sealed, addressed to Cherokee Nation, Attn: Michelle Parsons or Pam Jumper, Purchasing Department, P.O. Box 948, Tahlequah, Oklahoma, 74465. Bids may also be hand delivered to Cherokee Nation Acquisition Management, Attn: Michelle Parsons or Pam Jumper, 17665 S. Muskogee Avenue, Tahlequah, Oklahoma 74464. **BIDS MUST BE RECEIVED ON OR BEFORE MARCH 16, 2022 AT 5:00 P.M. CT TO BE CONSIDERED. BIDS MUST BE SEALED AND CLEARLY MARKED "SEALED BID, DO NOT OPEN, SOLICITATION: ACCESS CONTROL SHS". BIDS MUST BE DELIVERED ON OR BEFORE THE DESIGNATED DATE AND TIME TO THE ACQUISITION MANAGEMENT DEPARTMENT AT THE STATED MAILING ADDRESS OR PHYSICAL LOCATION 17665 SOUTH MUSKOGEE AVENUE, TAHLEQUAH, OKLAHOMA.**

Due to the current circumstances with the Covid virus and the need to social distance, there will be no public bid opening. For transparency, the bid tabulation will be available to responding parties the next business day.

- b) Bids will be accepted from Indian and Non-Indian bidders who have received the bid packet and attended the mandatory pre-bid meeting.

c) Interested bidders must submit, at a minimum, the following completed bid sheets and attachments, in the sealed bid packed to be consider fully responsive/responsible bidders: **Preparation Outline, Attachment A, bid packet must be completed and all sections returned; Bid Proposal Form, page 18 of bid packet; Base Bid Form, page 19 of bid packet; Non Collusive Affidavit, page 20 of bid packet; Previous Work History Form, Attachment B; TERO Certification (if applicable, to be provided by bidder); Statement on Providing Indian Preference in Employment & Training Opportunities, Attachment C; Statement on Providing Indian Preference in Subcontracting, Attachment D; bid bond or cashier's check per page 9 of bid packet.**

- c) The NATION may consider informal a bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any sealed bid received from a bidder who does not meet mandatory bid requirements (receipt of bid packet,

and pre-bid meeting attendance) will be returned, unopened. Any bid received after the time and date specified shall not be considered and will be returned, unopened. No bidder may withdraw a bid within 30 days after the actual date of the opening thereof.

(2) Method of Bidding

Each bid must be submitted on the prescribed form. Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid and all other required, completed documents as outlined in Section 1, Part C must be enclosed in another envelope addressed as specified in the bid form.

(3) Subcontracts

The successful bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must also be acceptable to NATION. Any proposed subcontracts must be approved by the NATION, and the TERO office must be consulted prior to subcontractor being on site to ensure all appropriate forms, paperwork, and approvals are in place. Successful bidder will be required to complete the Request for Acceptance of Subcontractor at time of contract signing; Sample Contract, Attachment F; Request for Acceptance of Subcontractor, Attachment G.

(4) Modification of Bid

Any bidder may modify his bid at any time prior to the scheduled closing time for receipt of bids, provided such communication is received in writing by NATION prior to the closing time. The written communication should not reveal the bid price but should provide the addition or subtraction or other modification so that NATION will not know the final prices or terms until the sealed bid is opened.

(5) Qualifications of Bidder

- a) The NATION may make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the NATION all such information and data for this purpose as the NATION may request. The NATION reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the NATION such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.
- b) Bidders are requested to list prior experiences on last ____ projects similar in scope and size. Complete: Previous Work History Form, Attachment B.

- c) TERO Certification: Indian preference will be given only to bidders who provide proof of current certification from the Cherokee Nation Tribal Employments Office (TERO) located in Tahlequah, Oklahoma, telephone number (918) 453-5000. Proof of TERO certification must accompany and be included in sealed bid submittal.

(6) Time of Completion and Liquidated Damages

- a) Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the NATION and to fully complete project with one hundred eighty (180) consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of \$1,000.00 for each consecutive calendar day in which the project is incomplete over the presented construction end date or previously approved time extension. Upon fifth (5th) calendar day, contract will be fully revoked and action to invoke bonds will be started by the NATION.
- b) Notwithstanding any other provisions of this contract, it is mutually understood that time extensions for changes in the work will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of construction. A change order granting the time extension may provide that the contract completion date will be extended only for those specific elements so delayed and the remaining contract completion dates for all other portions of the work will not be altered.

(7) Conditions of Work

- a) Each bidder has the responsibility to be fully informed of the conditions relating to the project and the employment of labor thereon.
- b) Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

(8) Interpretation of the Bid Documents

- a) Every request for interpretation of the meaning of the plans, specifications, or other pre-bid documents must be submitted in written format to Cherokee Nation Acquisition Management. Requests may be e-mailed to michelle-parsons@cherokee.org or pam-jumper@cherokee.org. Requests may also be faxed to (918) 458-7695, Attention: Michelle Parsons or Pam Jumper.
- b) To be given consideration, interpretation requests must be received stated date and time. **Due date for all interpretation requests for this bid shall be March 04, 2022 by 5:00 p.m. CT.**
- c) Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be communicated in written format to all prospective bidders (at the respective fax

numbers or e-mail addresses furnished for such purposes if provided), and will be posted on the NATION'S website, www.cherokeebids.org under Cherokee Nation

Procurements with bid announcement. **Due date for the addendum for this bid shall be March 10, 2022 by 5:00 p.m. CT.**

- d) No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally.
- e) Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

(9) Security for Faithful Performance

Simultaneously with his delivery of the signed contract, the Contractor shall furnish a surety bond or bonds as specified. Corporate sureties offered for bonds furnished with contracts performed for the Cherokee Nation must appear on the list contained in the Department of the Treasury Circular 570, "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies." Before any work is commenced, the Contractor shall obtain a performance bond and payment bond to guarantee the faithful performance of this contract and payment for all labor and materials used in the work each in the full amount of the Contract price in a form and with sureties satisfactory to the NATION. The NATION will accept an irrevocable letter of credit from an established institution in lieu of the above bonds. This shall remain in effect until final acceptance by the NATION.

(10) Warranty Period

The Contractor warrants that work performed under awarded contract conforms to all requirements and is free of any defect in equipment, material, design, or workmanship performed by the Contractor or any Subcontractor. This warranty shall continue for a period of two years from the date of final acceptance of the work. The Contractor shall remedy at the Contractor's expense any failure or defect within the two year warranty period.

(11) Power of Attorney

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

(12) Notice of Special Conditions

Attention is particularly called to those parts of the bid and contract documents, specifications, and attachments that deal with the following:

- a) Manufacturer's material and installation recommendations and requirements.
- b) Insurance Requirements
- c) Warranty Requirements
- d) Wage Rates
- e) Indian Preference in Employment & Training Opportunities
- f) Indian Preference in Subcontracting Opportunities

(13) Laws and Regulations

The bidder's attention is directed to the fact that all applicable State Laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though written out in full. For this project Wage Rates OK20220067 are applicable and included.

(14) Method of Award – Lowest Bid That Contains Lowest Most Responsive/Reasonable Offer From Qualified Bidder

After consideration of price and other factors, the contract will be awarded to the bidder whose bid is determined to be the lowest most responsive/reasonable offer and in the best interest of the NATION to accept. Award shall be made under unrestricted solicitations to the lowest, most responsive/reasonable bid from a qualified economic enterprise or organization within the maximum total contract price established for the specific project or activity being solicited. To be considered as responsive all required documents as specified in Section 1, Part C. TERO Preference will be given in accordance with Cherokee Nation Acquisition Management's Policy and Procedures and only to bidders who provide proof of current TERO certification from the Cherokee Nation Tribal Employments Office (TERO). Proof of TERO certification must accompany and be included in sealed bid submittal.

(15) Protests

There will be a 10 day period for protests to be submitted to the Cherokee Nation Tribal Employment Rights Office (TERO) with a copy to be submitted to the Cherokee Nation Acquisition Management Department.

(16) Site Inspections

- a) At the time of the opening of bids each bidder must have attended the mandatory site visit on **February 25, 2022 at 10:00 a.m. CT** and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda).

- b) The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his bid.
- c) Additional site Inspections may be scheduled by contacting: Jeff Carroll at (918) 822-2466. NOTE: THE MANDATORY SITE VISIT ON FEBRUARY 25, 2022 AT 10:00 A.M. MUST BE ATTENDED FOR INTERESTED PARTIES TO BE ELIGIBLE FOR AWARD. This is for additional site visits after the mandatory one.

(17) Construction Inspections

- a) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the work performed under the contract conforms to contract requirements.
- b) The Contractor shall maintain complete inspection records and make them available to the NATION.
- c) All work is subject to the NATION's inspection and testing at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.
- d) NATION inspections are for the sole benefit of the NATION and do not-
 - i) Relieve the Contractor of responsibility for providing adequate quality control measures;
 - ii) Relieve the Contractor of responsibility for damages to or loss of the material before acceptance;
 - iii) Constitute or imply acceptance; or
 - iv) Affect the continuing rights of the NATION after acceptance of the completed work.
- e) The presence or absence of the NATION's inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the NATION's written authorization.
- f) Contractor Cooperation
 - i) The Contractor shall promptly furnish, without additional charge, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the NATION.
 - ii) The NATION may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary.
 - iii) The NATION shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(18) Non-conforming Work

- a) The Contractor shall, without charge, replace or correct work found by the NATION not to conform to contract requirements, unless in the public interest the NATION consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

If the Contractor does not promptly replace or correct rejected work, the NATION may

- i) By contract or otherwise, replace or correct the work and charge the cost to the Contractor, or
- ii) Terminate for default the Contractor's right to proceed.

(19) Destructive Inspection

- a) If, before acceptance of the entire work the NATION decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material.
- b) If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall be responsible for the expenses of the examination and of satisfactory reconstruction.
- c) If the work is found to meet contract requirements, the NATION shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(20) Acceptance

- a) Unless otherwise specified in the contract, the NATION shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the NATION determines can be accepted separately.
- b) Acceptance shall be final and conclusive except for latent defects, gross mistakes amounting to fraud, or the NATION's rights under any warranty or guarantee.

(21) Safety Standards and Accident Prevention

With respect to all work performed under the contract, the contractor shall:

- i) Comply with the safety standards provision of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596) and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.
- ii) Exercise every precaution at all times for the prevention of accidents and

- the protection of persons (including employees) and property.
- iii) Maintain at his office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care for persons (including employees) who may be injured on the job site. Employees shall not be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or doctor.

(22) Invoice Submission

- a) The Contractor shall submit an original invoice on the schedule described in this bid package upon completion of work and after inspection to: Cherokee Nation, Attention: Jeff Carroll IT Manager, IT Department, P.O. Box 948, Tahlequah, Oklahoma, 74465 Payments will be made for this project every 30 days. Invoices will be approved and submitted for payment upon completion and acceptance of work approved by the Cherokee Nation Inspector; it is the responsibility of the Contractor to submit invoice per instructions.
- b) The Contractor agrees to include the following information on each invoice:
 - i) Contractor's name and invoice date;
 - ii) Contract number;
 - iii) Description, cost or price, and quantity of services actually rendered;
 - iv) Payment terms as agreed to in the contract;
 - v) Other substantiating documentation or information as required by the contract; and
 - vi) Name, title, phone number, and complete mailing address of responsible official to whom payment is to be sent.
- c) The NATION may, at any time, request information necessary to determine the appropriateness of partial payment amounts.

(23) Work Requirements

The Contractor shall notify the Project Inspector two work days prior to performing any work before 7 am, after 7 pm, or any Saturday, Sunday or Holiday in order that NATION may inspect any work should they choose.

(24) Drug Free Workplace and Tobacco Free Workplace

- a) Any Contractor performing work for the Cherokee Nation agrees to publish a statement notifying all employees, subcontractors, and other workers that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against violators of such prohibition.

- b) NATION will consider lack of enforcement or lax enforcement of the statement by Contractor a default of the contract.
- c) The Contractor further agrees to provide all persons engaged in performance of the contract with a copy of the statement.
- d) A copy of bidder's Drug Free Workplace statement shall be included with the bid or else the successful bidder will be deemed to accept and agree to use the statement provided by NATION.
- e) The Contractor understands and recognizes that all Cherokee Nation buildings, whether leased or owned, and the grounds surrounding those facilities are considered by the Nation to be a tobacco free workplace. The Contractor will ensure all employees, subcontractors, and other workers will abide by this policy.

(25) Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters

- a) The Contractor shall certify, to the best of its knowledge and belief, that the Contractor or any of its Principals:
 - i) Are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency or Indian tribe;
 - ii) Have not, within a three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, local or tribal) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsifications or destruction of records, making false statements, or receiving stolen property and are not presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in this provision.
- b) The Contractor certifies they have not, within a three-year period preceding this offer, had one or more contracts terminated for default by a Federal, state, local or tribal agency.
- c) The Contractor shall provide immediate written notice to the NATION if, at any time prior to contract award, the Contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- d) This certification is a material representation of fact upon which reliance was placed when making award. If it is later determined the Contractor knowingly rendered an erroneous certification, in addition to other remedies available to the NATION, the NATION may terminate the contract resulting from this solicitation for default.

(26) Environmental Protection

- a) If extraordinary or exceptional circumstances involving the National Environmental Policy Act (NEPA) and related environmental considerations are encountered in the project, or if there is any change in the project, which could change the project environmental determination, the Contractor agrees to stop construction in affected areas and to notify the NATION'S Project Inspector.
- b) The work covered by this section consists of furnishing all labor, materials, and equipment, and performing all work required for the prevention of environmental pollution during, and as a result of, construction operations under this contract except for those measures set forth in other technical provisions of these specifications. For the purpose of these specifications, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance of human life; affect other species of importance to man; or degrade the utility of the environmental pollution requiring consideration of air, water, and land, and involves noise and solid waste-management, as well as other pollutants. This section applies to work at all sites.
- c) In order to prevent, and to provide for abatement and control of, any environmental pollution arising from construction activities of the Contractor and subcontractors in the performance of this contract, they shall comply with all applicable Federal, State, Local, Tribal laws, and regulations concerning environmental pollution control and abatement.
- d) The NATION will notify the Contractor of any observed non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice when delivered to the Contractor or his authorized representative at the site of the work shall be deemed sufficient for the purpose.
- e) If the Contractor fails or refuses to promptly take corrective action, the NATION may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to any such stop orders shall be made the subject of a claim for extension of time, for excess costs or damages by the Contractor unless it was later determined the Contractor was in compliance.
- f) Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

- g) Prior to commencement of the work, the Contractor will discuss environmental protection with the NATION's Project Inspector to develop a mutual understanding relative to compliance with these provisions and administration of the environmental pollution control program.
- h) Protection of Land Resources:
 - i) The resources within the scope of work under this contract shall be preserved in their present condition or be restored to a condition after completion of construction that will appear to be natural and not detract from the appearance of the project. Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans or specifications. At the onset of ditch grading, topsoil shall be saved for use in restoring the ditch areas. Waste and borrow areas shall be leveled or trimmed to regular lines and shaped to provide a neat appearance. In all instances the restored area shall be well drained, so as to prevent the accumulation of stagnant water.
 - ii) Except in areas shown on the plans or specified to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without special authority from the NATION.
 - iii) Any trees or other landscape features scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to original condition at the Contractor's expense.
 - iv) The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction, as directed by the Project Engineer or his representative. The disturbed areas shall be graded and filled as required sufficient topsoil shall be spread to provide minimum depth of four (4) inches of suitable soil for the growth of grass, and the entire area seeded.

(27) Protection of Water Resources:

- a) The Contractor shall not pollute streams, lakes or reservoirs with fuel, oils, bitumens, calcium chloride, acids, construction wastes or other environmentally harmful materials. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County, Local and Tribe water laws concerning pollution of rivers and streams.
- b) Special measures shall be taken to prevent chemicals, fuels, oils, bituminous materials, waste washings, and cement from entering drainage ditches.
- c) The Contractor shall at all times perform all work and take such steps required to prevent any interference or disturbance to fish and wildlife. Fouling or polluting of water will not be permitted. Wash waters and wastes shall be processed, filtered, ponded, or otherwise treated pursuant to all applicable rules prior to their release into a river or other body of water.

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- d) No material shall be burned at the project site unless otherwise specified in the contract or authorized by the NATION and any other appropriate regulatory body.

 - e) The Contractor will be required to maintain all work areas within the project boundaries free from dust or debris that would cause a hazard or nuisance to others. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs.

BID PROPOSAL

To the Cherokee Nation:

This Bidder, in compliance with your invitation for the complete installation of an access control system for Sequoyah High School in Tahlequah, Oklahoma in Cherokee County, Oklahoma; and, having examined the bid documents; and, being familiar with all of the conditions surrounding the scope of work of the proposed project, hereby proposes to furnish all labor, materials and supplies, and to complete the project in accordance with the Contract Documents, and at the prices stated. These prices to cover all expenses and taxes incurred in performing the work required under the Contract Documents, of which this proposal is a part.

Bidder hereby agrees to commence work under his contract on or before a date to be specified in a written "Notice to Proceed" of the NATION, if he is the successful bidder. The number of calendar days allowed for this project will be One Hundred Eighty (180) consecutive calendar days or \$1,000.00 per calendar day will be charged the Contractor for each day of extension over the presented construction end date.

Should any addenda be issued prior to the submission of this proposal, bidder acknowledges receipt of same by initials and date of the following addenda.

ADDENDUM #1 _____

ADDENDUM #2 _____

Bidder understands the NATION reserves the right to reject any or all bids and to waive any informality in the bidding. Bidder understands award of this contract shall be subject to available funding.

Bidder agrees his bid shall be good and may not be withdrawn for a period of 30 calendar days from bid opening. Bidder will cooperate with the NATION to ensure a formal contract is fully executed within 10 days of his notice if he is the successful contractor.

Indian preference will be given on this project to firms certified as Indian-owned by the Cherokee Nation Tribal Employment Rights Office (TERO). Proof of certification must accompany all bids.

BASE BID:

PROJECT: ACCESS CONTROL – SEQUOYAH HIGH SCHOOL

The General Contractor, as Bidder, agrees to perform all work as shown and called for in the Plans and Specifications for the Cherokee Nation, that is shown to be the Base Bid. The Work will be completed within ninety (90) consecutive calendar days of acceptance of this proposal, a fully executed contract, and receipt of a Notice to Proceed. The Bidder agrees to furnish all labor, licenses and materials, administration, services, supplies, equipment, transportation and quality control necessary for the complete installation of an access control system for Sequoyah High School in Tahlequah, located in Cherokee County, Oklahoma, for the base bid sum of:

GRAND TOTAL \$ _____

NOTE TO BIDDERS REGARDING INDIAN PREFERENCE: (Check One)

TERO Certified Contractor: _____ Yes _____ No
(Proof of certification must accompany all bids)

Major Cherokee Employer: _____ Yes _____ No
(Bidder must contact TERO at 918-453-5000 for this preference)

SUBMITTED:

Company Name

Company Address

Authorized Signature

Print Name & Title

NON-COLLUSIVE AFFIDAVIT

State of _____

County of _____

_____ being first duly sworn, deposed and says that he/she is a partner or officer of the firm of _____, the party making the foregoing proposal or bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not in any manner, directly or indirectly, sought, by agreement or collusion, or communication or conference, with any person to fix the bid price of affiant or any other bidder, or to fix overhead, profit or cost element of said bid price, or that of any other bidder, or to secure any advantage against the Cherokee Nation, or any person interested in the proposed contract; and, that all statements in said proposal or bid are true.

Signed: _____
(Bidder, if the bid is an individual;
Partner, if the bid is a partnership;
Officer, if the bid is a corporation)

Subscribed and sworn to before me this _____ day of _____, 20__.

My commission expires _____, 20__.

Notary Public Signature

Commission Number

BONDING REQUIREMENTS

Minimum requirement for bonding and insurance shall be as follows:

- a) A bid bond equal to five percent (5%) of grand total bid amount. A “bid bond” is one executed in connection with a bid offer to guarantee the contractor will enter into a contract if given the award. Only acceptable alternate in lieu of bid bond is a Cashier’s Check.
- b) A performance bond on the part of the contractor for 100 percent (100%) of the contract price. A “performance bond” is one executed in connection with a contract to secure fulfillment of all the contractor’s obligations under such contract.
- c) A payment bond on the part of the contractor for 100 percent (100%) of the contract price. A “payment” bond is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.
- d) A maintenance bond for a two (2) year time period from completion date of project. A maintenance bond is one executed to protect the owner of a completed construction project for a specified time period against defects and faults in materials, workmanship and design that could arise later if the project was done incorrectly.

NOTE: The payment, performance, and maintenance bonds will only be required of the successful Contractor, but must be in full effect before any work is done. The date of the bonds must not be prior to the date of the Contract. If the Contractor is a partnership, all partners must execute the bonds.

Corporate sureties offered for bonds furnished with contracts performed for the Cherokee Nation must appear on the list contained in the Department of the Treasury Circular 570, “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies.”

DIRECTIONS FOR PREPARING AND EXECUTION OF BONDS

Corporate sureties offered for bonds furnished with contracts performed for the Cherokee Nation must appear on the list contained in the Department of the Treasury Circular 570, "Companies Holding Certificated of Authority as Acceptable Sureties on Federal Bonds and Acceptable Reinsuring Companies."

The name, including full legal name, and residence of each individual party to the bond shall be inserted in the body thereof, and each such party shall sign the bond with his usual signature on the line opposite scroll seal.

If the principals are partners, their individual names shall appear in the body of the bond, with the recital they are partners composing a firm, naming it, and all members of the firm shall execute the bond as individuals.

The signature of a witness shall appear in the appropriate place, attesting the signature of each individual party to the bond.

In case the surety and if the principal is a corporation; the name of the State in which incorporated shall be inserted in the appropriate place in the body of the bond, and said instrument shall be executed and attested under the corporate seal, the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate seal.

The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form attached hereto. In lieu of such certificate, there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.

The date of the bond must not be prior to the date of the instrument for which it is given.

CONTRACTOR'S INSURANCE REQUIREMENTS

Before performing contractual services on the behalf of or for the Cherokee Nation, compliance with the following insurance requirements must be verified:

** Provide a Certificate of insurance naming the Cherokee Nation as a certificate holder and additional insured with respect to general liability, automobile liability, and builders risk policies, as their interest may appear with respect to the operations defined in this bid packet. The certificate shall reflect that coverage has been placed with an AM Best Rated Carrier of at least A IX and will contain the following information for each required coverage:

- 1) Type of insurance
- 2) Policy number
- 3) Effective date
- 4) Expiration date
- 5) Limits of Liability (this amount is usually stated in thousands)
- 6) Thirty day notice of cancellation, except ten-day cancellation clause will apply for nonpayment of premium.

** Required Coverages:

- 1) Worker's Compensation and Employer's Liability:
Limits of Liability:
Bodily Injury by Accident: \$100,000 each accident
Bodily Injury by Disease: \$500,000 policy limit
Bodily Injury by Disease: \$100,000 each employee
Oklahoma Statute requires Worker's Compensation coverage for anyone with one (1) or more employees. Contractor's worker's compensation policy shall include a waiver of subrogation in favor of Cherokee Nation of Oklahoma.
- 2) General Liability:
Coverages:
Commercial (including products/completed operations) with specific reference made to coverage for lead abatement (as this is usually excluded under standard commercial general liability policies). In addition to the additional insured endorsement, the commercial general liability policy shall also include a waiver of subrogation in favor of Cherokee Nation of Oklahoma, and evidence of Professional Liability.
Limits of Liability:
Bodily Injury and Property Damage Combined: \$1,000,000
(each occurrence)
- 3) Automobile Coverage:
Vehicles Covered:
All Autos

Hired Autos
Non-owned Autos
Limits of Liability:
Bodily Injury and Property Damage Combined: \$300,000

NOTE: The Contractor shall either: (1) require each of his subcontractors to procure and to maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage for the type and in the same amounts as specified above, or (2) insure the activities of this subcontractors in his own policy. Each subcontractor policy must also name Cherokee Nation as an additional insured with respect to general liability and auto liability.

CHEROKEE NATION INDIAN PREFERENCE POLICY IN CONTRACTING

The Cherokee Nation shall to the greatest extent feasible give preference in the award of contracts to Indian organizations and Indian-owned economic enterprises. All contracting is required to comply with procedures for selection of Contractors and Sub-contractors as set forth in the Cherokee Nation Tribal Employment Rights Office, Resolution No. 84-50 and Ordinance Section No. 4.8 which provides for preference to Indians in the awarding of contracts, as well as the Cherokee Nation Acquisition Management Interim Policies and Procedures (January - 1997). All work to be performed under any contract is also subject to Section 7(b) of the Indian Self-Determination Act.

Section 7(b) states:

All contracting pursuant to this Agreement shall comply with procedures for selection of contractors and sub-contractors set forth within § 5307 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 5301 *et seq.*), as well as the Cherokee Nation Acquisition Management Policies and Procedures. To that end, the parties to this Agreement shall, to the greatest extent feasible, give preference and opportunities for training and employment to Indian and Alaska Natives, and preference in the award of contracts to Indian organizations and Indian-owned economic enterprises. This clause shall be included in every subcontract in connection with the Project, and Contractor shall, at the direction of Cherokee Nation, take appropriate corrective action in the event of a finding by Cherokee Nation of a violation hereof by a contractor or subcontractor.

A prospective contractor seeking to receive Indian Preference under this contract must be certified as an Indian-owned firm by the Cherokee Nation Tribal Employment Rights Office (TERO) and submit proof of that certification with their bid.

ATTACHMENT A
PREPARATION OUTLINE FORM

PREPARATION OUTLINE

The following information must be submitted and signed as indicated with sealed bid. All information must be submitted for bid to be considered responsive and reasonable.

- a. Preparation Outline - this form must be signed & dated.
- b. Bid Proposal Form – page 17 of bid packet
- c. Base Bid Form – page 18 of bid packet
- d. Non-Collusive Affidavit - page 22 of bid packet
- e. Previous Work History Form – Attachment B of bid packet
- f. TERO Certification (If applicable, to be provided by bidder)
- g. Statement on providing Indian Preference in Employment and Training Opportunities - Attachment C of bid packet
- h. Statement on providing Indian Preference in the award of Subcontracts – Attachment D of bid packet
- i. Bid Bond or Cashier’s Check

SPECIAL INSTRUCTIONS

****Be advised that all responsive proposals will be evaluated as outlined in this solicitation packet.**

Authorized Signature

Title

Company Name

Date

ATTACHMENT B
PREVIOUS WORK HISTORY FORM

PREVIOUS WORK HISTORY FORM

NOTE: This form is a required submission from each bidder/offeror and is the Nation's documentation to determine responsible bidders/offerors. In the spaces below, complete all information requested, providing all telephone numbers and any available facsimile numbers for all employers, companies and vendors listed. In the disclosure space, enter any defaults, assignments or foreclosures.

Employer/Company name, address, phone & fax	Contract Amount	Contract start and completion dates	Describe type of work performed/completed	Disclosures	Contractor's Current and previous vendors – give address and phone/fax
Please attach additional sheets as required to sufficiently provide a minimum of three (3) years work history					

ATTACHMENT C

**STATEMENT
PROVIDING INDIAN PREFERENCE
IN EMPLOYMENT & TRAINING**

Statement on Providing Indian Preference In Employment and Training Opportunities

The Cherokee Nation has determined that all bidders this solicitation shall to the greatest extent feasible comply with Indian Preferences in providing training and employment opportunities.

Detail your employment and training opportunities and plans to provide preference to Indians in implementing the contract:

Provide the number or percentage of Indians anticipated to be employed and trained.

If less than 100% Indian for new hires explain why: _____

Provide a list of all core crew (permanent full-time employees) members: _____

Describe the methods that will be used to train Indian employees _____

Comparable statements from all subcontracts must be submitted.

Company Name

Signature

Date

ATTACHMENT D

STATEMENT
PROVIDING INDIAN PREFERENCE
IN SUBCONTRACTING

Statement on Providing Indian Preference In the Award of Subcontracts

The Cherokee Nation has determined that all bidders under this solicitation shall to the greatest extent feasible comply with Indian Preference in the awarding of all subcontracts under the contract.

All bidders must follow this procedure in determining Indian Preference for subcontracts. Awards of subcontract shall be made to the qualified Indian enterprise or organization with the lowest responsive bid if that bid is no more than "X" higher than the total bid price of the lowest responsive bid from any qualified bidder. "X" is determined as follows:

X = lesser of

When the lowest responsive Proposal is less than \$150,000.00	5% of that price or \$9000.00
When the lowest responsive Proposal is: At least \$150,000.00 but Less than \$200,000.00	4.5% of that price or \$16,000.00

If no responsive proposal by a qualified Indian-Owned economic enterprise or organization is within the stated range of the total price of the lowest responsive proposal from any qualified enterprise, award shall be made to the bidder with the lowest price.

All bidders must submit with their proposal, documentation of the bids or quotations received in subcontracts awarded to a non-Indian enterprise or a non-Indian organization. Failure by the bidder to provide such information shall render the proposal non responsive and the bidder ineligible for award.

Detail your plans to provide Indian Preference in the award of subcontracts:

Company Name

Signature

Date

ATTACHMENT E
REQUIRED DOCUMENTS LISTING
SUCCESSFUL BIDDER ONLY

Required Documents for Successful Bidder Only

- a. Labor information form (to be provided by Cherokee Nation)
- b. W-9 form (to be provided by Cherokee Nation)
- c. New Contractors must complete a Vendor Registration form (provided by Cherokee Nation)
- d. Signed Contract (contract will be drafted and provided by Cherokee Nation). SAMPLE ONLY PROVIDED (Attachment G)
- e. Request for Acceptance of Subcontractors (Attachment H)

ATTACHMENT F
CHEROKEE NATION CONTRACT
SAMPLE ONLY

SAMPLE ONLY

CHEROKEE NATION
SERVICE AGREEMENT
PURCHASE ORDER # _____

This Agreement is made and entered into this _____ day of _____, 2010, by and between the Cherokee Nation, P.O. Box 948, Tahlequah, Oklahoma 74465 (hereinafter referred to as the "NATION"), and _____, Federal ID # _____ (hereinafter referred to as the "CONTRACTOR").

WHEREAS, the NATION wishes to enter into an Agreement with the CONTRACTOR to provide the labor, materials, administration, services, supplies, equipment, transportation, and quality control necessary to provide _____ based on bid solicitation, herein referred to as "ATTACHMENT A" and CONTRACTOR'S bid dated _____, herein referred to as "ATTACHMENT B", and

WHEREAS, the CONTRACTOR hereby affirms it is an independent contractor in accordance with the laws of the State of Oklahoma and the Internal Revenue Service, and further maintains it is qualified, willing, and able to perform the services herein described, and

NOW THEREFORE, and in consideration of the mutual covenants, promises, agreements, understandings, and conditions herein contained, the parties hereto mutually promise to the other, agree, and understand as follows, to wit:

TERM: The term of this Agreement shall be from date of last signature through _____, 2010 unless canceled or extended in writing by both parties hereto.

NOTICES: All notices required hereunder shall be sent via U.S. Mail, postage paid as follows:

To the NATION: Cherokee Nation
Acquisition Management Department
Attention: _____
P.O. Box 948
Tahlequah, OK 74465

To the CONTRACTOR:

PERFORMANCE REQUIREMENTS OF THE CONTRACTOR:

The CONTRACTOR shall provide all labor, materials, administration, services, supplies, equipment, transportation, and quality control necessary to provide _____ based on bid solicitation, herein referred to as "ATTACHMENT A" and CONTRACTOR'S bid dated _____, herein referred to as "ATTACHMENT B", and

ASSIGNMENT OR NON-ASSIGNMENT PROVISION:

The NATION and the CONTRACTOR hereby agree the services specified in this Agreement may not be delegated or assigned without the prior written approval of the NATION.

TERMINATION OR CANCELLATION CLAUSE:

In the event the NATION should cancel or terminate the requested work, such cancellation or termination shall be submitted in writing and the NATION shall pay the CONTRACTOR for documented and completed work up to the point of notice of termination or cancellation.

Should the CONTRACTOR be adjudged bankrupt, or make a general assignment for the benefit of its creditors, or should a receiver be appointed because of its insolvency, or should it fail to make reasonable prompt payment to its subcontractors or for materials or labor, disregard laws, ordinances or other governmental regulations, or substantially violate any provisions of this Agreement, the NATION may, upon giving written notice, terminate the CONTRACTOR'S services, and take possession of the premises and all belongings thereon and arrange for the completion of the work. The CONTRACTOR shall be paid only the Agreement's price for work satisfactorily performed prior to the date of termination, and shall not receive such payment until the work is finished. Should the cost of completing the work exceed said unpaid balance, the CONTRACTOR shall pay the NATION the difference, plus any other proper charges or damages resulting from the termination of the CONTRACTOR'S services. The CONTRACTOR, at its cost, shall remove from the site any material designated by the NATION to be removed.

Should the CONTRACTOR wish to terminate or cancel any contracted work, it may do so by informing the NATION of its intent with written notice. The CONTRACTOR agrees to request no further compensation and understands the NATION will make no payment for any work project canceled at the CONTRACTOR'S request.

MODIFICATIONS:

No change or modification of the terms and conditions of this Agreement shall be effective unless approved in writing and executed by both parties hereto. Any changes to the design, specifications, or costs of this Agreement proposed by the CONTRACTOR must be approved in writing prior to implementation, by the NATION'S Acquisition Management Department and the designated Cherokee Nation Inspector.

ASSURANCES:

The CONTRACTOR, its employees, subcontractors, agents, and representatives shall indemnify, defend, and hold harmless the NATION, its employees, agents, and representatives against all suits, actions, losses, damages, expenses, and liabilities for injury or harm to persons, including employees of the CONTRACTOR and its subcontractors, agents, and representatives, for loss of or damage to the NATION'S or CONTRACTOR'S property, resulting from, arising out of, or in any way connected with the performance of this Agreement.

STATUS OF THE PARTIES:

The parties hereto stipulate and agree the CONTRACTOR is an independent contractor, and the NATION is interested only in the results of the CONTRACTOR'S services and shall not control the means or methods by which the CONTRACTOR'S services are rendered. The CONTRACTOR is not eligible for federal, Social Security, State Workers' Compensation, or Unemployment Insurance Benefits from the NATION by virtue of payment received and shall be responsible for all federal and state taxes related to payments received from the NATION under the terms of this Agreement.

CONSIDERATION OR COMPENSATION:

In consideration for the services provided, the NATION shall compensate the CONTRACTOR in the amount of _____ (\$_____). The NATION SHALL process payment within a reasonable time upon receipt of the CONTRACTOR'S properly prepared invoice(s). Any travel incurred under this Agreement shall be included in the CONTRACTOR'S fee and is the responsibility of the CONTRACTOR. The CONTRACTOR shall submit an original invoice, satisfactory release of liens or claims for liens by subcontractors, laborers, and material suppliers for completed work and installed materials, and full compliance with all terms and conditions of this Agreement, to the attention of _____, _____ Department, Cherokee Nation, P.O. Box 948, Tahlequah, OK 74465, with a copy of the original invoice sent to the attention of _____, Acquisition Management, Cherokee Nation, P.O. Box 948, Tahlequah, OK 74465. The CONTRACTOR'S invoice shall include a description of the services provided, date(s), and amount(s). The NATION shall make full payment for completed work within a reasonable time, upon inspection and certification of the work as satisfactorily completed, approval for payment by an authorized Cherokee Nation Inspector, and receipt and approval of the CONTRACTOR'S properly prepared invoice and attached releases in accordance with payment schedule outlined in bid specifications. The NATION and the designated Cherokee Nation Inspector must approve requests for progress payments for construction, renovation, and remodeling projects. The Contractor certifies all sums due to subcontractors, laborers and material suppliers have been paid or will be paid within ten (10) days of receipt of payment by the NATION. This Agreement shall not exceed _____ (\$_____) without the prior written consent of the Principal Chief, Cherokee Nation or his designee.

LIENS AND CLAIMS:

The CONTRACTOR shall pay, or cause to be paid when due, all bills for labor, materials, equipment, or services connected with work performed hereunder, and shall not itself assert any lien or permit any lien to be asserted or maintained against the project. The NATION may, as a condition precedent to any payment hereunder, require the CONTRACTOR to submit satisfactory evidence of payment and release of all such claims. If at any time, there should be evidence of any lien or claim for which the NATION or any of its property might be liable or subject to and which originates with the CONTRACTOR, the NATION shall have the right to retain out of any payment then due or thereafter owed to the CONTRACTOR, an amount sufficient to indemnify the NATION completely against such lien or claim until such time as the CONTRACTOR shall deliver to the NATION a complete release satisfactory to the NATION releasing such claim or claims, lien or liens, or receipts in full.

DRAWINGS AND SPECIFICATIONS:

Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown and mentioned in both. In case of conflict or inconsistency between specifications and drawings, or in case of discrepancies, omissions, and/or errors, the matter shall be submitted immediately to the NATION for determination and the NATION'S determination shall be final. The CONTRACTOR waives any claim to additional compensation in respect of any such discrepancy, error or omission not so submitted to the NATION, and any work affected by such discrepancy, error or omission which is performed by the CONTRACTOR after discovery thereof but prior to the NATION'S determination shall be at the CONTRACTOR'S risk.

WORKING CONDITIONS:

All of the CONTRACTOR'S employees engaged in the work hereunder, as well as the CONTRACTOR'S representatives, suppliers, subcontractors, and visitors, shall be subject to the rules and regulations set by the NATION for the safety and orderly and efficient conduct of all operations upon the project site. The CONTRACTOR shall be responsible for all hours worked at premium pay without the NATION'S written authorization.

The CONTRACTOR shall promptly take all precautions which are necessary and adequate against any conditions created during the progress of the CONTRACTOR'S activities hereunder which involve the risk of bodily harm to persons or a risk of damage to any property. The CONTRACTOR shall continuously inspect all work, materials, and equipment to discover and determine any such conditions and shall be solely responsible for discovery, determination, and correction of any such conditions. The CONTRACTOR shall comply with all applicable safety laws, standards, codes, and regulations in the jurisdiction where the work is performed, specifically, but without limiting the generality of the foregoing, and regardless of any exemptions provided by law, with all rules, regulations, and standards adopted pursuant to applicable state and federal safety laws. The CONTRACTOR assumes all liability for its failure to comply with the provisions of this paragraph. The CONTRACTOR shall include this paragraph in its entirety in all subcontracts for any work at the project site.

INDEMNIFICATION:

Each party shall be responsible for the acts and/or omissions of their respective employees, agents, and/or representatives and agree to assume the entire responsibility and liability for losses, damages, and claims arising out of injury to their employees, agents, and/or representatives, or damage to their equipment or other property and agree to indemnify, defend, and hold each other harmless against all claims or expenses for such losses, arising out of the performance of this Agreement excluding any liability caused by the negligence of the other party or its respective employees, agents, and/or representatives. Nothing herein shall constitute a waiver of our sovereign immunity,

RESPONSIBILITY FOR WORK:

The CONTRACTOR has had the full opportunity to examine the site and data pertaining to this work, determine the scope of work involved, and assumes full responsibility for the performance of the work in a manner adequate to meet the conditions encountered.

The CONTRACTOR shall be responsible for loss of or damage to all materials delivered and work performed until completion and acceptance by the NATION, and upon completion, the work shall be delivered complete and undamaged. Materials furnished by the NATION shall be used by the CONTRACTOR in an economical manner.

The CONTRACTOR shall indemnify, defend, and hold harmless the NATION, its employees, agents, and representatives from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, losses, costs, and expenses of whatsoever kind or nature, whether arising before or after the completion of the work and in any manner directly or indirectly caused, claimed to be caused, by reason of any act, omission, fault or negligence, whether active or passive of the CONTRACTOR, or of anyone acting under its direction or control, or on its behalf, in connection with, or incident to the performance of this Agreement.

GUARANTEES:

All materials and labor furnished by the CONTRACTOR pursuant to this Agreement shall conform to the specifications, drawings, performance requirements, operating standards, designs and other descriptions contained in this Agreement or furnished to the CONTRACTOR therefore. All materials furnished and all work are to be new and of the best quality of their respective kinds, to be free from faulty design (to the extent said design is not specified by the NATION), workmanship, or materials and to be of sufficient size and capacity of proper material so as to fulfill in all respects the operating conditions specified. The CONTRACTOR agrees that it will repair or replace, at its expense, all materials, equipment, and construction work furnished or performed by the CONTRACTOR or its subcontractors which fail to conform to the aforesaid guarantee in any respect and which are discovered and communicated to the CONTRACTOR during the progress of the work, and for a period of one (1) year following the completion of the work by the CONTRACTOR and its acceptance by the NATION; provided, however, that if the CONTRACTOR'S field forces are unable to promptly perform the required repair or replacement which becomes necessary, the NATION may, at its option, make the necessary repairs and charge the cost thereof to the CONTRACTOR. The NATION shall not be deemed to have waived any rights by allowing or requiring the CONTRACTOR to

cure a breach of warranty by repair or replacement of materials and/or workmanship or by itself repairing or replacing materials and/or workmanship.

TAXES AND ASSESSMENTS:

Except to the extent otherwise indicated in this Agreement, the CONTRACTOR accepts full and exclusive liability for the payment of any and all taxes and assessments which may now or hereafter be imposed by local, state, or federal governments, including without limitation, all sales, use power, gross receipts, or other taxes levied with respect to materials furnished or work performed by the CONTRACTOR, or payments made to the CONTRACTOR, and assessments for unemployment benefits, or other purposes which are in whole or in part measured by and/or based upon the wages, salaries, or other enumerations paid to persons employed by the CONTRACTOR on work performed under this Agreement.

LAWS AND REGULATIONS:

The parties' performances under this Agreement shall comply with all applicable laws, ordinances, rules, and regulations of any governmental agency having jurisdiction and shall pay any fine, penalty, loss, damage, or expense resulting from either party's failure to comply therewith. The CONTRACTOR shall provide all licenses and permits required to perform its obligations under this Agreement, including but not limited to, building permits, contractor's licenses, specialty permits required by law to be issued to the CONTRACTOR, and/or transportation permits. The CONTRACTOR and its subcontractors shall, in addition to the above, comply with the NATION'S job site procedures and regulations.

CONFIDENTIALITY:

It is understood that any information submitted by the NATION to the CONTRACTOR in respect of the work hereunder embodies certain proprietary information and is loaned to the CONTRACTOR on a confidential basis. Any information acquired at the site or otherwise relating to processes belonging to the NATION incorporated into the project shall be kept confidential. The CONTRACTOR agrees not to use in any unauthorized manner or communicate to others any such confidential items without the prior written consent of the NATION and will undertake such measures as are necessary to require its employees and subcontractors to maintain complete confidentiality.

DISPUTES:

In the event of any dispute which may affect this Agreement, the CONTRACTOR agrees this Agreement shall be governed by the laws of the United States and, where applicable, the laws of the Cherokee Nation.

MEDICAL FIRST AID FACILITIES:

The CONTRACTOR shall be responsible for the provision of adequate first aid facilities at the project site for all personnel employed or retained by the CONTRACTOR or any of its subcontractors in the performance of the work.

DRUG FREE and TOBACCO FREE WORKPLACE

- a) Any Contractor performing work for the Cherokee Nation agrees to publish a statement notifying all employees, subcontractors, and other workers that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against violators of such prohibition.
- b) The Nation will consider lack of enforcement or lax enforcement of the statement by the Contractor a default of the contract.
- c) The Contractor further agrees to provide all persons engaged in performance of the contract with a copy of the statement.
- d) A copy of the Contractor's Drug Free Workplace statement shall be included with any bid submitted or the Contractor will be deemed to accept and agree to use the statement provided by the Nation.
- e) The Contractor understands and recognizes that all Cherokee Nation buildings, whether leased or owned, and the grounds surrounding those facilities are considered by the Nation to be a tobacco free workplace. The Contractor will ensure all employees, subcontractors, and other workers will abide by this policy.

EQUIPMENT, MATERIALS, AND SUPPLIES:

The CONTRACTOR agrees to utilize in the course of its work, only equipment, materials, supplies, and protective equipment to ensure compliance with all applicable federal and state safety laws and established safety requirements of the NATION.

INTEGRATION AND WAIVER:

There are no previous or contemporary understandings, representations, or warranties not set forth herein. No subsequent amendment or modification of this Agreement shall be of any force or effect unless in writing and signed by the parties to be bound thereby. No provision of this Agreement shall be considered waived by the NATION unless such waiver is in writing and signed by the NATION. No such waiver shall be a waiver of any past or future default, breach, or modification of any of the provisions of this Agreement unless expressly stipulated in such waiver.

The parties further state to their best of the knowledge, no employee of the NATION who exercises any functions or responsibilities in connection with the performance of the duties under this Agreement has any personal interest, direct or indirect, in this Agreement.

INSURANCE:

Unless otherwise specified in this Agreement, the CONTRACTOR shall, at its sole expense, maintain in effect at all times during the performance of the terms of this Agreement, insurance coverage with policies and carriers satisfactory to the NATION. Such policies shall name the NATION as an additional insured, and shall contain an insurer's waiver of subrogation in favor of the NATION. Not less than ten (10) days advance notice will be given in writing to the NATION prior to cancellation, termination, or material alteration of said policies of insurance.

Before beginning the work hereunder and/or within ten (10) days of execution of this Agreement, the CONTRACTOR shall provide an original certificate of insurance naming

the NATION as an additional insured. Said certificate of insurance shall demonstrate the CONTRACTOR'S compliance with the provisions of the above paragraph. All subcontractors with written approval from the NATION to perform work under this Agreement must also comply with these requirements.

The CONTRACTOR shall provide an original certificate of insurance naming the NATION as an additional insured. The certificate should contain the following information:

- 1) Type of insurance;
- 2) Policy number;
- 3) Effective date;
- 4) Expiration date;
- 5) Limits of liability (this amount is usually stated in thousands);
- 6) Ten (10) day cancellation clause.

Required coverage:

- 1) Workers' Compensation and Employer's Liability - Limits of Liability:
 - a) Bodily injury by accident: \$500,000 each accident
 - b) Bodily injury by disease: \$500,000 policy limit
 - c) Bodily injury by disease: \$500,000 each employee
- 2) General Liability:

Coverage:
Comprehensive (including products/completed operations)
Limits of Liability:
Bodily Injury and Property Damage combined \$1,000,000 (each occurrence)
- 3) Automobile Coverage:

Vehicles covered:
All autos
Hired autos
Non-owned autos
Limits of Liability:
Bodily Injury and Property Damage combined \$300,000

NOTE: Oklahoma Statute requires Workers' Compensation coverage for anyone with one (1) or more employees.

CHEROKEE NATION INDIAN PREFERENCE POLICY

The Cherokee Nation shall to the greatest extent feasible give preference in the award of contracts to Indian organizations and Indian-owned economic enterprises. All contracting is required to comply with procedures for selection of Contractors and Sub-contractors as set forth in the Cherokee Nation Tribal Employment Rights Office, Resolution No. 84-50 and Ordinance Section No. 4.8 which provides for preference to Indians in the awarding of contracts, as well as the Cherokee Nation Acquisition Management Policies and Procedures. All work to be performed under any contract is also subject to Section 7(b) of the Indian Self-Determination Act.

ADDITIONAL PROVISIONS PER SECTION 7(b):

The work to be performed under this Agreement is on a project subject to Section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450b). Section 7(b) requires to the greatest extent feasible:

- 1) Preference and opportunities for training and employment shall be given to Indians; and
- 2) Preference in the award of contracts and subcontracts shall be given to Indian Organizations and Indian-owned economic enterprises.

The parties to this Agreement shall comply with the provisions of Section 7(b) of the Indian Self-Determination and Education Assistance Act in the award of any subcontracts. In connection with this Agreement, the CONTRACTOR shall, to the greatest extent feasible, give preference in the award of any subcontracts to Indian organizations and Indian-owned economic enterprises, and preferences and opportunities for training and employment to Indian and Alaska Natives.

The CONTRACTOR shall include this Section 7(b) clause in every subcontract in connection with the project, and shall at the direction of the NATION, take appropriate action pursuant to a finding by the NATION of a violation of Section 7(b) by a contractor or subcontractor.

CONTRACTOR:

Authorized Signature

Date

Please print name & title

CHEROKEE NATION:

Executive Director

Date

Principal Chief or Designee

Date

ATTACHMENT G
REQUEST FOR ACCEPTANCE OF SUBCONTRACTOR

REQUEST FOR ACCEPTANCE OF SUBCONTRACTOR

TO: _____

Date _____
Project No. _____

(Project Name)

(Project Location)

Gentlemen:

In accordance with our prime contract for _____ of this project we request acceptance of the following proposed subcontractor to perform work or supply materials as indicated below:

1. _____
(Name)

(Street address) (City) (State) (Zip code)

2. Scope of work (state kind of work, if for labor, or materials, or both, and give Specification reference):

3. The subcontractor's non-collusive affidavit in the form required by our contract is furnished herewith (original only, attached to the original request).

4. We warrant that the provisions required by our contract to be inserted in each subcontract will be inserted in this subcontract.

5. We certify that this proposed subcontractor is not ineligible to receive awards of contracts from the United States as evidenced by the list or lists of such contractors maintained by HUD.

6. There will be no assignment of interest in the subcontract except as follow (if none, so state):

1. Terms of payment: Price: \$ _____
2. Remarks: _____

(Prime Contractor)

By _____

Title _____

- If a sales agent, identify the manufacturer under "Remarks". If for a subcontract, identify principal subcontractor under "Remarks".

APPROVAL OR REJECTION

The proposed subcontractor named above is _____.

If accepted, the contracting party giving such acceptance assumes no responsibility in connection with the form of terms of the subcontract, nor the performance of the subcontractor, and this form will not be returned.

If rejected, the reason(s) will be briefly stated herein, and this form will be returned within 10 days after receipt..

(Date)

(Contracting Officer)

ATTACHMENT H

**SPECIFICATIONS AND SCOPE OF WORK
PROVIDED BY CHEROKEE NATION IT DEPARTMENT**

Sequoyah High School Access Control

The following bid is for access control at the Cherokee Nation Sequoyah High School, Tahlequah, Oklahoma. Attached are the maps and part numbers for this project.

Bid Requirements:

1. Procedure:

a. Using the New Hardware Column of page one of the SHS Building AC Layout Package.pdf. The access control (AC) will be a push bar with REX switch from the manufacturer of the original hardware that will be installed on the right hand door when standing outside of the double doors. Preference is for **NO** magnetic locks but for an access control push bar with the requisite supporting equipment and documentation, which will be turned over to the customer after completion. A Motion Detector (REX) will not be needed due to the REX switch installed in the push bar.

b. Connection will be to the Axis Controller that will need to be installed above the door and above the ceiling tile.

c. A power supply with batteries will need to be installed in the Network/AC Locations shown on the maps and the cabling from the power supply to the Controller for the lock will be needed.

d. A customer provided card reader or Network Video Door Station will need to be installed.

e. Magnetic door sensors will be installed according to drawings, one for each if single and two in series if a double door. For the door with AC the sensor will be terminated at the controller. For the Monitored only doors, the cabling will terminate at the nearest Network/AC Location to an Axis A9188-VE Network Relay I/O Relay Module provided by the customer.

f Power/Data transfer loops including disconnect harnesses for the mullion if required for the VD6300 shall be installed.

g. A wiring map will be provided by the customer. This will involve installing conduit and or FLEX. The reason the customer is providing the controller and reader is due to the required licensing to connect to the software. Cherokee Nation IT Network Construction Standards and Requirements shall be followed.

2. Customer will provide:

a. Axis controller

b. HID Card Reader or

c. Network Video Door Station

d. Axis A9188-VE Network Relay I/O Relay Module

Cherokee Nation Information Technology

Network Construction Standards and Requirements Manual

INTRODUCTION

The following are the Cherokee Nation Information Technology Network Construction Standards and Requirements and shall be adhered to until replaced. All preceding documentation is superseded by this document. The requirements contained in this document shall be followed when designing, constructing, or refurbishing any building that requires a network to be installed or upgraded. If there are any questions, please contact Cherokee Nation Information Technology Network Group (CNITNG).

PART 1 – GENERAL

1) REQUIREMENTS

- a) Summary: Furnish and install complete with all accessories a Structured Cabling System (SCS). The SCS shall serve as a vehicle for transport of data, video and voice telephony signals throughout the network from designated demarcation points to outlets located at various desks, workstation, wireless access points (AP), cameras, access control equipment and other locations that support the infrastructure as indicated on the contract drawings and described herein.
- b) Submittals
 - i) Drawings
 - (1) T-Series Drawings shall be available showing all identified elements of the infrastructure. Refer to TIA-606-C Annex C, this provides examples and symbols that may be used in drawings. This shall apply to the following:
 - (a) When new construction is over 10,000 square feet.
 - (b) Rebuilds.
 - (2) Reference to any hardware, components and products in this Manual, relating to network, telecommunication, and security, shall be documented in these drawings.
 - (3) There are 6 types of drawings:
 - (a) **T0** – Campus or Site Plans.
 - (b) **T1** – Layout of complete building per floor.
 - (c) **T2** – Serving zones/Building Area Drawings.
 - (d) **T3** – Telecommunications Rooms.
 - (e) **T4** – Typical Detail Drawings.
 - (f) **T5** – Schedules
 - ii) Product Data
 - (1) Owner is providing a list of standard parts required for the contract. Any additional parts that are used requires the vendor/contractor to provide the manufacture's catalog information showing any technical specifications, dimensions, colors and configurations.
 - (2) Submittals shall include all items called for in PART 2 – PRODUCTS of this document and provide the manufacturers cut sheets for the following:
 - (a) All balanced twisted pair cable.
 - (b) All connectors and required tooling.
 - (c) All termination system components for each cable type.
 - (d) All test equipment used for balanced twisted pair channels.
 - (3) A Performance Specification showing the manufacturer's Guaranteed Published Channel Performance over the full swept frequency range.
 - (4) Technical data sheets shall include the physical specifications as well as the following electrical

and transmission characteristics for balanced twisted pair channels:

- (a) Mutual Capacitance
- (b) Characteristic Impedance
- (c) DC Resistance
- (d) Insertion Loss (IL)
- (e) Pair-to-Pair Near End Crosstalk (NEXT)
- (f) Power Sum Near End Crosstalk (PSNEXT)
- (g) ELFEXT (ELFEXT)
- (h) Power Sum ELFEXT (PSELFEXT)
- (i) Return Loss (RL)
- (j) Propagation delay
- (k) Delay Skew

iii) Samples

- (1) Prior to installation, samples of cable and components shall be provided to the Owner, its Consultants and Construction Manager for evaluation prior to Installation
 - (a) Submit samples of each type of cable:
 - (i) Three (3) 24" long samples of each type of cable, copper (6e & 6a) and fiber (SM). For the copper, the sample cannot be from the same box/reel. Shall take from three separate boxes/reels.
 - (ii) Three (3) samples of each connector.
 - (iii) One each 100ft terminated copper of the 6e & 6a cable in a bag for test reference and permanent storage in the Main Closet. Each cable should be terminated as close to the lowest footage mark.

iv) Manufacturer's Instructions

Indicate application conditions and limitations of use stipulated by product testing agency specified under regulatory requirements.

- (1) Include instructions for storage, handling, protection, examination, preparation, operation and installation of product.

v) Material Guarantee

- (1) The wiring vendor/contractor (installer) shall guarantee at the time of the bid that all Category 6A and 6E cabling and components meet or exceed specifications (including installation) as referenced in 1.2.
- (2) The successful wiring vendor/contractor (installer) shall insure that all correct parts are ordered per Products Section of this document and installed in accordance with manufacturers design and installation guidelines. Vendor/contractor shall submit complete parts and part numbers to the Construction Manager prior to installation of equipment.
- (3) Test Fiber optic cables upon receipt at Project site:
 - (a) Test optical fiber cable to determine the continuity of the strand end to end. Use optical loss test set.
 - (b) Test optical fiber cable while on reels. Use an optical time domain reflectometer to verify the cable length and locate cable defects, splices, and connector, including the loss value of each. Retain test data and include the record in final documentation.

vi) Quality Assurance

- (1) For Cat 6a and 6e copper and Fiber optic the following shall be provided:
 - (a) System:
 - (i) The successful Bidder shall warrant that all materials and equipment furnished within the channel, under the contract are new, in good working order, free from defects, and in conformance with the Structured Cabling SYSTEM specifications. All installed equipment shall conform to the manufacturer's official published specifications. The

warranty shall begin at the Structured Cabling System acceptance date and remain in effect for a period of twenty-five year from that date. The successful Bidder shall agree to repair, adjust, and/or replace (as determined by the Purchaser to be in its best interest) any defective equipment, materials, or other parts of the Structured Cabling System at the successful Bidder's sole cost. The Purchaser shall incur no costs for service or replacement of parts within the channel during the warranty period of 25 years.

- (ii) Selected vendor shall provide a Structured Cabling System warranty for a minimum of 25 years. The Structured Cabling System warranty shall guarantee the electrical performance to meet or exceed the requirements as outlined in documents TIA/EIA 568A and ISO DIS 11801 and offer a twenty five, (25) year warranty within the Structured Cabling SYSTEM Channel, beginning at acceptance by the Purchaser. The warranty shall include complete parts and labor replacement of defective products. The manufacturer shall warrant the product for a minimum of twenty, (20) years. The Structured Cabling System warranty shall have provisions for replacing the contracting organization at no cost to the customer should the contractor lose his status as an authorized installer or otherwise not fulfill his obligation to the customer as outlined in the Structured Cabling System warranty program.
- (iii) The successful Bidder shall warrant and supply evidence that the installation of materials and hardware shall be made in strict compliance with all applicable provisions of the National Electric Code, the rules and regulations of the Federal Communications Commission, and state and/or local codes or ordinances that may apply.

(b) Application:

- (i) Minimum twenty (20) year application assurance: The application assurance shall cover the failure of the wiring system to support the application which it was designed to support, as well as additional application(s) introduced in the future for a minimum twenty (20) year period.

vii) Certifications

- (1) The successful vendor/contractor shall meet the current year Panduit Business Partner Agreement – Panduit Certified Installer (and/or Addendum), and shall provide a copy of the PCI certificate before awarding contract.
- (2) A copy of certification not less than 6 months from expiration for the vendors/installer Panduit Certified Copper and Fiber Technicians (PCT) shall be submitted upon awarding of contract before first cable is pulled and or installed.
- (3) If the successful vendor/contractor subcontracts the job (and so on), then each awarded vendor/installer shall comply with the same certifications as above.

2) STANDARDS AND CODE COMPLIANCE REFERENCES

- a) Cherokee Nation hereby incorporates by reference the following industry standards as the minimum standards of installation for the structured cabling system described in this document:

i) TIA/EIA

- (1) ANSI/TIA-568-C.0, Generic Telecommunications Cabling for Customer Premises
- (2) ANSI/TIA-568-C.1, Commercial Building Telecommunications Cabling Standard
- (3) ANSI/TIA-568-C.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standard
- (4) ANSI/TIA-568-C.3, Optical Fiber Cabling Components Standard
- (5) TIA/EIA569A Commercial Building Standard for Telecom Pathways and Spaces

- (6) TIA/EIA606 Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
 - (7) TIA/EIA607 Commercial Building Grounding/Bonding Requirements
 - (8) TIA/EIA942 Telecommunications Infrastructure Standard for Data Centers IEEE Std 802.3(tm)-2008 Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.
 - (9) IEEE Std 802.3(tm) Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications.
 - (10) IEEE 802.3bc, Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications. Amendment 2: Ethernet Organizationally Specific Type, Length, Value (TLVs).
- b) National Fire Protection Association
 - (1) NFPA 70, National Electric Code (NEC).
 - (2) NFPA 70E, Standard for Electrical Safety in the Workplace.
 - (3) NFPA 101, Life Safety Code
 - (4) NFPA 241, Standard for Safeguarding Construction, Alteration and Demolition Operations.
 - (5) NFPA 731, Standard for the Installation of Electronic Premises Security Systems.
 - (6) NFPA 601, Standard for Security Services in Fire Loss Prevention.
 - c) ISO/IEC ISO/IEC 11801 Generic Cabling for Customer Premises
 - d) BICSI ITSIM, Chapter. 4, "Pulling Cable."
- 3) ADDITIONAL SUPPORT
- a) Cherokee Nation Information Technology Network Construction Standards and Requirements Manual – this document.
 - b) Notes, drawings and instructions from Owner as needed.
 - c) Panduit Certification PLUSSM System Warranty Program, Panduit Warranty Guide.
 - d) There is an invitation for the successful vendor/contractor to review an existing network to see and know how the Owner requires the network to look upon completion.
- 4) LIFE OF THIS MANUAL
- a) This Manual is a living document. The criteria contained in this Manual are subject to revisions and updating as warranted by advances in building construction techniques and telecommunications technology.
- 5) COMPLIANCE WITH INTENT OF THIS MANUAL
- a) Where no specific standards or requirements are specified in this Manual or within other codes or regulations adopted by Cherokee Nation. Compliance with the applicable standards of the National Fire Protection Association, American National Standard Institute (ANSI), National Electrical Code, or other nationally recognized standards approved by the Cherokee Nation is prima facie evidence of compliance with the intent of this Manual.
- 6) CONFLICTS
- a) If a conflict exists between any of the above referenced installation standards, the more stringent standard shall apply.
 - b) If a conflict exists between any of the above referenced codes or standards and this Manual, the requirements in this Manual shall apply.
 - c) If a conflict exists and cannot be remediated by the above referenced codes, standards, and this Manual, **CNIT will have over all authority.**

PART 2 – DESIGN AND PRODUCTS

1) SYSTEM REQUIREMENTS

- a) Expansion Capability: Provide spare conductor pairs in telecommunication cables, positions in cross-connect and patch panels, terminal strips to accommodate 20 percent future increase in the number of workstations shown on Drawings. All components and cabling shall be capable of 10G Bandwidth speed throughout the entire system.

2) IT ROOM/SERVER ROOM

- a) Server room shall be Air Conditioned with a separate unit on a separate thermostat.
- b) The HVAC shall be provided on a 24 hours-per-day, 365 days-per year basis. If a standby power source is available in the building, consideration should be given to connecting the HVAC system serving the telecommunications equipment room to the standby supply.
- c) The temperature and humidity shall be controlled to provide continuous operating ranges of 18deg C (64deg F) to 24 "C (75deg F) with 30% to 55% relative humidity. Humidification and dehumidification equipment may be required depending upon local environmental conditions
- d) A positive air pressure differential with respect to surrounding areas should be provided.
- e) Need 120v power receptacles on all walls with dedicated circuits. The rack vertical management shall have twist lock and quad receptacles as request by the owner and Drawings.
- f) Wall - A minimum of two walls should be covered with rigidly fixed 20 mm (3/4 in) A-C plywood, shall be void free, 2440 mm (8 ft) high, capable of supporting attached equipment. Plywood should be either fire-rated or covered with two coats of fire retardant paint.
- g) Equipment not related to the support of the equipment room (e.g., piping, ductwork, pneumatic tubing, etc.) shall not be installed in, pass through, or enter the equipment room.
- h) No water sprinklers shall be installed in an IT/SERVER ROOM. A separate fire suppression system, based on one of the approved replacements for Halon, shall be installed in coordination with CN Risk Management. Appropriate safety signage and notifications shall be used according to the manufacturer, codes and standards.
- i) All IT rooms/server rooms shall have installed access control utilizing card readers per the Owners instructions, specifications and diagrams

3) TELECOMMUNICATIONS EQUIPMENT ROOM (T-E-R)

- a) A telecommunications equipment room (T-E-R) is where the building entrance conduits terminate. It is usually located on the ground floor but may also be located in the basement. A T-E-R typically functions as the main cross-connect (MCC). It is the main telecommunications serving point for the building. It shall contain telecommunications equipment, much of it mounted on 19" - 4 post racks. Cables shall be spliced and terminated on the walls. It is important that the entrance conduits stub up in the T-E-R as close to a corner as possible.
- b) When designing the T-E-R floor space, allowance shall be made for non-uniform occupancy, throughout the building. The practice is to provide 0.07 m² (0.75 ft²) of equipment room space for every 10 m² (100 ft²) of work area space. The equipment room shall be designed to a minimum of 14 m² (150 ft²). See section 8.2 of TIA/EIA-569 pg.72 for more information. In the case of smaller buildings see annex B.3 of the TIA/EIA-569.
- c) In certain buildings, the T-E-R shall be further designated as a Node Room. A Node Room is used as a cabling hub not just for that building but for other buildings in that neighborhood of the campus. A Node Room requires additional space, air conditioning, and additional entrance conduits. It may require 30 amp outlets. In some cases, if a Node Room is designated in a building, a separate Telecommunications Room (TRS) on the same floor as the Node Room may be required.
- d) The CNITNG shall advise P&D and the architect in the initial planning stage if a Node Room has been

designated.

- e) A Node Room shall house PBX telephone switching equipment, large wet- or dry-cell batteries, routers for campus wide area network (WAN), related local area network (LAN) switches, optical fiber cross connects and optical communications gear. Hence, it should be located so that it is accessible for the delivery of large equipment throughout its useful life. It shall be at least 10' from a potential source of electromagnetic interference (EMI) i.e. motors, transformers, photocopying equipment, etc..
 - f) No water sprinklers shall be installed in a Node Room. A separate fire suppression system, based on one of the approved replacements for Halon, shall be installed in coordination with CN Risk Management. Appropriate safety signage and notifications shall be used according to the manufacturer, codes and standards.
 - g) All T-E-Rs shall have installed access control utilizing card readers per the Owners instructions and diagrams
- 4) TELECOMMUNICATIONS ROOMS (TRS)
- a) TRS are smaller than T-E-Rs. They are the cabling hubs for floors within a building. They also contain network electronics, typically mounted in 19" - 4 post racks. See table 7.2-1 of TIA/EIA. 569 pg. 66 for more information.
 - b) All TRSs shall have installed access control utilizing card readers per the Owners instructions, specifications and diagrams
- 5) SECURITY EQUIPMENT ROOM (SER)
- a) Security equipment can be placed in any closet or room, unless:
 - i) Size and amount of equipment will overwhelm the closet or room listed above in sections 2-4.
 - ii) Need to secure the room from other sources. **Note:** will need its own network and shall follow the same standards as sections 2-4 listed above.
 - b) No security hardware shall be mounted as a bare board to the wall. The boards shall be mounted in a lockable:
 - i) Wall mount cabinet.
 - ii) Rack mount drawer.
 - iii) Manufactured case as a whole unit.
 - c) No water sprinklers shall be installed in a SER. A separate fire suppression system, based on one of the approved replacements for Halon, shall be installed in coordination with CN Risk Management. Appropriate safety signage and notifications shall be used according to the manufacturer, codes and standards.
 - d) The SER room does not have to be labeled as to the use of the room for security reasons as needed.
 - e) All SERs shall have installed access control utilizing card readers per the Owners instructions, specifications and diagrams
- 6) ELEVATOR PHONES
- a) Elevator phones are cabled to each elevator equipment room. There shall be at least one point of presence (POP) in the elevator equipment room that is cabled to the Main telecom room. There shall be a dedicated number of jacks on the POP so to accommodate all elevators in the building. Recommend that there be one phone block dedicated to Safety and Security to be easily identified.
- 7) CABLE TRAY
- a) Installation:
 - i) Cable tray shall be the Chatsworth part no. 10250-718, {Standard length is 9'11-1/2"}. Cable Tray shall be installed with side stringers facing up so that the ladder forms a U-shape.

- ii) Cable Tray shall be secured to the structural ceiling, building truss system, wall, floor or the tops of equipment racks and/or cabinets using the manufacturer's recommended supports and appropriate installation hardware and methods as defined by local code or the authority having jurisdiction (AHJ). Cable Tray shall be supported every 5' or less in accordance with TIA-569-B. Cable Tray shall be supported within 2' of every splice and within 2' on both/all sides of every intersection. Support Cable Tray within 2' on both sides of every change in elevation. Cable tray support shall use the Threaded Ceiling kit (11310-003) or a combination of Runway Support Bracket (11408-003) with 5/8 All-Thread Rod on the outside, Ceiling Support Bracket (11406-002), Threaded Rod I-Beam Clamps (10557-003), or appropriate hex nuts, split lock washers and plain washers through the bottom chord of the joists. Cable Tray splices shall be made in mid-span, not over a support, with the manufacturer's recommended splice hardware.
 - iii) Cable Tray shall be installed with a minimum clearance of 12" above the Cable Tray. Leave a minimum of 12" in between Cable Tray and ceiling/building truss structure. When located above an acoustical drop ceiling, leave a minimum of 3" clearance between the top of the drop ceiling tiles and the bottom of the Cable Tray.
 - iv) Connections between tray sections shall be with the Butt-Splice kit (11301-001). If a redirection of up or down is required to go over or under utilities, use the Butt Swivel Splice kit (10487-001). For the up or down movement of tray do not exceed more than 30 degrees so the cable shall lie on the tray. **The use of cut up tray sections/pieces on joints shall not be used. Manufacture parts shall be used for this purpose.**
 - v) Intersections (T or X shaped) shall be made using the Junction Splice Kit (11308-001), with Cable Runway Corner Bracket (11595-715) added to create a radius for the cable to lay on when making turns. For an L-turn use the Cable Runway E-Bend (10822-709).
 - vi) The cable tray is offset the length of the room to accommodate the rack, for all the cable to come off the track within 4 feet of the left hand wall when standing in the doorway.
 - vii) Cover the exposed ends of cable runway that do not terminate against a wall or the ceiling with Protective End Caps (10643-001) or an End Closing Kit (11700-709).
 - viii) The installer shall provide touch-up paint color-matched to the finish on the Cable Tray and shall correct any minor cosmetic damage (chips, small scratches, etc.) resulting from normal handling during the installation process prior to delivery to the owner. If a component is cosmetically damaged to the extent that correction in the field is obvious against the factory finish, the component shall be replaced with a new component finished from the factory. If a component is physically damaged due to mishandling or modification during the installation process, it shall not be used as part of the Cable Tray system. Paint listed in parts list.
- b) Grounding
- i) Grounding shall be in accordance with the Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications J-STD-607 -A. Within the telecommunications room/s and throughout the building, the Cable Tray shall be bonded together, electrically continuous, and bonded to the Telecommunications Grounding Buss bar (TGB). Cable Tray and turns shall be bonded across each splice with a bonding kit (40164-001 or 025). Cable Tray shall be bonded to the TGB using an approved ground lug on the Cable Tray and a minimum #6 grounding wire. Remove paint from the Cable Tray where bonding/ground lugs contact the Cable Tray so that the lug shall contact bare metal. Use antioxidant joint compound in between the bare metal on the Cable Tray and ground lug. Use antioxidant joint compound in between the bus bar and the ground lug. Verify continuity through the bonds at splices and intersections between individual Cable Tray sections and turns and through the bond to the TGB.
 - ii) **The use of cut up tray sections/pieces on joints shall not be used as a grounding bond between the joints.**

8) MOUNTING ELEMENTS

a) Use the following charts to reference which equipment shall be used.

Chart 1

Line item	P/N	Description	Qty
1	4220W	Dell 42U enclosure, wide (4220W): 750mm wide x 1070mm deep	
2	PRV15	Panduit Vertical Cable manager	
3	CMR4P84	Panduit 4-Post rack	
4	PRD15	Panduit Dual hinged door	
5	PREP	Panduit End Panel	
6	RGRB19U	Panduit ground bar	
7	GB2B0312TPI-1	Panduit Telecommunications ground bar	
8	10250-724	Chatsworth Universal cable runway, Black – 24 Inch Wide	Reference
9	11301-702	Chatsworth Butt Splice Kit, 2" Stringer, Black	Reference
10	10724-724	Chatsworth Cable runway radius bend – 24inch Wide	Reference
11	11309-701	Chatsworth Foot kit, cable runway	Reference
12	11421-724	Chatsworth Wall angle support kit, cable runway – 24inch Wide	Reference
13	31470-712	Chatsworth Cable runway standoff support kit	Reference
14	10506-702	Chatsworth Cable runway elevation kit	Reference
15	11302-701	Chatsworth Junction-splice kit	Reference
16	10723-724	Chatsworth Cable runway radius bend	Reference
17	11959-724	Chatsworth Corner Bracket 24 inch Radius,	Reference
18	11746-724	Chatsworth Triangular Supports Bracket, steel	Reference

Chart 2

Line Item	Qty	P/N	Description	Purpose	Notes
1		C16X88TGBU	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Blue	Closet A Zone	
2		C16X88TGOR	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Orange	Closet B Zone	
3		C16X88TGG	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Green	Closet C Zone	
4		C16X88TRD	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Red	Closet D Zone	
5		C16X88TGW	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Off White	Closet E Zone	
6		C1688TGYL	Panduit Category 6, RJ45, 8-position, 8-wire universal module, Yellow	Camera Systems	
7		C1688TGVV	Panduit Category 6, RJ45, 8-position, 8-wire universal module, Violet	Multimedia	
8		C16X88TGBU-24	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Blue (24-Pk)	Closet A Zone	
9		C16X88TGOR-24	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Orange (24-Pk)	Closet B Zone	
10		C16X88TGG-24	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Green (24-Pk)	Closet C Zone	
11		C16X88TRD-24	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, Red (24-Pk)	Closet D Zone	
12		C16X88TGW-24	Panduit Category 6A, RJ45, 10 Gb/s, 8-position, 8-wire universal module, In Gray (24-Pk)	Closet E Zone	
13		C1688TGYL-24	Panduit Category 6, RJ45, 8-position, 8-wire universal module, Yellow (24-Pk)	Camera Systems	
14		C1688TGVV-24	Panduit Category 6, RJ45, 8-position, 8-wire universal module, Violet (24-Pk)	Multimedia	
15		PUC6AV04BU-EG	Panduit TX6A, 10Gig UTP Copper Cable 25 AWG	Network / Phone / Wireless	
16		PUR6004BU-UY	Panduit TX6000 Cat6 UTP riser copper cable	Camera Systems and Multimedia	
17		UTP28X7BU	Cat 6a 10Gb UTP patch cable, 7ft, Blue, 28 AWG	Closet A network room connection	
18		UTP28X14BU	Cat 6a 10Gb UTP patch cable, 14ft, Blue, 28 AWG	Closet A network room connection	
19		UTP28X20BU	Cat 6a 10Gb UTP patch cable, 20ft, Blue, 28 AWG	Closet A network room connection	
20		UTP28X7OR	Cat 6a 10Gb UTP patch cable, 7ft, Orange, 28 AWG	Closet B network room connection	
21		UTP28X7GR	Cat 6a 10Gb UTP patch cable, 7ft, Green, 28 AWG	Closet C network room connection	
22		UTP28X7RD	Cat 6a 10Gb UTP patch cable, 7ft, Red, 28 AWG	Closet D network room connection	
23		UTP28X7	Cat 6a 10Gb UTP patch cable, 7ft, Off White, 28 AWG	Closet E network room connection	
24		UTP28X5YL	Cat 6a 10Gb UTP patch cable, 5ft, Yellow, 28 AWG	Security Cameras	
25		UTP28X3YL	Cat 6a 10Gb UTP patch cable, 3ft, Yellow, 28 AWG	Security Camera's jump posts	
26		UTP28X3VL	Cat 6a 10Gb UTP patch cable, 3ft, Violet, 28 AWG	Multimedia	
27		Vendor specific	Panduit Mini-Com Snap-On Modular furniture faceplates	Modular Furniture	Check Panduit's catalog. Shall have a label. Vendor specific faceplate.
28		CBW	Panduit Single gang faceplate frame accepts two 1/2 size module inserts or three 1/3 size module inserts	Multimedia plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
29		CHS21W-X	Panduit Two module space, 1/2 size, sloped insert accepts two Mini-Com modules	Multimedia plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
30		CHB21W-X	Panduit 1/2 Blank insert	Multimedia plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
31		KWPY	Panduit Stainless steel plate	Wall phones	The cable is terminated and left in the wall box.
32		CPFL21WY	Single gang, vertical faceplate accepts two Mini-Com modules	Network wall plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
33		CPFL31WY	Single gang, vertical faceplate accepts three Mini-Com modules	Network wall plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
34		CPFL41WY	Single gang, vertical faceplate accepts four Mini-Com modules	Network wall plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
35		CMB1W-X	Mini-Com blank module	Network wall plates	For other colors replace suffix IW (Off White) with EI (Electric Ivory), WH (White), IG (In Gray) or BL (Black)
36		TR-35R-20	Panduit Tak-Tape (10 PK)	All network banding	
37		EZDP44	Fire Barrier CBL Pathway, Single EZ Path W/WP/IT Series 44		
38		RGESD2-1	Panduit Two-hole ESD port with 5/8" hole spacing		
39		11310-003	Chasworth Threaded Ceiling Kit, Cable Runway		

40	11421-712	Chatsworth Wall Angle Support Kit, Cable Runway
41	10250-712	Chatsworth Universal Cable Runway - 12 inch wide
42	10723-712	Chatsworth Cable Runway, Radius Bend 90-Degree Outside Bend - 12 inch Wide
43	10724-712	Chatsworth Cable Runway, Radius Bend 90-Degree Inside Bend - 12 inch Wide
44	11301-702	Chatsworth Butt-Splice Kit
45	11298-701	Chatsworth Heavy Duty Junction-Splice Kit
46	10662-001	Chatsworth Protective End Caps For Runway
47	10622-010	Chatsworth Standard Busbar 4"Wx1/4"Hx10"L
48	40164-001	Chatsworth #6AWG Ground Strap
49	10250-718	Chatsworth Universal Cable Runway
50	10723-718	Chatsworth Cable Runway Radius Bend 90 degree Outside Bend
51	10724-718	Chatsworth Cable Runway Radius Bend 90 degree Inside Bend
52	11421-718	Chatsworth Wall Angle Support Kit, Cable Runway
53	11304-000	Chatsworth J-bolt Kit
54	11301-001	Chatsworth Butt-Splice Kit
55	10506-706	Chatsworth Cable Runway Elevation Kit 6"
56	1201-701	Chatsworth Cable Runway Radius Drop Stringer
57	12100-718	Chatsworth Cable Runway Radius Drop Cross Member
58	JMDWB-1-X	Panduit Drop Wire brackets for J-hooks
59	JMHZ-X20	Panduit J Hook
60	RGTBSSG-C	Panduit Green thread-forming bonding screw, #12-24 x 1/2" (pkg 100)
61	FSLR912	Panduit Opti-Core 9um OS2 12 Fiber Indoor/Outdoor Armored Cable
62	FSLR996	Panduit Opti-Core 9um OS2 96 Fiber Indoor/Outdoor Armored Cable

9) UNSHIELDED TWISTED-PAIR CABLING AND FIBER OPTICS

- a) Backbone Fiber Cable:
 - i) Panduit Opti-Core 9um OS2 96 strand fiber indoor/outdoor interlocking armored cable, p/n FSLR996
 - ii) Comply with TIA/EIA 568-B.1 & 3, and 598-B
 - iii) NFPA 70
- b) Horizontal Copper cable:
 - i) For Security Cameras and Multimedia:
 - (1) NO. 23 AWG, 100 ohm, four pair. Panduit PUR6004BU-UY
 - (2) Comply with TIA/EIA-568-B.2 and ANSI/TIA-568-C.2, Category 6e
 - (3) NFPA 70, types CMG and CMP
 - ii) For Main Network:
 - (1) NO. 23 AWG, 100 ohm, four pair. Panduit PUR6X04BU-UY
 - (2) Comply with TIA/EIA-568-B.2 and ANSI/TIA-568-C.2, Category 6A
 - (3) NFPA 70, types CMG and CMP
- c) Cable Connecting Hardware: Comply with TIA/EIA-568-B.2, IDC type, using modules designed for punch-down caps or tools.
 - i) IDC Terminal Block Modules: Integral with connector bodies, including plugs and jacks where indicated.
- d) Cross-Connect Panel: Modular array of IDC terminal blocks arranged to terminate building cables and permit interconnection between cables.
 - i) Number of Terminals per Field: One for each conductor in assigned cables plus 25 percent spare.
 - ii) Number of Jacks per Field: One for each four-pair UTP cable indicated.
- e) Jacks and Jack Assemblies: As referenced in Charts 1 and 2.
- f) Patch Cords: Factory made, four pair cables, to length as stated in parts reference, matching color to closet zone as referenced in Charts 1 and 2.

10) MULTIUSER TELECOMMUNICATIONS OUTLET ASSEMBLY

- a) Modular unit suitable for terminating single or multiple horizontal cables in one central location, providing an intermediary point between telecommunications closet and workstation.
 - i) NRTL listed as complying with UL 50 and UL 1863.
 - ii) Number of Terminals per Field: One for each conductor in assigned cables.
 - iii) Number of Connectors per Field:
 - (1) One for each four-pair UTP cable indicated.
 - (2) One for each four-pair conductor group of indicated cables, plus 25 percent spare positions.
- b) Mounting: Owner furnished Modular Walls and Furniture: As provide by modular furniture manufacturer. Reference Charts 1 and 2.

11) WORKSTATION OUTLETS

- a) Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, modular, RJ-45. Comply with TIA/EIA-568-B.1.
- b) Workstation Outlets: Single, dual, triple or quad jack connector mounted in a single or multi-gang faceplate as shown in the prints.
- c) Jacks shall be the color of the Closet/ Zone they are in. See PART 3, Section 6)b)i).
 - i) Faceplate: Flush; high impact plastic; color determined by Architect and or Owner. Part numbers listed in Part Reference.
 - ii) Legend: Contractor printed labels showing Closet then cable number, i.e. A001, A002, B101, C125.

12) MULTIMEDIA OUTLET

- a) Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, modular, RJ-45. Comply with TIA/EIA-568-B.1.
- b) Workstation Outlets: dual connector mounted in a single faceplate as shown in the prints.

- i) Jacks shall be the color of Violet. See PART 3, Section 6)b)i).
- ii) Patch cables shall be the color of Violet. See Charts 1 and 2.
- iii) Faceplate: Flush; high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 Part Reference.
- c) Legend: Contractor printed labels showing Closet, M (for MultiMedia) then cable number, i.e. AM01.

13) SECURITY CAMERA OUTLETS

- a) Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, modular, RJ-45. Comply with TIA/EIA-568-B.1.
- b) Jacks shall be the color of Yellow. See PART 3, Section 6)b)i).
- c) Patch cables at patch panel and camera end shall be the color of Yellow. See Charts 1 and 2
- d) Legend: Contractor printed labels showing Closet, S (for Security) then cable number, i.e. AS01.
- e) Outlets shall be either in the following configurations according to drawings.
 - i) If internal wall mount, then the terminated jack shall be placed on the top plate of the nearest wall in a:
 - (1) Single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (2) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - ii) If external wall mount, then the terminated jack shall be placed on or in the internal inside wall close to the camera mount in a single ganged box with:
 - (1) Faceplate: Flush; high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2.
 - iii) If ceiling tile mounted:
 - (1) The terminated jack shall be placed on top plate of the nearest wall in a:
 - (a) Single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (b) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (2) If the ceiling tile area is a large area i.e. waiting area, conference room, gymnasium, then paragraphs iv) (1) & (2) below can be applied.
 - iv) If solid ceiling:
 - (1) The terminated jack shall be placed on the nearest:
 - (a) Cable tray closest to the equipment, or
 - (b) Top plate of the nearest accessible wall. or
 - (c) Transition from ceiling tile to solid ceiling. The single or multi ganged box or surface mount box can be mounted to the framework or support.
 - (2) The terminated jack shall be placed:
 - (a) In a single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (b) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (3) If the solid ceiling area is a large area i.e. waiting area, conference room, gymnasium, then properly sized ceiling hatches to accommodate the installer/technician shall be installed:
 - (a) Starting at the cable tray supplying the space.
 - (b) Spaced every 28 feet apart.
 - v) The communications contractor or sub-contractor/s per owner instructions shall install security Cameras (SC), which shall be provided by the owner. Installation shall follow manufacturers and owners instructions.

14) WIRELESS ACCESS POINT OUTLETS

- a) Jacks: 100-ohm, balanced, twisted-pair connector; four-pair, modular, RJ-45. Comply with TIA/EIA-568-B.1.
- b) Jacks will be the same color of data drops from the Closet where the cabling originates.
- c) Outlets shall be either in the following configurations according to drawings.
 - i) If internal wall mount, then the terminated jack shall be placed on the top plate of the nearest wall in a:
 - (1) Single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (2) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - ii) If external wall mount, then the terminated jack shall be placed on or in the internal inside wall close to the camera mount in a single ganged box with:
 - (1) Faceplate: Flush; high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2.
 - iii) If ceiling tile mounted:
 - (1) The terminated jack shall be placed on top plate of the nearest wall in a:
 - (a) Single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (b) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (2) If the ceiling tile area is a large area i.e. waiting area, conference room, gymnasium, then paragraphs iv) (1) & (2) below can be applied.
 - iv) If solid ceiling:
 - (1) The terminated jack shall be placed on the nearest:
 - (a) Cable tray closest to the equipment, or
 - (b) Top plate of the nearest accessible wall. or
 - (c) Transition from ceiling tile to solid ceiling. The single or multi ganged box or surface mount box can be mounted to the framework or support.
 - (2) The terminated jack shall be placed:
 - (a) In a single or multi ganged box with faceplate: Flush, high impact plastic; color determined by Architect and or Owner. Part numbers listed in Charts 1 and 2 - DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (b) Single or multi surface mount box – DO NOT MIX JACKS OF DIFFERENT COLORS.
 - (3) If the solid ceiling area is a large area i.e. waiting area, conference room, gymnasium, then properly sized ceiling hatches to accommodate the installer/technician shall be installed:
 - (a) Starting at the cable tray supplying the space.
 - (b) Spaced every 28 feet apart.
- d) Legend: Contractor printed labels showing Closet, AP (for Access Point) then cable number, i.e. AAP01, with same label utilizing the last portion of the data patch panel.
- e) The communications contractor or sub-contractor/s per owner instructions shall install the wireless access points, which shall be provided by the Owner. Installation shall follow manufacturers and owners instructions.

15) GROUNDING AND BONDING

- a) Materials: Comply with NFPA 70, TIA/EIA-607, and UL 467.
- b) Reference Charts for what type of hardware is to be used in each Closet.
- c) Reference Manufacturer instructions on what and how grounding should be done if not referenced in this section.
- d) Reference drawings for location of hardware on equipment racks.

- e) Reference Part 2, section 7b), Cable Tray Grounding.

16) IDENTIFICATION PRODUCTS

- a) Reference Steps 11-14 above for labeling legend.
- b) Adhesive-Backed Cable Labels: Use a label-making machine or printer to construct adhesive-backed label tabs from plastic or paper strips. Labels shall be over laminating type in order to protect type-face information with clear Mylar film. Handwritten labels are prohibited
- c) Four-pair UTP cable shall have labels affixed directly to cable jacket:
 - i) Within 3 inches from jack all outlets listed in steps 8-10.
 - ii) Within 6 inches from jack at patch panels
 - iii) Within 6 inches from entry into blocks.
- d) Fiber Optic Cables:
 - i) Shall have labels affixed to a label carrier that protects the cable and allows the re-positioning and rotation of the identification label.
 - ii) Warning Label shall be affixed along the consistent distance apart identifying that the cable is an optical fiber.
- e) Wiring Block Labels: Cardboard-like strips or adhesive labels that slip inside or onto clear plastic designation strips or label holders located on protector panels and wiring blocks
- f) Telecommunications Outlet (TO) Labels/Workstations: Use a label-making machine to construct label tabs from plastic or paper strips or adhesive labels. Handwritten labels are prohibited.

17) CONDUIT SIZING SCHEDULE

SCHEDULE 0 – Conduit Trade Size	SCHEDULE 1 - Max Number of Cables based upon allowable fill.			
	SCHEDULE 2 - Cable outside Diameter, mm (in), [a=Category 3, 6e] or [b=6A, 10Gig]			
	SCHEDULE 3 - 6.1 (.24) [a]	SCHEDULE 4 - 7.9 (.31) [b]	SCHEDULE 5 - 9.4 (.37) [b]	SCHEDULE 6
SCHEDULE 7 - 27 (1 ")	SCHEDULE 8 - 4	SCHEDULE 9 - 2	SCHEDULE 10-2	SCHEDULE 11
SCHEDULE 12 - 35 (1-1/4")	SCHEDULE 13-5	SCHEDULE 14-4	SCHEDULE 15 - 3	SCHEDULE 16
SCHEDULE 17 - 41 (1-1/2")	SCHEDULE 18-6	SCHEDULE 19-4	SCHEDULE 20 - 4	SCHEDULE 21

For other sizes, refer to TIA/EIA569A Conduit Sizing Chart.

18) CONDUIT RUNS

- a) Conduits from any Telecommunication closet, cable tray, horizontal pathway is not allowed except in the following:
 - i) Conduit can be from the TO to the top of the wall with a minimum of 4 inches exposed. Preferred is 1 foot above the wall with 90-degree bend so that the cable repair margin can be Velcro wrapped into the bend of the conduit. All exposed ends of conduits shall have a EMT screw connector with plastic bushing to protect the cable from nicks.
 - ii) A 2-inch conduit is required to each wall-mounted box that supports a multi-user telecommunications outlet assembly (MUTOA). A MUTOA is a special type of telecommunications

- outlets that can support up to 12 voice/data jacks. It is suitable for use in locations where there is a cluster of machines where each one is within 15 feet from the MUTOA.
- iii) Flexible conduits such as metallic flexible conduit are not to be used as pathways for telecommunications cables to avoid sheath damage to the cables. Therefore, the use of flexible conduits as pathway for telecommunications cables shall be avoided at all times.
 - iv) Minimize the amount of turns/curve in the conduit from the top of wall to the gang box. If under a window or opening, reroute conduit to place straight down next to window or opening.

PART 3 – EXECUTION

1) INSTALLATION STANDARDS

- a) Reference Part 1 – GENERAL,
 - i) Section 2) STANDARDS AND CODE COMPLIANCE REFERENCES
 - ii) Section 3) ADDITIONAL SUPPORT
 - iii) Section 4) COMPLIANCE WITH INTENT OF THIS MANUAL
 - iv) Section 5) CONFLICTS.

2) APPLICATION OF MEDIA

- a) Backbone Cable for Data Service: 12 strand OS2 single mode fiber cable for runs between equipment rooms and wiring closet and for runs between closets.
- b) Backbone Cable for Multimedia Service: UTP Category 6e cable to be run from Closet “A” Multimedia panel to each of the other closet multimedia patch panels, i.e. A to B, A to C, A to D, A to E. The cable shall be terminated as the last port on the patch panel, i.e 21, 22, 23, 24.
- c) Backbone Cable for Telecommunications to run from Telecom Entrance Room to each closet, terminated at the Telecom patch panel, reference locations on drawings.
- d) Horizontal Cable for Data Service: 10Gig UPT Category 6A cable for runs between wiring closets and workstation outlets.
- e) Horizontal Cable for Security Cameras:
 - i) UTP Category 6e cable for runs between wiring closets and equipment. Starting at port 1 on Security Camera patch panel.
 - ii) Fiber Optic 6-fiber cable for runs from closet to lamp posts in parking lot. Terminating in fiber box.
- f) Horizontal cable for Multimedia Service: UTP Category 6e cable for runs between wiring closets and equipment. Starting at port 1 on Multimedia patch panel.

3) WORKMANSHIP

- a) Manufactured products, materials, equipment, and components shall be provided, conditioned, applied, installed, connected, and tested in accordance with the manufacturer’s specifications and printed instructions.
- b) The installation of all system components shall be carried out under the direction of qualified personnel. Appearance shall be considered as important as mechanical and electrical efficiency. Workmanship shall meet or exceed industry standards. All work shall be performed in a high quality manner and the overall appearance shall be clean, neat and orderly.
- c) Trash and Materials
 - i) Trash shall be kept cleared from the work areas daily.
 - ii) Materials shall be kept in a neat and workmanship like manner.
- d) Salvage Materials
 - i) Remove and recycle unused, undocumented and otherwise "abandoned" cables prior to the completion of the project.
 - ii) "Abandoned Cable" is defined per NEC 2008 Articles: 640, 645, 725, 760, 770, 800, 820 and 830. Further definition is contained in NFPA-75, NFPA-76 and NFPA-90A.

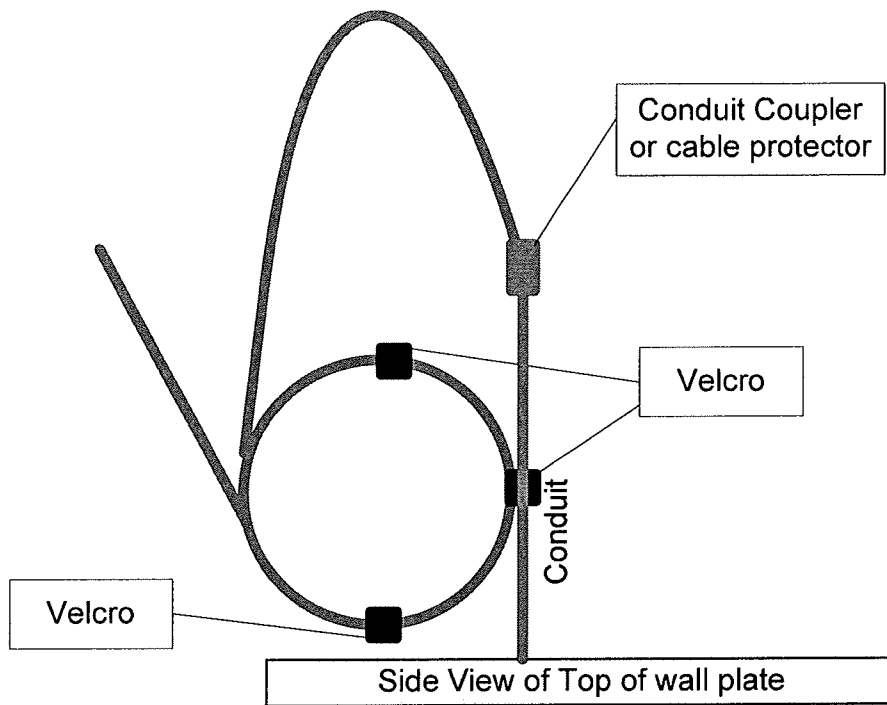
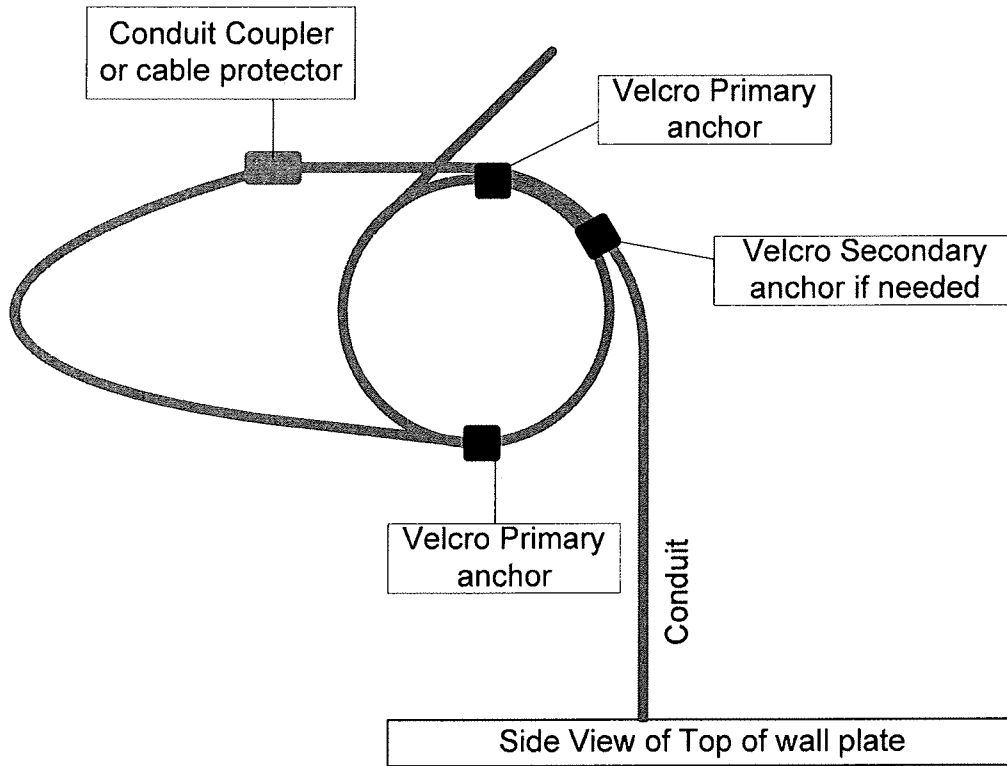
- iii) Disconnect abandoned Telecommunications Outlets and remove
 - iv) Remove cabling and communications devices in walls, floors, and ceilings scheduled for removal per drawing.
 - v) Provide blank cover for abandoned Telecommunications Outlets that are not removed.
 - vi) Schedule work with Owner and other contractors.
 - vii) If salvaged materials are to be re-used or otherwise returned to the Owner:
 - (1) Be sure the items to be removed from service and turned over to the Owner are identified on the drawings.
 - (2) Except where noted on the project drawings, materials removed shall become the property of and shall be disposed/recycled by the Contractor.
 - e) Maintain materials and equipment to be turned over to the Owner and/or reused in conditions equal to that existing before work began. Repair or replace materials or equipment damaged by the Contractor at no additional cost to the Owner.
 - f) The primary vendor/contractor or subcontractor shall have the following personnel on site during install:
 - i) Primary supervisor:
 - (1) Has no limit to subcontractor supervisors to manage.
 - (2) Primary supervisor can have an assistant supervisor who shall supervise as follows:
 - (a) If the assistant supervisor is a Panduit Certified Copper and Fiber Technicians (PCT), the assistant supervisor can also have up to a maximum of four non-certified PCT's.
 - (b) A PCT can have up to a maximum of 4 non-certified PCT's.
 - ii) Supervisor for every 4 PCT.
 - (1) If the supervisor is a PCT, the supervisor can also have up to a maximum of four non-certified PCT's.
 - (2) A PCT can have up to a maximum of 4 non-certified PCT's.
 - iii) If subcontracted, each supervisor is responsible to the primary site vendor/contractor.
 - g) Inspection
 - i) The Contractor shall allow Owner, its Consultants, Construction Manager, CNIT, their agents and the manufacturer's agent to inspect, observe and evaluate workmanship, and can have problems corrected or work halted until corrected.
 - ii) On-going inspections shall be performed during construction by the project manager Owner, its Consultants, Construction Manager, CNIT, and their agents.
- 4) INSTALLATION
- a) Comply with:
 - i) Reference Part 1 –General,
 - ii) Section 2) STANDARDS AND CODE COMPLIANCE REFERENCES,
 - iii) Section 3) ADDITIONAL SUPPPORT,
 - iv) Section 4) COMPLIANCE WITH INTENT OF THIS MANUAL
 - v) Section 5) CONFLICTS.
 - b) The path for the cable tray shall be clear of obstructions, such as HVAC ducts, large pipes and structural beams within the building. Use of enclosed tray and conduits is not allowed. Elevations of trays shall be minimized as to not have a stair step effect. Where fire or smoke barriers are penetrated by the ladder tray, they shall be fire stopped to maintain the rating of the barrier. Alternatively, EZ- Path Systems may be used through the penetrations. The number of sleeves required depends on the number of cables and size of tray. Use 50% fill ratio to determine the number of sleeves. Two additional spare sleeves should be installed to accommodate future cable placement.
 - c) Place cable trays above drop ceilings in corridors. Do not place them above offices, patient/treatment rooms or inaccessible spaces. There shall be at least 4 inches of vertical space between the suspended

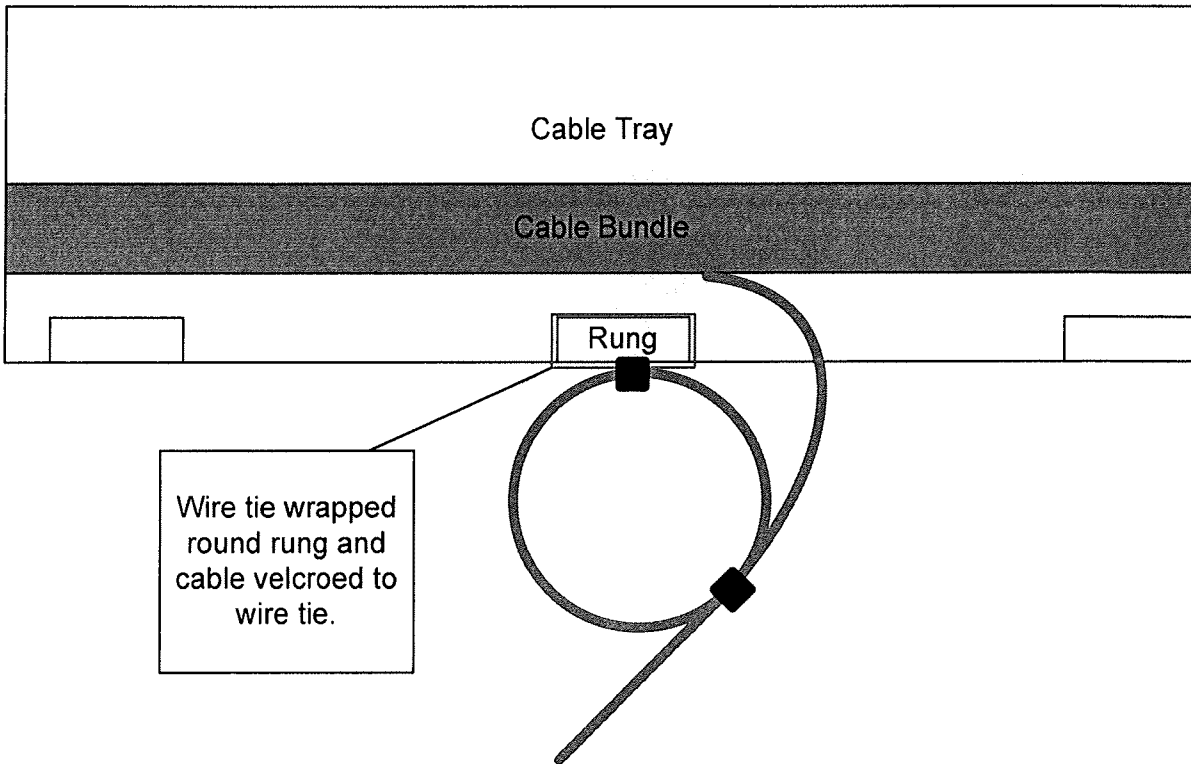
ceiling tile and the bottom of the cable tray; 12 inches of vertical clearance from the top of the cable tray to the true ceiling; and 2' total side clearance (i.e. if the cable tray is wall mounted and there is no clearance on one side, then minimum clearance on the other side should be 2'.

- d) It is desirable that the cable tray originates from the TR. If the TR is surrounded with smoke or fire rated walls then EZ-Path systems shall be installed
- e) Access ceiling panels shall be installed at 5-foot interval if cable tray is passing through a hard or solid ceiling. The panels should be within 1-1/2 feet from the cable tray. They shall not be mounted directly underneath the cable tray. Trays shall not change level or change direction if placed above a hard or solid ceiling.
- f) All metallic cable trays shall be grounded but should not be used as grounding conductor for equipment.
- g) Wiring Method: Install cables in raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use UL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal raceway and cables except in unfinished spaces.
- h) Wiring within Wiring Closets and Enclosures:
 - i) A minimum of two walls should be covered with rigidly fixed 20 mm (3/4 in) A-C plywood, Shall be void free, 2440 mm (8 ft) high, capable of supporting attached equipment. Plywood should be either fire-rated or covered with two coats of fire retardant paint.
 - ii) Mount patch panels, terminal strips, and other connecting hardware on floor-mounted racks. Reference drawings for placement.
- i) Horizontal Fiber Optic to the parking lot lampposts:
 - i) Pull shall be from the rack mount fiber box designated for security systems to the lamppost.
 - ii) Terminate each fiber at rack end and mount into fiber box.
 - iii) At lamp post leave the equivalent of twice the pole height inside the base opening. Do not terminate cable. Seal cable with weather proof tape.
 - (1) Cable can be terminated and tested by owner, the vendor/contractor or subcontractor.
- j) Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated cross-connects, patch panels, workstations or locations as indicated in the Drawings.
- k) Cables shall not be spliced. Secure and support cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
- l) Lacing/tie wraps shall be accomplished by Velcro strapping. The strap shall be able to be rotatable without slipping. **NO WIRE TIES SHALL BE USED ON ANY CABLE OR CABLE BUNDLES.**
- m) Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
- n) Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii. Use lacing bars and distribution spools.
- o) Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
- p) Cold-Weather Installation: Bring cable to room temperature before de-reeling. Heat lamps shall not be used for heating.
- q) In the communications equipment room, install a 3-5 foot long service loop on each end of cable neatly stored inside the Vertical management.
- r) Pulling Cable: Comply with BICSI ITSIM, Chapter. 4, "Pulling Cable." Monitor cable pull tensions.
- s) Only anchor the cable bundles at the network room cable trays starting at the top when it comes down into the room down to the racks.
- t) When cable drops come off the tray it shall go between the rungs. No cable shall come over the top and bent over the edge. If the cable is to be pulled through the red iron, the cable shall go through the bottom

of the cable tray between the rungs then up to the red iron. The only time cable shall go over the edge of the cable tray is if another tray is connected at an angle to that tray and the cable is changing directions.

- u) When the cable is installed there shall be a minimum of 3ft of cable at drop location end for repair margin. If the drop is within 10ft of the cable tray, the repair margin can be anchored under the cable tray to one of the rungs. If more than 10ft then the repair margin shall be anchored to the drops conduit above the wall. If there is not enough conduit then the margin can be anchored to the nearest red iron. Do not anchor to an electrical conduit. See drawings. When anchoring to the cable tray, wrap a plastic wire tie around the rung with the ratchet head below the rung. Then secure the repair margin to the wire tie with Velcro. See drawings on pages 18-19.





- v) Separation from EMI Sources:
- i) NO CONDUITS, POWER CABLE/CONDUCTORS OR EQUIPMENT SHALL BE LAID IN, THROUGH OR ACROSS THE TOP (WITHIN 12 INCHES) THE CABLE TRAY. IF CONDUITS, POWER CABLE/CONDUCTORS OR EQUIPMENT ARE UNDER THE TRAY, STEPS ii-vi BELOW SHALL BE FOLLOWED.
 - ii) Comply with BICSI TDMM and TIA/EIA-5 69-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
 - iii) Separation between open communications cables, cables in nonmetallic raceways or fiber optic cable in armored cable and unshielded power conductors and electrical equipment shall be as follows:
 - (1) Electrical Equipment Rating Less Than 2 kVA: A minimum of 6 inches.
 - (2) Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches.
 - (3) Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches.
 - iv) Separation between communications cables in grounded metallic raceways/conduit and unshielded power lines or electrical equipment shall be as follows:
 - (1) Electrical Equipment Rating Less Than 2 kVA: A minimum of 6 inches.
 - (2) Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches.
 - (3) Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches.
 - v) Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - (1) Electrical Equipment Rating Less Than 2 kVA: A minimum of 1 inch.
 - (2) Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches.
 - (3) Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches.
 - vi) Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches.

vii) Separation between Communications Cables and Fluorescent Fixtures:

- (1) A minimum of 6 inches if cable is running perpendicular (90deg) to the fixture.
- (2) A minimum of 2ft if running parallel to the fixture (including cable tray). If less than, reroute cable from another direction or have fixture moved.

5) GROUNDING

- v) Grounding shall be in accordance with the Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications J-STD-607 -A. Within the telecommunications room, Cable Tray should be bonded together, electrically continuous, and bonded to the Telecommunications Grounding Bus bar (TGB). Cable Tray and turns shall be bonded across each splice with a bonding kit (40164-001 or 025). Cable Tray shall be bonded to the Telecommunications Grounding Busbar (TGB) using an approved ground lug on the Cable Tray and a minimum #6 grounding wire. Remove paint from the Cable Tray where bonding/ground lugs contact the Cable Tray so that the lug shall contact bare metal. Use antioxidant joint compound in between the bare metal on the Cable Tray and ground lug. Use antioxidant joint compound in between the bus bar and the ground lug. Verify continuity through the bonds at splices and intersections between individual Cable Tray sections and turns and through the bond to the TGB.
- w) Reference NFPA 70 (latest Edition) Article 250 for other grounding requirements.
- x) Grounding of patch panels, fiber boxes or equipment brackets to the racks can be accomplished by one Panduit bonding screw (reference Charts 1 and 2) on each side securing the bracket to the rack. Use of antioxidant paste is required.

6) IDENTIFICATION

- a) Comply with TINEIA-606-A.
 - i) Administration class for this Project shall be Class 4.
 - ii) Color-code cross-connect and telecom fields. Apply colors to voice and data service backboards, connections, covers, and labels.
- b) Use logical and systematic designations for facility's architectural arrangement and nomenclature, and a consistent color-coded identification of individual conductors.
 - i) Jacks shall be the color of the Closet/ Zone they are in. See Drawings.
 - (1) Closet "A" – Blue
 - (2) Closet "B" – Orange
 - (3) Closet "C" – Green
 - (4) Closet "D" – Red
 - (5) Closet "E" – Off White
 - (6) Security Cameras – Yellow
 - (7) Multimedia – Violet
- c) Reference PART 2 – DESIGN AND PRODUCTS, Section 16.
- d) Exposed Cables and Cables in Cable Trays and Wire Troughs: Label each cable at intervals not exceeding 15 feet (4.5 m).
- e) Label each terminal strip and screw terminal in each cabinet, rack, or panel if applicable.
- f) Cable Schedule: Post in prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- g) Cabling Administration Drawings: Show building floor plans with cable administration-point labeling. Identify labeling convention and show labels for telecommunications closets, backbone pathways and cables, terminal hardware and positions, horizontal cables, work areas and workstation terminal

positions, grounding buses and pathways, and equipment grounding conductors. Follow convention of TIA/EIA-606-A. Furnish electronic record of all drawings, in software and format selected by Owner.

7) FIELD QUALITY CONTROL

a) Perform the following field tests and inspections and prepare test reports following the Standards and Code Compliance References for the following:

i) Category 6a UTP Cabling Tests:

- (1) Test instruments shall meet or exceed applicable requirements as defined in the TIA Cat 6A Standard. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration. Owner prefers that tester be the Fluke DSX-5000 as owner can except all test reports in the LinkWare file format. The tester shall have current calibration sticker attached and a copy of sticker or calibration certificate attached to final documentation.
- (2) Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
- (3) Wire-map test that reports open circuits, short circuits, crossed pairs, reversed pairs, split pairs, and improper terminations.
- (4) Channel and permanent link tests for cable length, insertion loss, near-end crosstalk loss, power sum near-end crosstalk loss, equal-level far-end crosstalk loss, power sum equal level far-end crosstalk, return loss, propagation delay, and delay skew. Performance shall comply with guaranteed channel performance up to 500MHz.
- (5) Alien Crosstalk shall not be required.

ii) Category 6a UTP Cabling Tests:

- (1) Test instruments shall meet or exceed applicable requirements as defined in the TIA Cat 6A Standard. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration. Owner prefers that tester be the Fluke DSX-5000 as owner can except all test reports in the LinkWare file format. The tester shall have current calibration sticker attached and a copy of sticker or calibration certificate attached to final documentation.
- (2) Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
- (3) Wire-map test that reports open circuits, short circuits, crossed pairs, reversed pairs, split pairs, and improper terminations.
- (4) Channel and permanent link tests for cable length, insertion loss, near-end crosstalk loss, power sum near-end crosstalk loss, equal-level far-end crosstalk loss, power sum equal level far-end crosstalk, return loss, propagation delay, and delay skew. Performance shall comply with guaranteed channel performance up to 500 MHz.

iii) Back Bone Fiber Cable

- (1) Test instruments shall meet or exceed applicable requirements. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration. Owner prefers that tester be the Fluke DSX-5000 as owner can except all test reports in the LinkWare file format. The tester shall have current calibration sticker attached and copy of sticker or calibration certificate attached to final documentation.
- (2) Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components. Inspect cabling terminations in communications equipment rooms for compliance with color-coding.
- (3) Optical Fiber Cable Tests:
 - (a) Field-test instruments shall have the latest software and firmware installed.
 - (b) Link and channel test results from the optical loss test set (OLTS) and optical time domain reflectometer (OTDR) shall be recorded in the test instrument upon completion of each

- test for subsequent uploading to a PC in which the administrative documentation (reports) may be generated.
- (c) Fiber end-faces shall be inspected at 200X or 400X magnification. 200X magnification is suitable for inspecting single mode fibers. 400X magnification may be used for detailed examination of single mode fibers. Scratched, pitted or dirty connectors shall be diagnosed and corrected.
 - (i) If possible it is preferable that the end-face images be recorded in the memory of the test instrument for subsequent uploading to a PC and reporting.
 - (d) Testing shall be performed on each cabling segment (connector to connector).
 - (e) Testing shall be performed on each cabling channel (equipment to equipment) that is planned for use per the owner's instructions.
 - (f) Testing of the cabling shall be performed using high-quality test cords of the same fiber type as the cabling under test. The test cords for OLTS testing shall be between 1 m and 5 m in length. The test cords for OTDR testing shall be approximately 100 m for the launch cable and at least 25 m for the receive cable.
 - (g) Optical loss testing
 - (i) Backbone link
 1. Singlemode backbone links shall be tested at 1300 nm in accordance with ANSI/EIA/TIA-526-14A, Method B, One Reference Jumper or the equivalent method.
 2. Link attenuation does not include any active devices or passive devices other than cable, connectors, and splices, i.e. link attenuation does not include such devices as optical bypass switches, couplers, repeaters, or optical amplifiers.
 3. Use the One Reference Jumper Method specified by ANSI/TIA/EIA-526- 1 4A, Method B and ANSI/TIA/EIA-526-7, Method A. 1 or the equivalent method. The user shall follow the procedures established by these standards or application notes to accurately conduct performance testing.
 - (h) Optical Time Domain Reflectometer (OTDR) Testing
 - (i) Backbone, horizontal and centralized links shall be tested at the appropriate operating wavelengths for anomalies and to ensure uniformity of cable attenuation and connector insertion loss.
 - (ii) Backbone singlemode: 1300 nm
 - (iii) Each fiber link and channel shall be tested in one direction.
 - (iv) A launch cable shall be installed between the OTDR and the first link connection.
 - (v) A receive cable shall be installed after the last link connection.
 - (i) Magnified Endface Inspection
 - (i) Fibers shall be inspected at 200X or 400X magnification. The 200X magnification is suitable for inspecting singlemode fibers. 400X magnification may be used for detailed examination of singlemode fibers.
 - (j) Length Measurement
 - (i) The length of each fiber shall be recorded.
 - (ii) It is preferable that the optical length be measured using an OLTS or OTDR.
 - (k) A Fail or Fail* result shall be diagnosed corrected and retested.
 - (i) If not correctable, the installation contractor shall then remove, replace cabling and retest. The cost shall be borne by the installation contractor
 - (ii) If the results above reveals the same Fail or Fail* result, then the installation contractor may bring in the manufacture's agent, technician or engineer and the cost shall be borne by the installation contractor. If the results is determined to be not correctable by the

manufacture's agent, technician or engineer, the installation contractor shall repeat 100% removal, reinstallation and testing under supervision of the manufacture's agent, technician or engineer. The cost shall be borne by the installation contractor.

iv) Horizontal Fiber Optic to the parking lot lampposts.

(1) Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components. Inspect cabling terminations in communications equipment rooms for compliance with color-coding.

(2) Visual light test connection with bright light or visible light.

(a) If not visible, terminate cable and test as afore mentioned "iii) Back Bone Fiber Cable" to trouble shoot. If it fails, the installation contractor shall diagnose, correct, and retest.

(i) If not correctable, the installation contractor shall then remove, replace cabling and retest. The cost shall be borne by the installation contractor

(ii) If the results above reveals the same Fail or Fail* result, then the installation contractor may bring in the manufacture's agent, technician or engineer and the cost shall be borne by the installation contractor. If the results is determined to be not correctable by the manufacture's agent, technician or engineer, the installation contractor shall repeat 100% removal, reinstallation and testing under supervision of the manufacture's agent, technician or engineer. The cost shall be borne by the installation contractor.

(3) Cable shall be final tested by Owner at a later date.

v) Cable Samples, the Cat 6a & Cat 6e cable shall be tested and added to documentation and warranty.

(1) Use the samples to check verification of manufacturer recommendations for setting the testers.

b) Trained technicians who have successfully attended an appropriate training program and have obtained a certificate as proof thereof shall execute the tests. Appropriate training programs include but are not limited to installation certification programs provided by BICSI or the ACP (Association of Cabling Professionals). A copy of the certification shall be attached to final documentation.

c) One hundred percent of the installed cabling links shall pass the requirements of the standards mentioned above except as noted. Any failing link shall be diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements. The final and passing result of the tests for all links shall be provided in the test results documentation.

d) The tester interface adapters shall be of high quality and the cable shall not show any twisting or kinking resulting from coiling and storing of the tester interface adapters. In order to deliver optimum accuracy, preference is given to a permanent link interface adapter for the tester that can be calibrated to extend the reference plane of the Return Loss measurement to the permanent link interface. The contractor shall provide proof that the interface has been calibrated within the period recommended by the Manufacturer. To ensure that normal handling on the job does not cause measurable Return Loss change, the adapter cord cable shall not be of twisted-pair construction.

e) The Pass or Fail condition for the link-under-test is determined by the results of the required individual tests (detailed in Section I.2.2 of ANSI/TIA/EIA-568-B.2). Any Fail or Fail* result yields a Fail for the link-under-test. In order to achieve an overall Pass condition, the results for each individual test parameter shall Pass or Pass*.

i) A Pass or Fail result for each parameter is determined by comparing the measured values with the specified test limits for that parameter. The test result of a parameter shall be marked with an asterisk (*) when the result is closer to the test limit than the accuracy of the field tester. The field tester manufacturer shall provide documentation as an aid to interpret results marked with asterisks. To which extent '*' results shall determine approval or disapproval of the element under test shall be defined in the relevant detail specification, or agreed on as a part of a contractual specification.

- ii) A Fail or Fail* result shall be diagnosed corrected and retested.
 - (1) If not correctable, the installation contractor shall then remove, replace cabling and retest. The cost shall be borne by the installation contractor
 - (2) If the results above reveals the same Fail or Fail* result, then the installation contractor may bring in the manufacture's agent, technician or engineer and the cost shall be borne by the installation contractor. If the results is determined to be not correctable by the manufacture's agent, technician or engineer, the installation contractor shall repeat 100% removal, reinstallation and testing under supervision of the manufacture's agent, technician or engineer. The cost shall be borne by the installation contractor.
- f) Additional Requirements:
 - i) A representative of the end-user shall be invited to witness field testing. The representative shall be notified of the start date of the testing phase five business days before testing commences.
 - ii) At an agreed time a representative of the end-user shall select a random sample of 10% of the installed links. The representative (or his authorized delegate) shall test these randomly selected links and the results are to be stored in a separate documentation that shall be attached with final documentation (but does not have to be submitted for warranty). The results obtained shall be compared to the data provided by the installation contractor. If more than 3% of the sample results differ in terms of the pass/fail determination:
 - (1) The installation contractor under supervision of the end-user representative shall repeat 100% testing and the cost shall be borne by the installation contractor.
 - (2) If more than 30% of the sample results differ in terms of the pass/fail determination, then the installation contractor may bring in the manufacture's agent, technician or engineer and the cost shall be borne by the installation contractor. If the results is determined to be not correctable by the manufacture's agent, technician or engineer, the installation contractor shall repeat 100% removal, reinstallation and testing under supervision of the manufacture's agent, technician or engineer. The cost shall be borne by the installation contractor

8) TEST RESULTS DOCUMENTATION

- a) The test results/measurements shall be transferred into a Windows™-based database utility that allows for the maintenance, inspection and archiving of these test records. A guarantee shall be made that the measurement results are transferred to the PC unaltered, i.e., "as saved in the tester" at the end of each test and that these results cannot be modified at a later time. The file format, CSV (comma separated value), does not provide adequate protection of these records and shall not be used. Owner prefers that the test results/measurements be in the LinkWare file format.
- b) The database for the completed job shall be stored and delivered on digital media including the software tools required to view, inspect, and print any selection of test reports.
- c) A paper copy of the test results shall be provided that lists all the links that have been tested with the following summary information
 - i) The identification of the link in accordance with the naming convention defined in the overall system documentation
 - ii) The overall Pass/Fail evaluation of the link-under-test including the NEXT Headroom (overall worst case) number
 - iii) The date and time the test results were saved in the memory of the tester.
- d) General Information to be provided in the electronic data base with the test results information for each link:
 - i) The identification of the customer site as specified by the end-user
 - ii) The name of the personnel performing the test
 - iii) The identification of the link in accordance with the naming convention defined in the overall system documentation

- iv) The overall Pass/Fail evaluation of the link-under-test
 - v) The name of the standard selected to execute the stored test results
 - vi) The date and time the test results were saved in the memory of the tester
 - vii) The brand name, model and serial number of the tester
 - viii) The identification of the tester interface
 - ix) The revision of the tester software and the revision of the test standards database in the tester
 - x) The test results information shall contain information on each of the required test parameters that are listed.
- e) For all copper (Cat 6a & Cat 6e)
- i) The cable type and the value of Nominal Velocity of Propagation (NVP) used for length calculations
 - ii) In-link (In-Channel) detailed test results. The detailed test results data to be provided in the electronic database for shall contain the following information:
 - (1) For each of the frequency-dependent test parameters, the value measured at every frequency during the test is stored. The PC-resident database program shall be able to process the stored results to display and print a color graph of the measured parameters. The PC-resident software shall also provide a summary numeric format in which some critical information is provided numerically as defined by the summary results (minimum numeric test results documentation) as outlined above for each of the test parameters.
 - (2) Length: Identify the wire-pair with the shortest electrical length, the value of the length rounded to the nearest 0.1 m (1) and the test limit value.
 - (3) Propagation delay: Identify the pair with the shortest propagation delay, the value measured in nanoseconds (ns) and the test limit value.
 - (4) Delay Skew: Identify the pair with the largest value for delay skew, the value calculated in nanoseconds (ns) and the test limit value.
 - (5) Insertion Loss (Attenuation): Minimum test results documentation as explained in Section B for the worst pair.
 - (6) Return Loss: Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link.
 - (7) NEXT, Attenuation Crosstalk Ratio Far-end (ACR-F): Minimum test results documentation as explained in Section B for the worst pair combination as measured from each end of the link.
 - (8) PS NEXT and Power Sum Attenuation to Crosstalk Ratio, Far-end (PS ACR-F): Minimum test results documentation as explained in Section B for the worst pair as measured from each end of the link.
 - iii) Between-Link (Between-Channel) Test Results Data
 - iv) A test report shall be provided for each disturbed link included in the Alien Crosstalk sample test. This test report shall contain:
 - (1) PS ANEXT results at each frequency for each wire pair in a victim link as well as the PS ANEXT results for the average of these four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PS ANEXT shall be measured and tested from the end of the link or channel where all cables are terminated at a distribution panel. In case the cabling runs from panel to panel (data center) where the worst case PS ANEXT margin is less than 2 dB, the PS ANEXT test results for each disturbed link shall be collected and saved from both ends (both panels) of the disturbed link.
 - (2) Power Sum Attenuation to Alien Crosstalk Ratio Far-end PS (AACR-F) results at each frequency tested for each wire pair in a disturbed link as well as the PS AACR-F results for the average of the four wire pairs. The worst case margin and the worst values shall be provided for each wire pair and the average of the four wire pairs. PS AACR-F only needs to be measured and tested from one end of the link or channel.

- f) Fiber tests:
 - i) The fiber identification number.
 - ii) The length for each optical fiber.
 - (1) Optionally the index of refraction used for length calculation when using a length capable OLTS.
 - iii) Test results to include OLTS attenuation link and channel measurements at the appropriate wavelength(s) and the margin (difference between the measured attenuation and the test limit value).
 - iv) Test results to include OTDR link and channel traces and event tables at the appropriate wavelength(s).
 - v) The length for each optical fiber as calculated by the OTDR.
 - vi) The overall Pass/Fail evaluation of the link-under-test for OLTS and OTDR measurements.
 - vii) A picture or image of each fiber end-face if done.
 - viii) A pass/fail status of the end-face based upon visual inspection.

9) CONSTRUCTION REVIEW

- c) The following shall be examined and shall comply satisfactorily in all instances.
 - i) Design documentation complete.
 - ii) All cables properly labeled, from end-to-end.
 - iii) All terminated cables properly tested in accordance with the specifications for the specific category as well as tested for opens, shorts, polarity reversals, transposition and presence of AC and/or DC voltage.
 - iv) The cable type suitable for its pathway.
 - v) The cables bundled in parallel.
 - vi) The pathway manufacturer's guidelines have been followed.
 - vii) All cable penetrations installed properly and fire stopped according to code.
 - viii) The Contractors avoided excessive cable bending.
 - ix) Potential EMI and Radio Frequency Interference (RFI) sources have been considered.
 - x) Cable Fill is correct.
 - xi) All hanging supports are within 1.5 meters (5 feet).
 - xii) Hanging cable exhibit some sag.
 - xiii) IDF room terminations are compatible with applications equipment.
 - xiv) Patch Panel instructions have been followed:
 - (1) Jacket removal point
 - (2) Termination positions
 - (3) All pair terminations tight with minimal pair distortions
 - (4) Twists maintained up to Index Strip
 - xv) Modular Panel instructions have been followed:
 - (1) Cable dressing first
 - (2) Jackets remain up to the Connecting Block
 - (3) All pair terminations tight and undistorted
 - (4) Twists maintained up to the Connecting Block
 - xvi) Connectors are properly turned right side up in the Jack Panels without cables wrapped or twisted around the Mounting Collars.
 - xvii) The correct outlet connectors have been used
 - xviii) Outlets have been wired correctly (T568B)
 - xix) The cable jacket maintained up to the Jack.
 - xx) Identification markings uniform, permanent and readable.

- d) The Owner, its Consultants, Construction Manager, CNIT, and their agents shall review and observe installation work to ensure compliance by the contractor with requirements of the Contract Documents.
- e) The contractor shall inspect and test completed communications installations to demonstrate specified performance levels including the following:
 - i) Furnish all instruments and personnel required for the inspections and tests.
 - ii) Perform tests in the presence of the Engineer and Owner when required.
 - iii) Demonstrate that the system components operate in accordance with the Contract Documents.
- f) Review, observation, assistance, and actions by the Owner, its Consultants, Construction Manager, CNIT, and their agents shall not be construed as undertaking supervisory control of the work or of methods and means employed by the contractor. The Owner, Consultants, its Construction Manager, CNIT, and their agents review and observation activities shall not relieve the contractor from the responsibilities of these Contract Documents.
- g) The fact that Owner, its Consultants, Construction Manager, CNIT, and their agents does not make early discovery of faulty or omitted work shall not bar the Owner from subsequently rejecting this work and withholding payment until the contractor makes the necessary corrections.
- h) Regardless of when discovery and rejection are made, and regardless of when the contractor is ordered to correct such work, the contractor shall have no claim against the Owner, its Consultants, Construction Manager, CNIT, and their agents for an increase in the Subcontract price, or for any payment on account of increased cost, damage, or loss.

10) DEFINITION OF ACCEPTANCE

- a) System acceptance shall be defined as that point in time when the following requirements have been fulfilled:
 - i) The complete system has successfully completed all testing requirements.
 - ii) All punch list items have been corrected and accepted.
 - iii) All submittals and documentation have been submitted, reviewed, and approved. Including:
 - (1) A list of the documentation submitted to Panduit for the CERTIFICATION PLUSSM SYSTEM WARRANTY PROGRAM according to the Panduit Warranty Guide.
 - (a) A copy of the E-form, or Fax is acceptable. Or
 - (b) If mailed, a copy of the package tracking number is acceptable.
 - (2) Verification of delivery shall be done by Owner, its Consultants, CNIT, and their agents with Panduit. If:
 - (a) Verified as delivered then acceptance can continue.
 - (b) Verified as NOT delivered, then the acceptance is not complete.

Door #	Building Number and Name	Existing Hardware	Existing Hdw Size	Door Size	New Hardware
AC1	100 Academic Bldg	A - Falcon 1990	34-9/16"W	83-25"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC2	100 Academic Bldg	A - Falcon 1990	34-19/32"W	83-25"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC3	100 Academic Bldg	A - Falcon 1990	34-9/16"W	83-25"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC4	101 Old Gymnasium	B - Jackson 1085	32-3/32"W	83-25"Hx35-19/32"Wx1-75"D	CRL Jackson 8500EL01628
AC5	101 Old Gymnasium	A - Falcon 1990	34-19/32"W	83-1/8"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC6	102 Science Bldg	C - Van Duprin 99 Series	N/A	N/A	Alegion VD6300
AC7	102 Science Bldg	A - Falcon 1990	28-13/16"W	83-3/16"Hx30"Wx1-13/16"D	Falcon p/n ELRX1692EO30"US28 LESS RODS LESS TRIM
AC8	102 Science Bldg	A - Falcon 1990	34-9/16"W	83-3/16"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC9	112 Field House	D - First Choice	34-25"	83-3/16"Hx35-625"Wx1-75"D	First Choice MEL3000-1
AC10	112 Field House	A - Falcon 1990	34.5	83-3/16"Hx35-19/32"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC11	112 Field House	UNKNOWN	34-9/16	83-1/8"Hx35-625"Wx1-75"D	VD6300
AC12	117 Tech Bldg	E - Von Duprin 33A Series	32-6.25	83-3/16"Hx35-625"Wx1-75"D	Von Duprin QEL33A
AC13	117 Tech Bldg	E - Von Duprin 33A Series	32-6.25	83-3/16"Hx35-625"Wx1-75"D	Von Duprin QEL33A
AC14	097 Boys Dorm	A - Falcon 1990	34-6.25	83-3/16"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC15	098 Girls Dorm	A - Falcon 1990	34-9/16	83-25"Hx35-625"Wx1-75"D	Falcon p/n ELRX1692EO36"US28 LESS RODS LESS TRIM
AC16	114 Cafeteria	F - Cal-Royal	N/A	N/A	Alegion VD6300
AC17	114 Cafeteria	F - Cal-Royal	N/A	N/A	Alegion VD6300
AC18	114 Cafeteria	F - Cal-Royal	N/A	N/A	Alegion VD6300
AC19	New Gymnasium		N/A	N/A	Alegion VD6300
AC20	New Gymnasium		N/A	N/A	Alegion VD6300
AC21	New Gymnasium		N/A	N/A	Alegion VD6300
AC22	New Gymnasium		N/A	N/A	Alegion VD6300
AC23	13 Robotics	Von Duprin 9975	32-7/8"W	N/A	Von Duprin E-7500 Mortise Lock Fail Secure Mode
AC24	13 Robotics	Von Duprin 9975	32-7/8"W	N/A	Von Duprin E-7500 Mortise Lock Fail Secure Mode

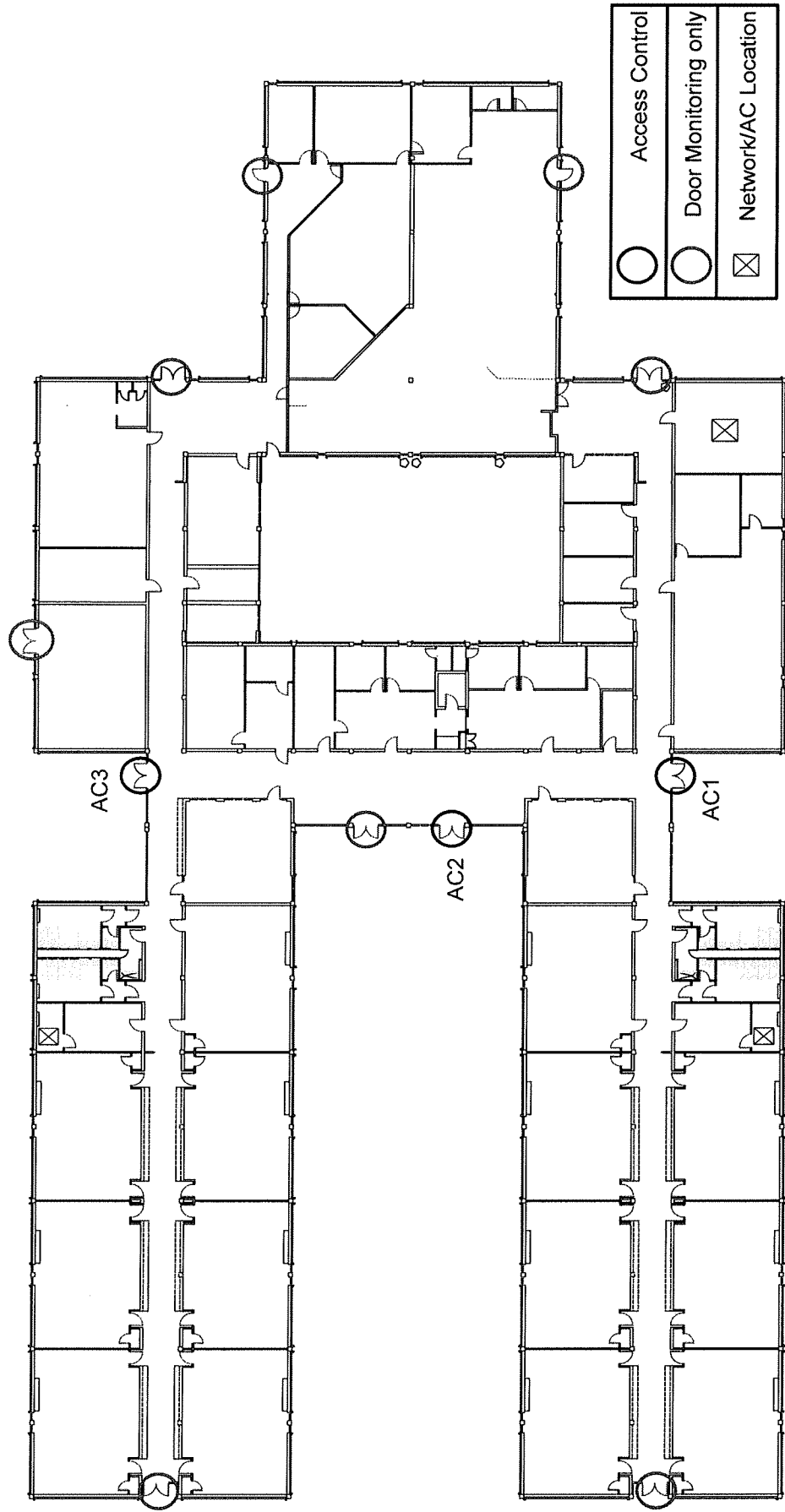
Breakdown/Details Sheet

Building	Locks	Door Monitoring
Academic	3	11
Old Gym	2	11
Science Bldg	3	5
Field House	3	3
Tech Building	2	4
Boys Dorm	1	6
Girls Dorm	1	6
Cafeteria	3	7
Storm Shelter	0	0
Robotics	0	
Facilities	0	0
TPWTP Downstairs	4	17
TPWTP Upstairs	0	0
Totals	22	70

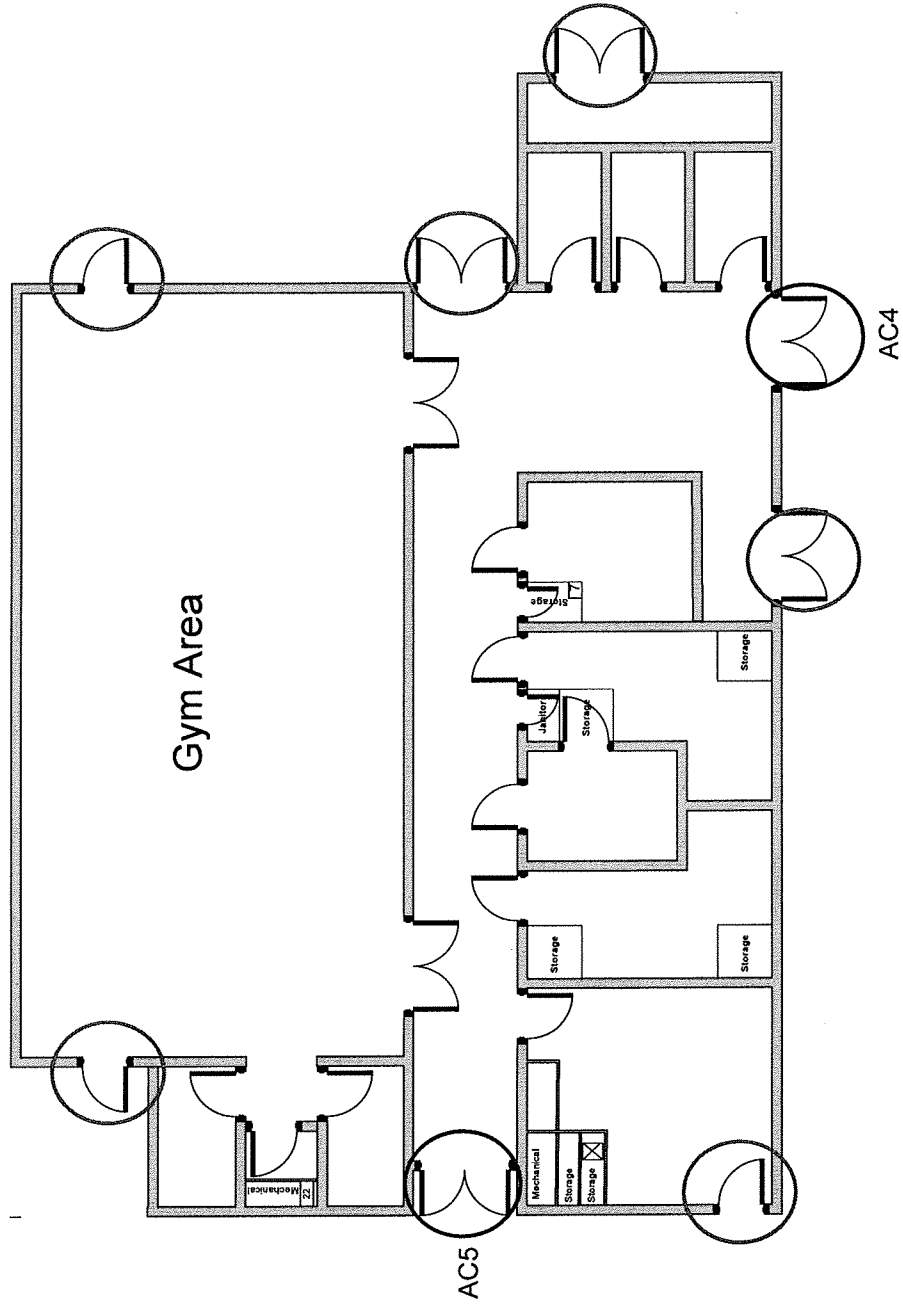
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<input type="radio"/>	Door Monitoring only
<input checked="" type="checkbox"/>	Network/AC Location

<input type="radio"/>	<p>1. Access Controlled doors will have the following to control and access the door:</p> <ul style="list-style-type: none"> a. Axis A1601 Network Door Controller with additional 2 year extended warranty. b. Power Supply recommended by the hardware manufacturer. c. Locks – model depends on style of door. d. Filler plate if needed. e. Door position sensor/s. f. Network Video Door Station – Viewable and controlled on Client desk phone or Matrix. <ul style="list-style-type: none"> i. Axis A8004-VE, installed by customer. ii. HID multiClass reader.
<input type="radio"/>	<p>2. Door Monitoring only door will have:</p> <ul style="list-style-type: none"> a. Door position sensor b. Axis A9188-VE Network Relay I/O Relay Module, POE. One or Two per building depending on the building. Will be installed by customer, located in the nearest network closet. Vendor will install door monitoring sensor and cabling to A9188-VE if no Access controller is at the door.

Breakdown/Details Sheet



Sequoyah High School
 Bldg 100 Academic Building
 Access Control Layout
 05/24/2019 Doug Clark

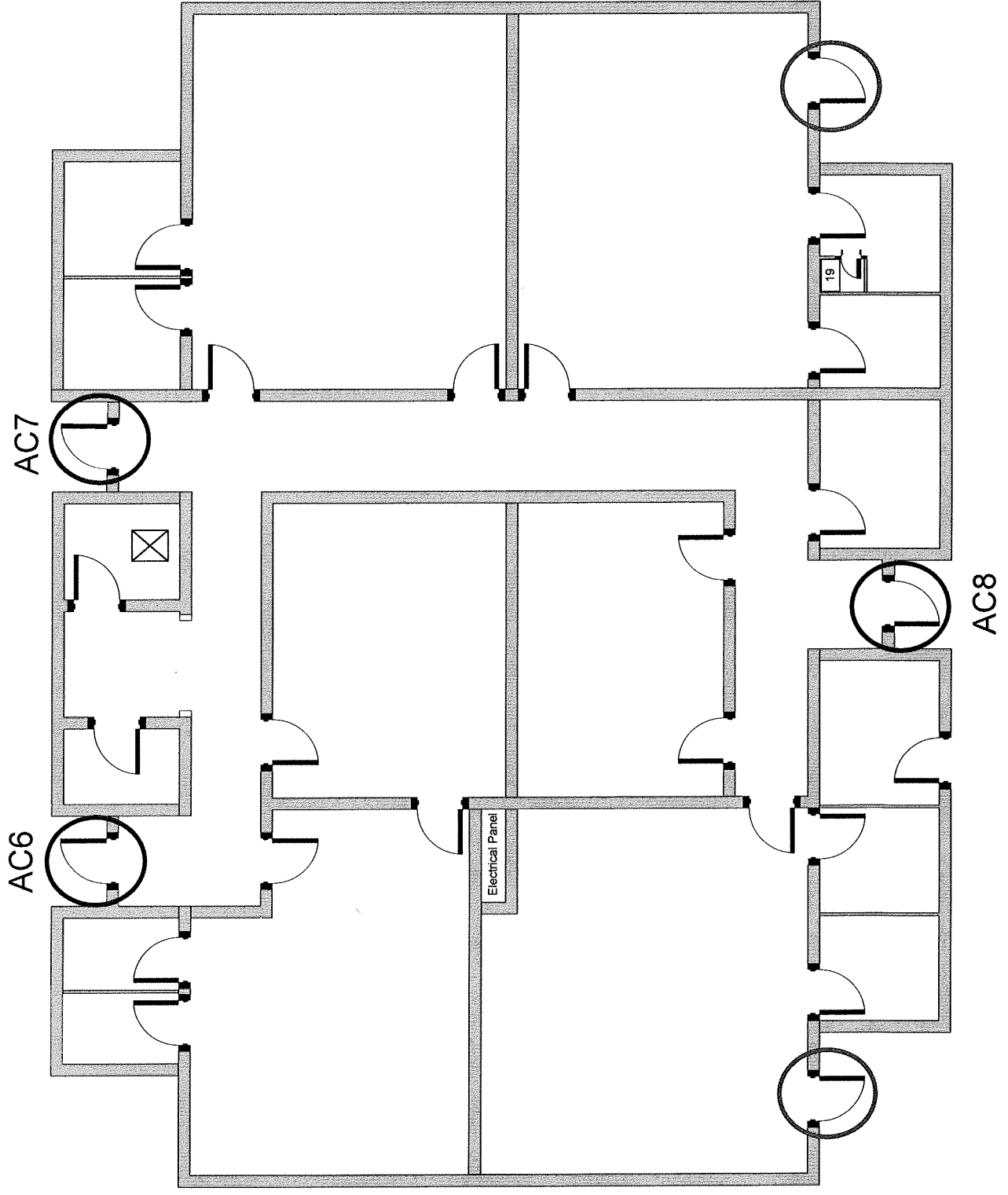





○	Access Control
○	Door Monitoring only
⊠	Network/AC Location

Sequoyah High School
 Bldg 101 Gymnasium
 Access Control Layout
 05/24/2019 Doug Clark

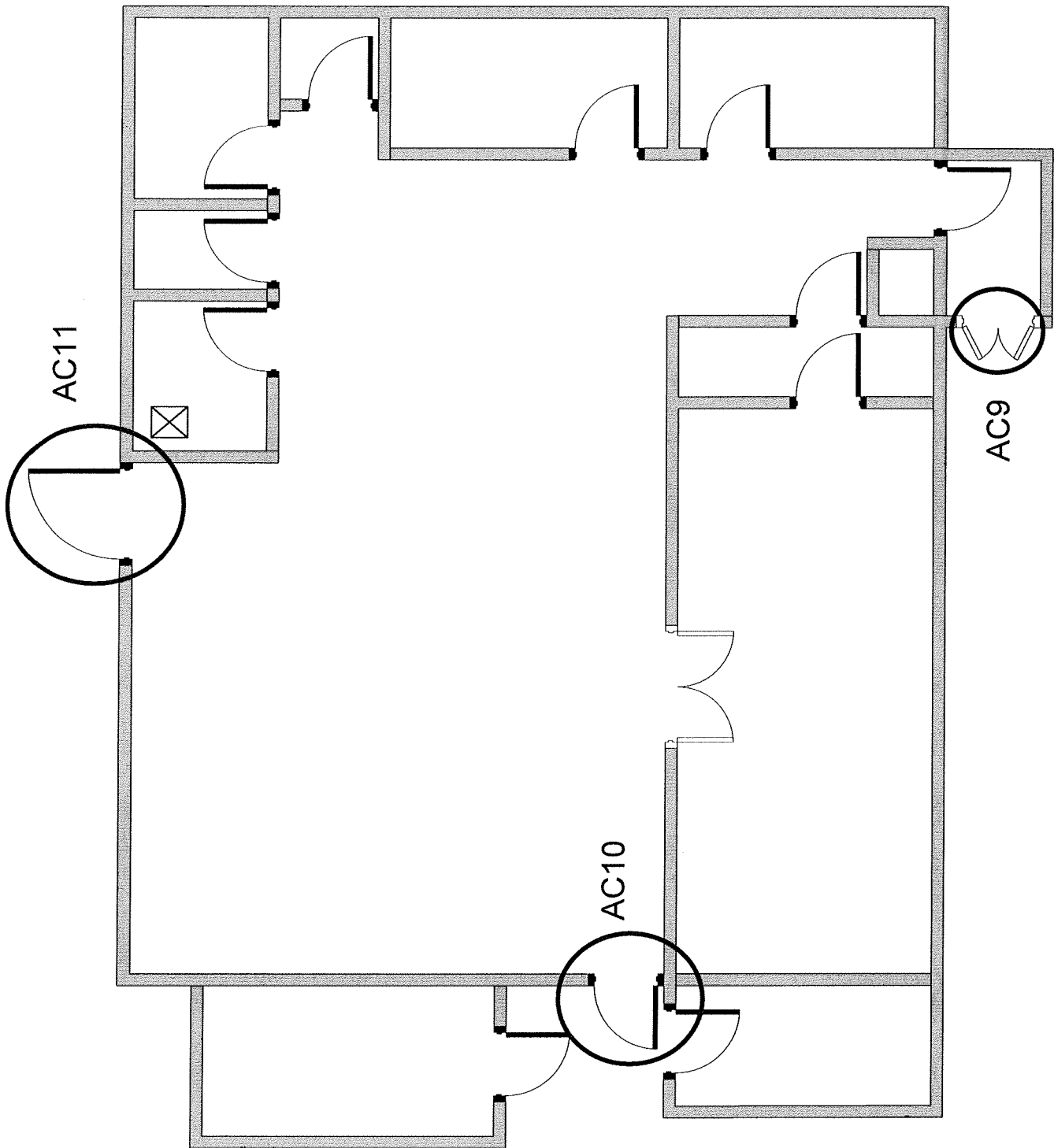
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<input type="checkbox"/>	Door Monitoring only
<input checked="" type="checkbox"/>	Network/AC Location

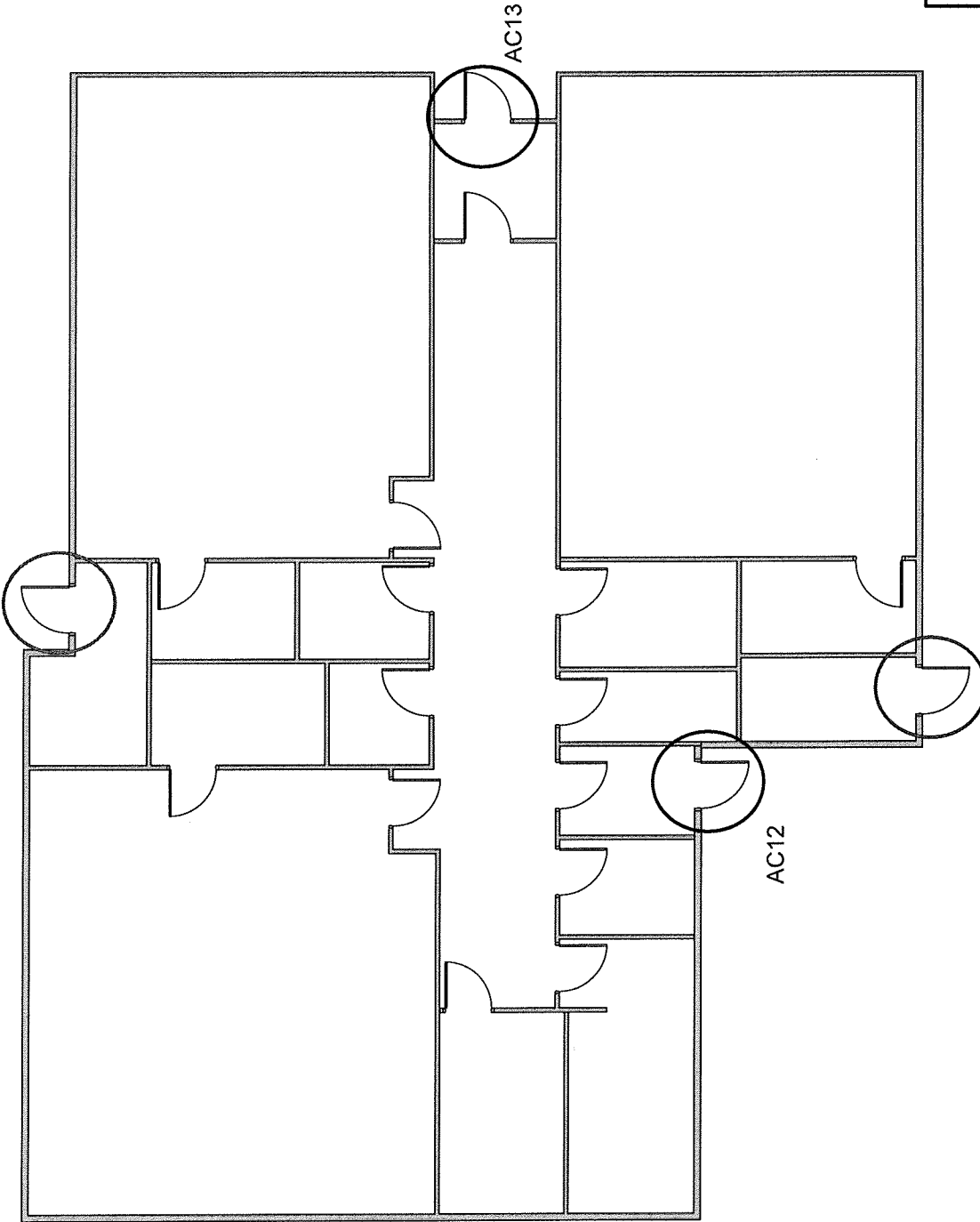
Sequoyah High School
 Bldg 102 Science Building
 Access Control Layout
 05/24/2019
 Doug Clark



Access Control	
Door Monitoring only	
Network/AC Location	

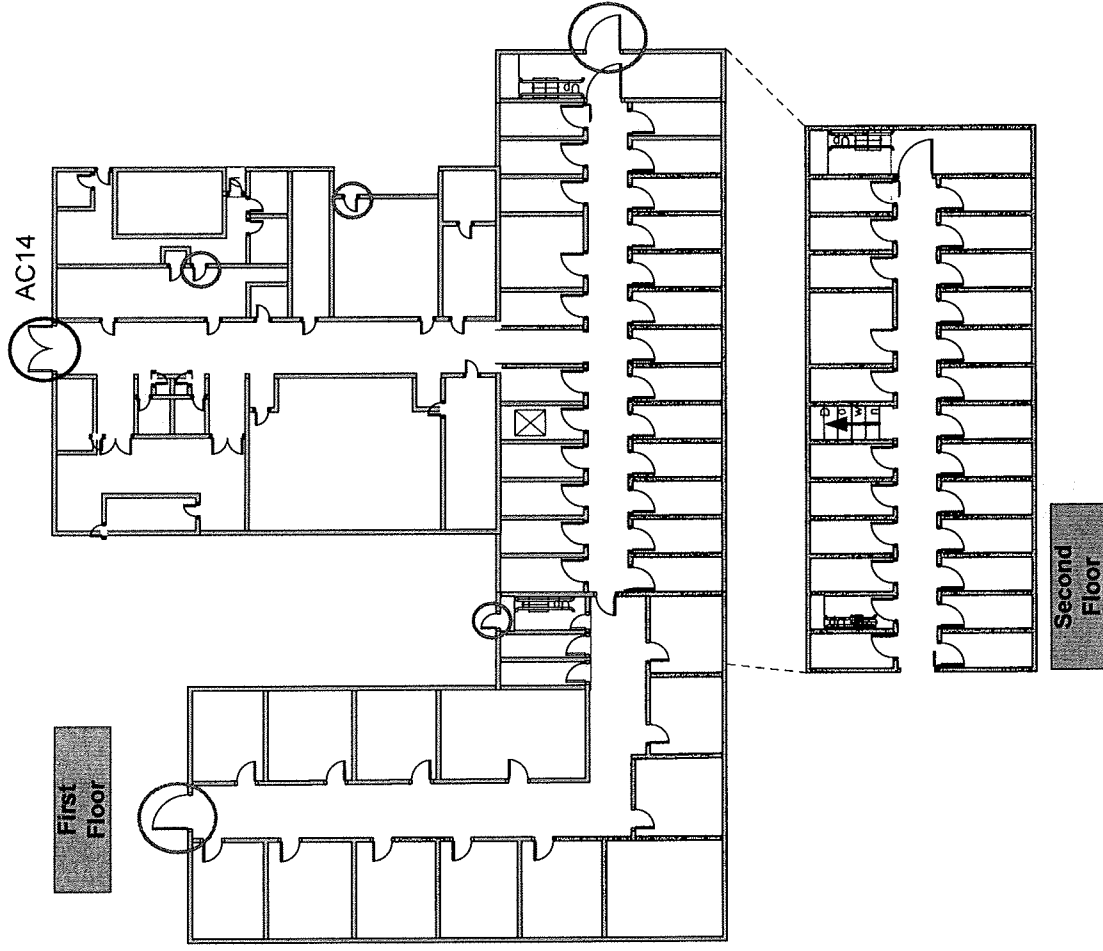
Sequoyah High School
 Bldg 112 Field House
 Access Control Layout
 05/24/2019
 Doug Clark





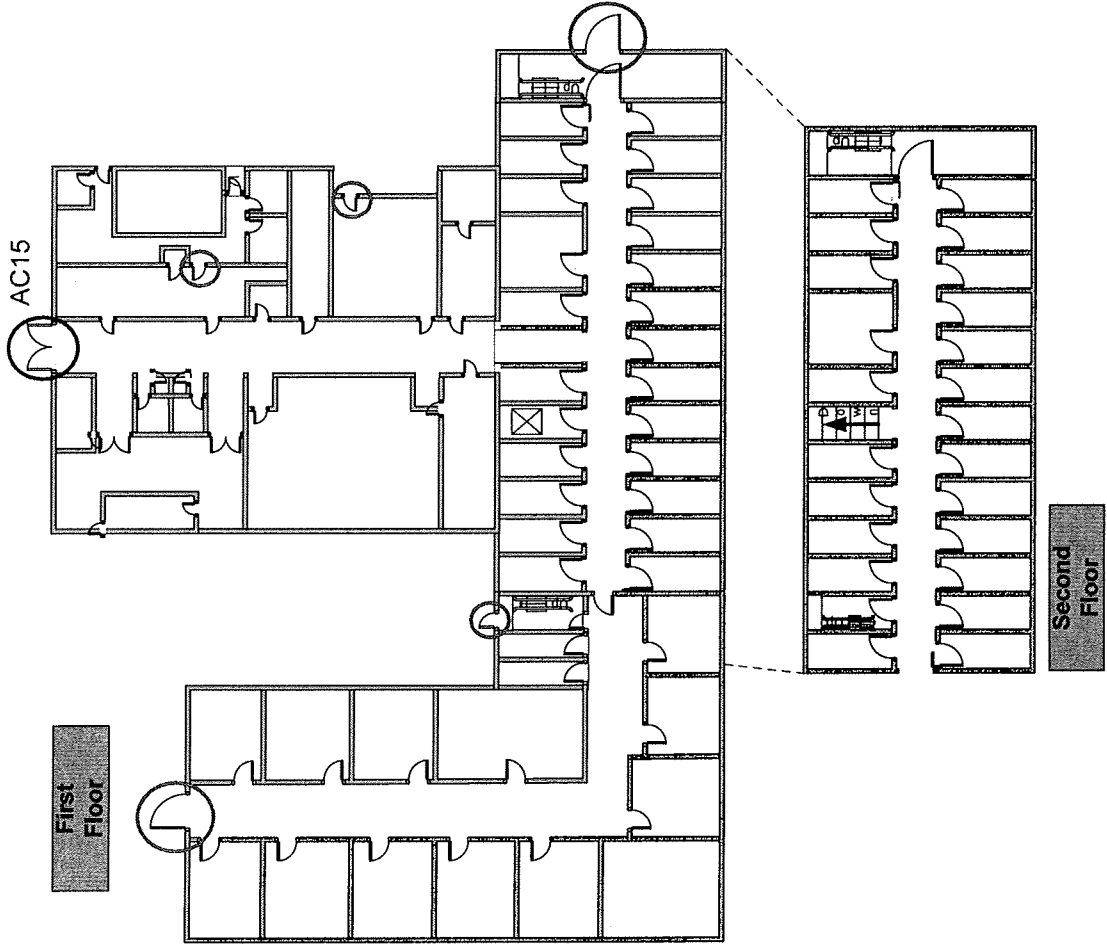
	Access Control
	Door Monitoring only
	Network/AC Location

Sequoyah High School
Bld 117 Technology Building
Access Control Layout
05/24/2019 Doug Clark






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<input type="radio"/>	Door Monitoring only
<input checked="" type="checkbox"/>	Network/AC Location

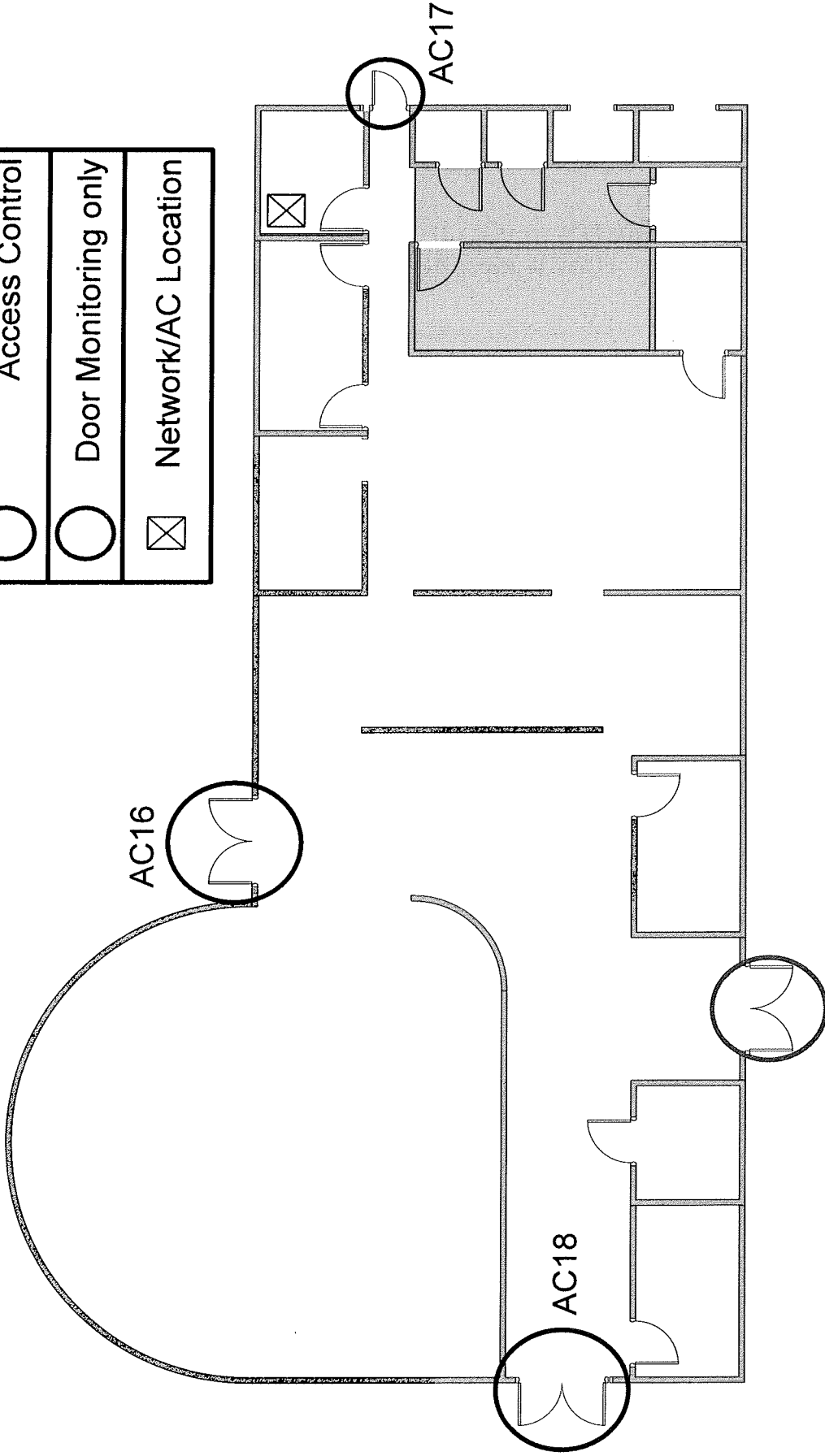
Sequoyah High School
 Bldg 97 Boys Dorm
 Access Control Layout
 05/24/2019 Doug Clark



	Access Control
	Door Monitoring only
	Network/AC Location

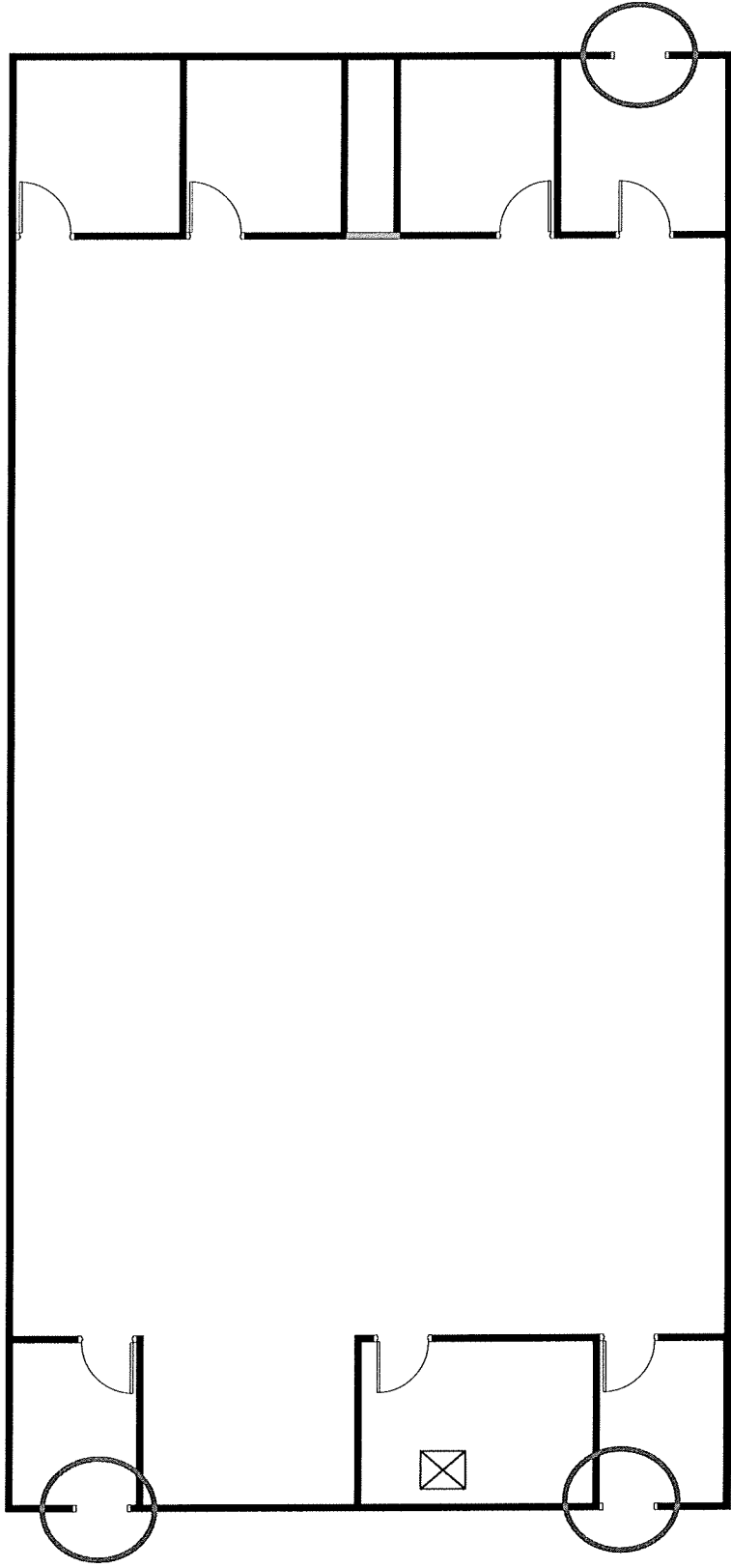
Sequoyah High School
 Bldg 98 Girls Dorm
 Access Control Layout
 05/24/2019 Doug Clark

	Access Control
	Door Monitoring only
	Network/AC Location

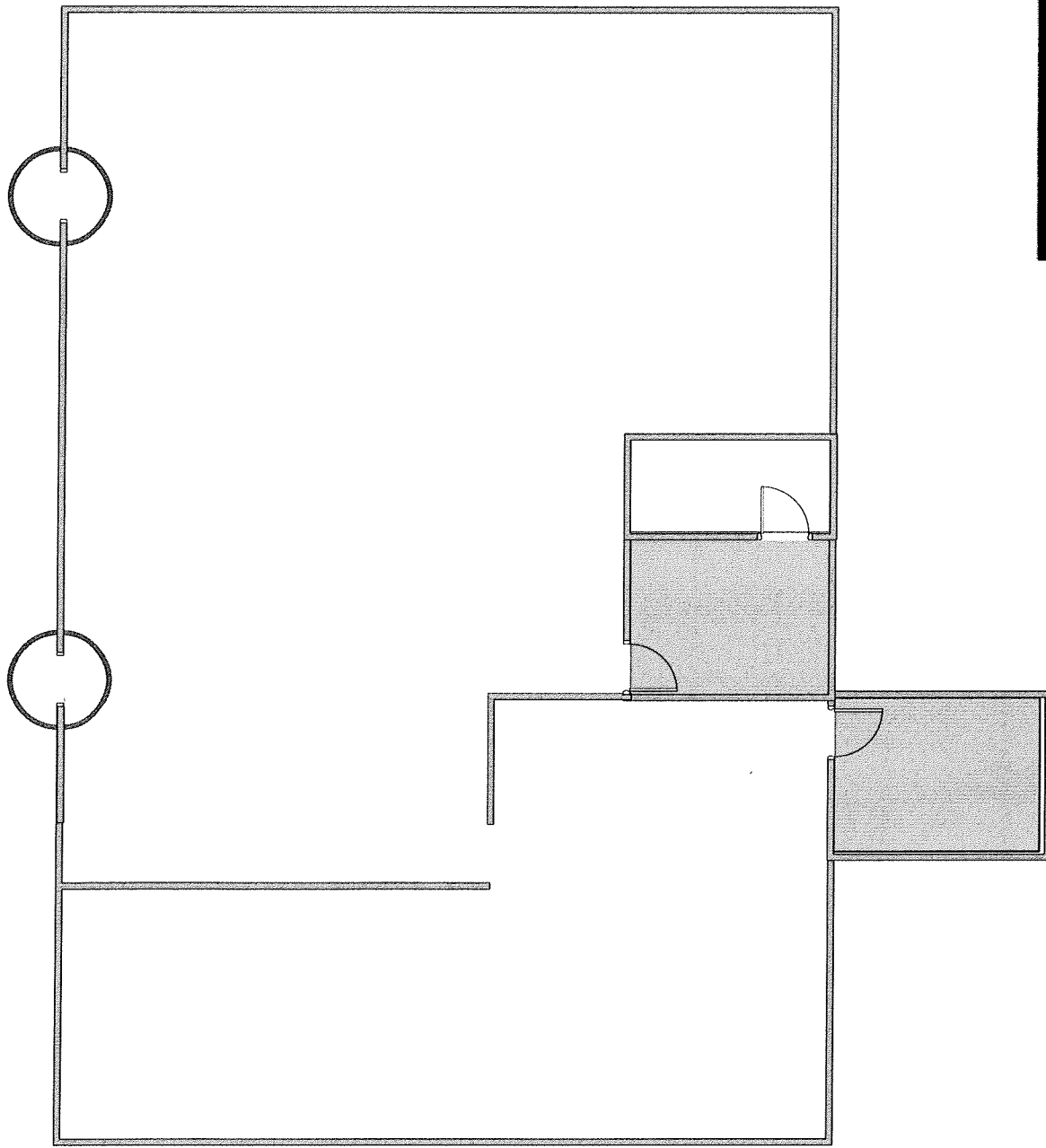





Sequoyah High School
 Bldg 114 Cafeteria
 Access Control Layout
 05/24/2019 Doug Clark

○	Access Control
○	Door Monitoring only
⊠	Network/AC Location

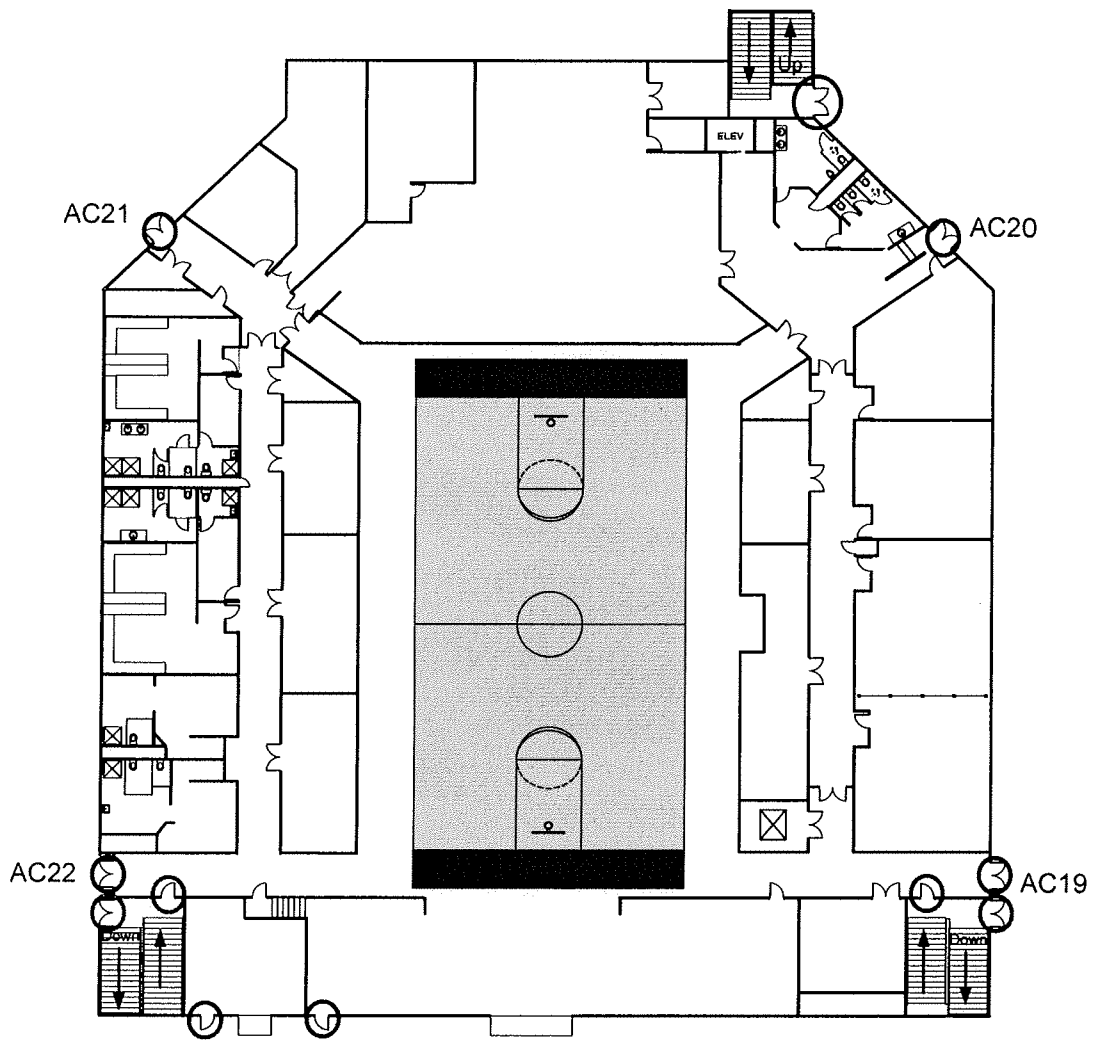





Sequoyah High School
 Bldg 115 Storm Shelter
 Access Control Layout
 05/24/2019 Doug Clark



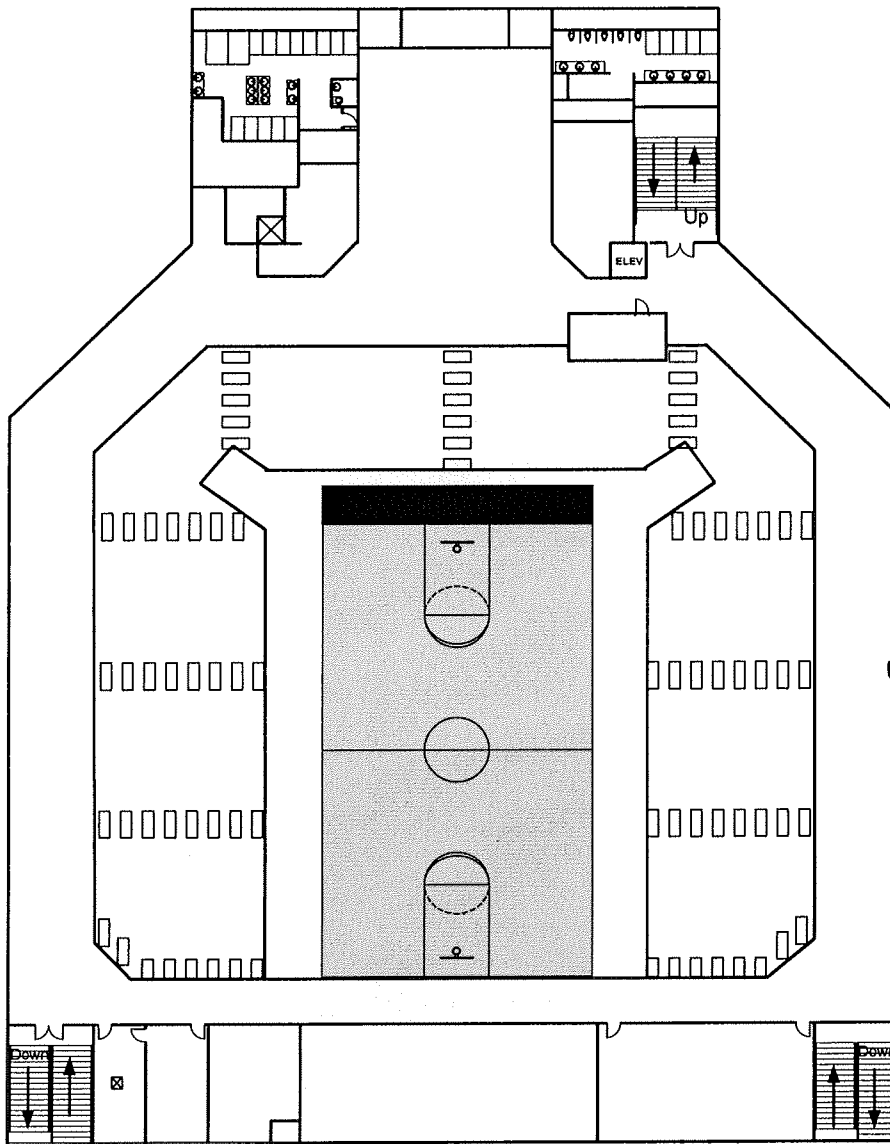
	Access Control
	Door Monitoring only
	Network/AC Location

Sequoyah High School
Bld 13 Robotics Building
Access Control Layout
01/07/2021
Doug Clark



	Access Control
	Door Monitoring only
	Network/AC Location

Sequoyah High School
 Multipurpose Activity Center
 Downstairs
 Access Control Layout
 05/24/2019 Doug Clark



○	Access Control
◌	Door Monitoring only
⊗	Network/AC Location

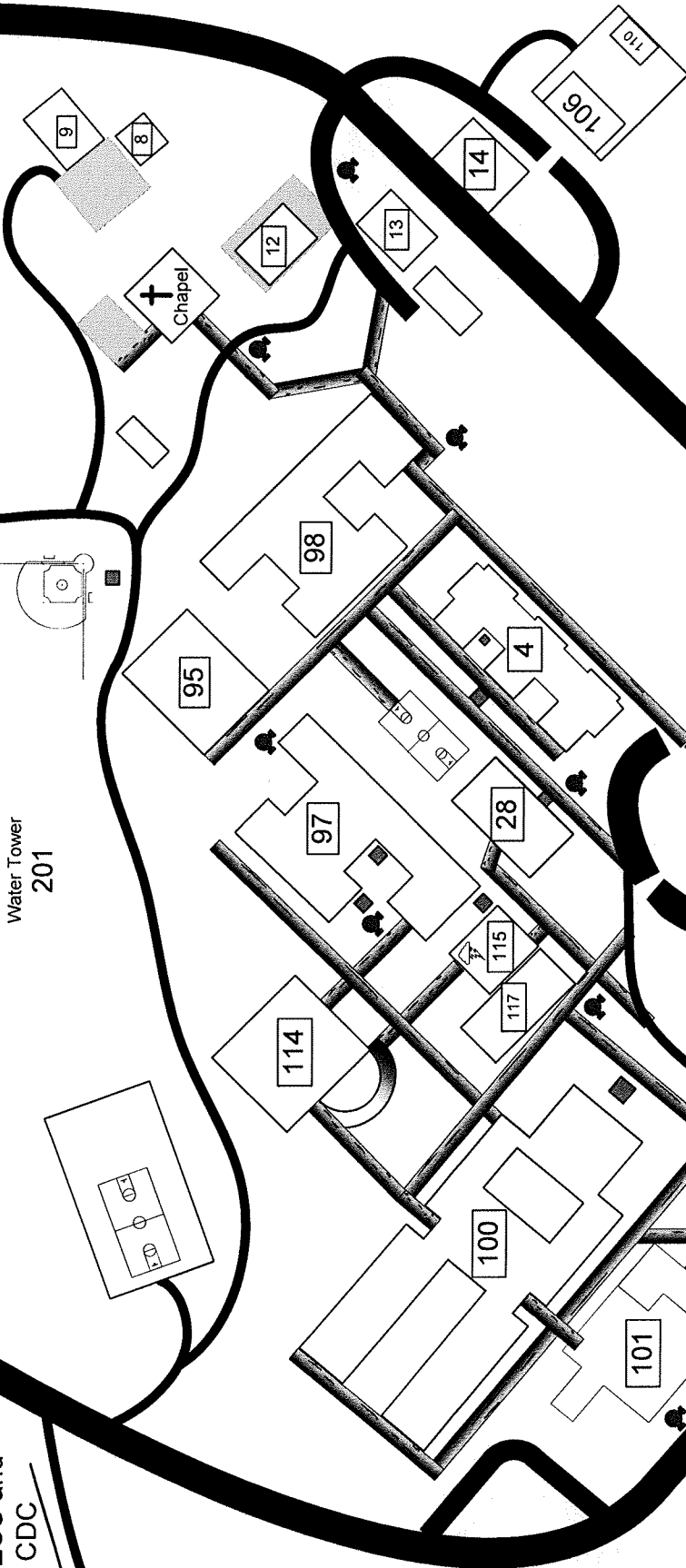
Sequoyah High School
 Multipurpose Activity Center
 Upstairs
 Access Control Layout
 05/24/2019 Doug Clark

U.S. Highway 62



Water Tower
201

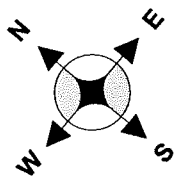
To ECU and
CDC



- Legend**
- 004 Jack Brown Center
 - 008 Classroom
 - 009 Jack Brown Residence
 - 012 Storage
 - 013 Storage
 - 014 SHS Facility Shop
 - 028 Recreation
 - 033 Refreshments
 - 095 Storage
 - 097 Dormitory
 - 098 Dormitory
 - 100 School Admin./Classrooms
 - 101 Old Gymnasium
 - 102 Science Building
 - 106 Shed
 - 110 Storage
 - 112 Field House
 - 113 Stadium
 - 114 Cafeteria
 - 115 Storm Shelter
 - Activity Center

To Golf
Course

Track
and
Field



Revised 2006
Risk Management



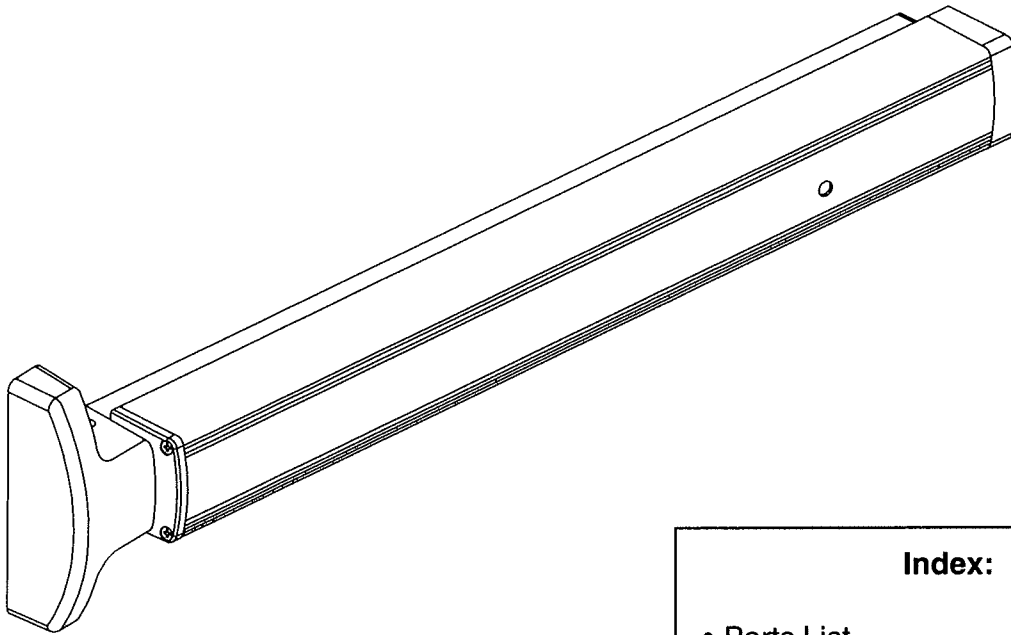
1690 Touchbar

FALCON®

ININST.1002

Concealed Vertical Rod Panic Device

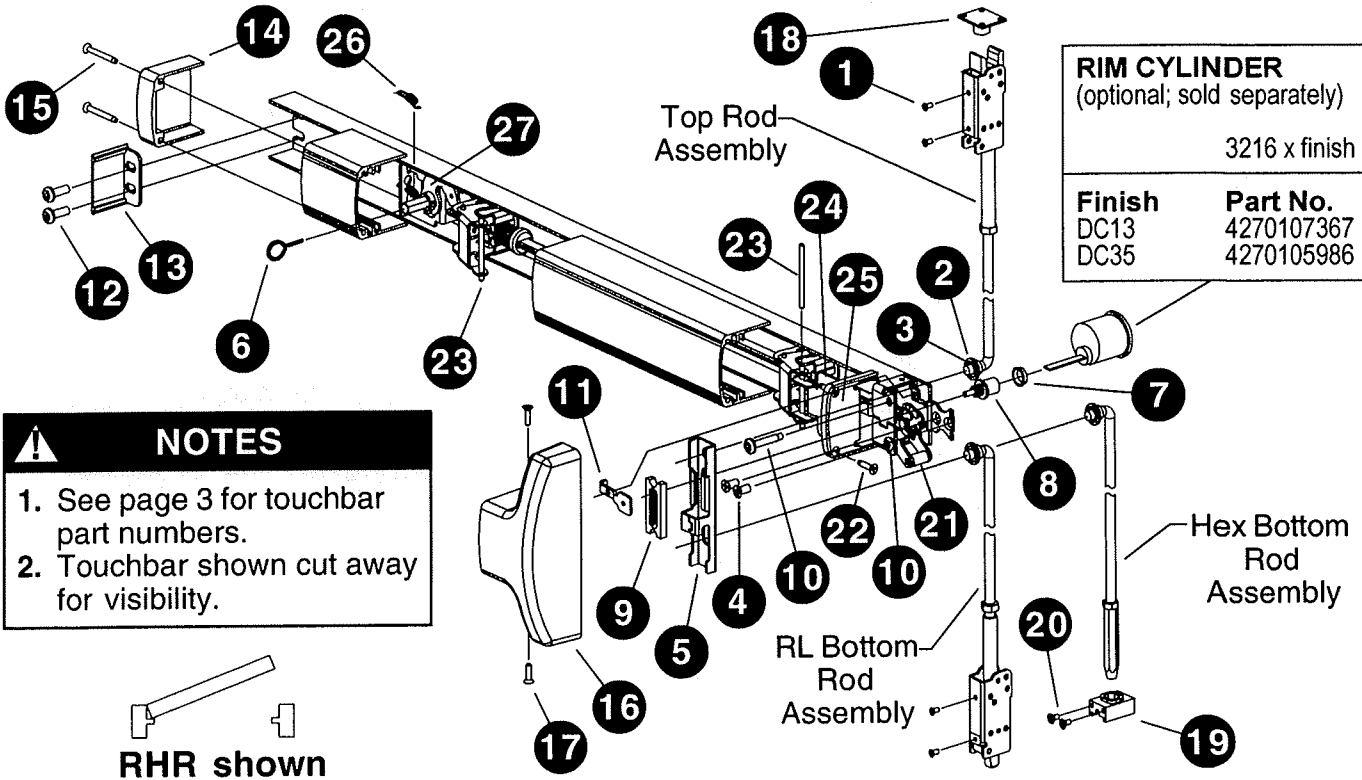
Installation Instructions



NOTE: The door prep for the 1690 Hex Bottom Rod is different than for the RL bottom rod. Please verify rod type in package and prep required (page 16) before prepping the door.

Index:	
• Parts List	2
• Touchbar Part Numbers	3
• Before Installation	3
• Installation	4
• Touchbar Dogging	10
• Setting Rod Lengths	11
• Re-handing Device	11
• Field Sizing Device	12
• 1990 Retrofit Instructions	14
• Template	16

PARTS LIST



RIM CYLINDER (optional; sold separately)	
3216 x finish	
Finish	Part No.
DC13	4270107367
DC35	4270105986

NOTES

- See page 3 for touchbar part numbers.
- Touchbar shown cut away for visibility.



Package No. PKG.150 (US28 finish) or Package No. PKG.151 (DC13/DC35 finish)

Item	Qty	Description	Part No.
1	4	#10-32 x 1/4" UFPHMS US28 finish (Pkg-10) DC13/DC35 finish (Pkg-10)	SCREW.1028 SCREW.1029
2	2	Rod bearing bushing (Pkg-10)	BUSH.109
3	4	Retaining ring (Pkg-25)	RRING.109
4	2	1/4-20 x 1/2" FPHMS (Pkg-10)	SCREW.1069
5	1	Traveler liftbracket	BRKT.138
6	1	5/32" hex dogging key (Pkg-10)	KEY.10020

Package No. COVER.113

Item	Qty	Description	Part No.
16	1	Center case cover	not sold separately
17	2	#8 x 5/8" PPHTC Sems (Pkg-10)	SCREW.1025

Package No. PB48
Note: Contains strike, three shims, and four mounting screws.

Item	Qty	Description	Part No.
18	1	Strike US28 finish P13 finish P35 finish	4270108353 4270108354 4270108355

Package No. 169CA
Note: Optional. Required with rim cylinder only.

Item	Qty	Description	Part No.
7	1	Cylinder bushing (Pkg-10)	BUSH.102
8	1	Pinion cam	4270903177
9	1	Retractor	RETRACT.101
10	1	Retainer screw (Pkg-10)	SCREW.1074
11	1	Pinion support bracket	BRKT.478

Package No. 4270107176 (US28 finish) or Package No. 4270107178 (DC13/DC35 finish)

Item	Qty	Description	Part No.
19	1	Hex rod guide	not sold separately
20	2	#10-24 x 3/8" UFPHTC Typ F Stl US28 finish DC13/DC35 finish	not sold separately not sold separately

Package No. 4270902993
Note: For use with EO and DT devices only.

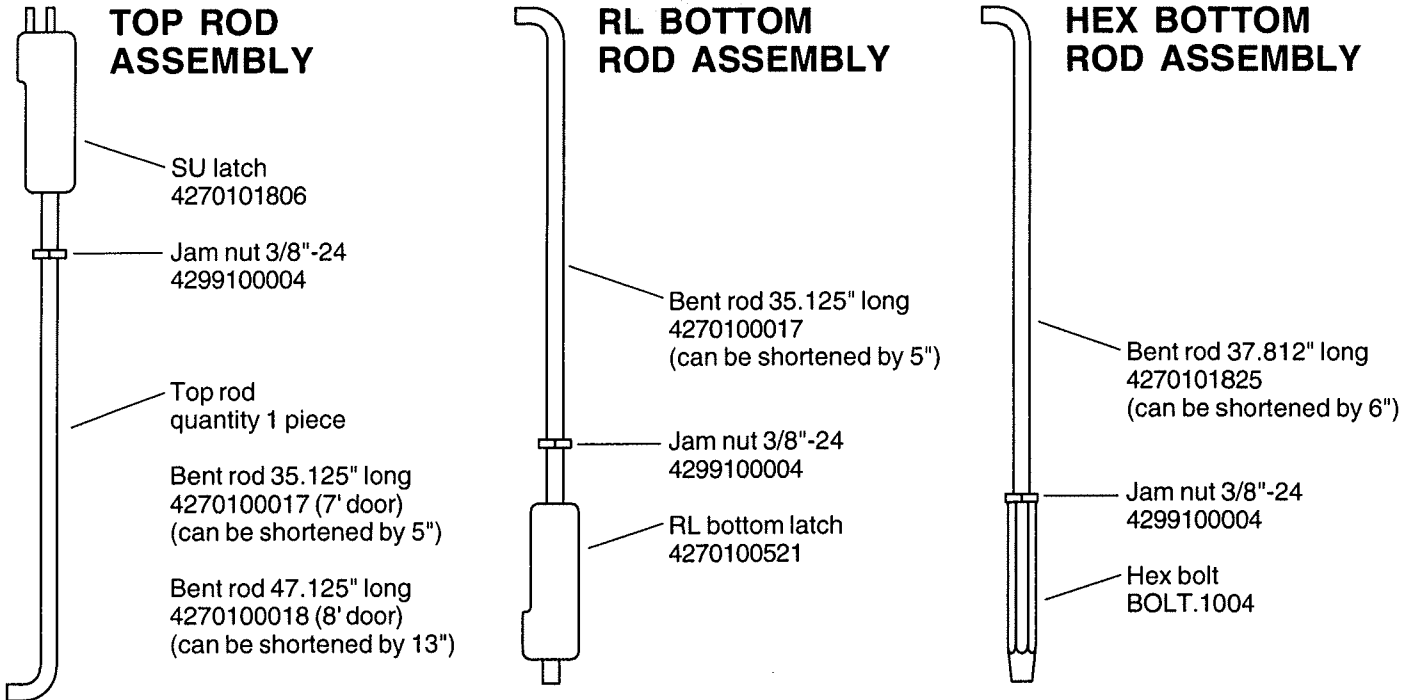
Item	Qty	Description	Part No.
10	1	Retainer screw (Pkg-10)	SCREW.1074
11	1	Pinion support bracket	BRKT.478

Item	Qty	Description	Part No.
21	1	Lift arm	BRKTASY.107
22	2	#8 x 3/4" FPHTF (Pkg-10)	SCREW.1077
23	2	Touchbar pin (Pkg-10)	PIN.128
24	2	Touchbar anchor	BRKT.128
25	1	Lock stile touchbar end cap	ECAP.129
26	1	Dogging spring	971493-76
27	1	Dogging assembly	KIT.1197

Package No. ECAP.130

Item	Qty	Description	Part No.
12	2	1/4-20 x 1/2" PPHTC (Pkg-10)	SCREW.1070
13	1	Channel end cap	not sold separately
14	1	Hinge stile touchbar end cap	not sold separately
15	2	#8 x 1-1/4" FPHTF (Pkg-10)	SCREW.1072

PARTS LIST (CONTINUED)



TOUCHBAR PART NUMBERS

Finish	30" Nominal Device Length (24.785" Extrusion Length)		36" Nominal Device Length (30.785" Extrusion Length)		42" Nominal Device Length (36.785" Extrusion Length)		48" Nominal Device Length (42.785" Extrusion Length)	
	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole
DC13	EXT.825	EXT.828	EXT.399	EXT.609	EXT.439	EXT.736	EXT.443	EXT.739
DC35	EXT.826	EXT.829	EXT.400	EXT.631	EXT.441	EXT.737	EXT.444	EXT.740
US3	EXT.2323	EXT.2351	EXT.2324	EXT.2355	EXT.2341	EXT.2359	EXT.2298	EXT.2363
US10	EXT.2333	EXT.2352	EXT.2334	EXT.2356	EXT.2345	EXT.2360	EXT.2303	EXT.2364
US26	EXT.2338	EXT.2353	EXT.2339	EXT.2357	EXT.2349	EXT.2361	EXT.2304	EXT.2365
US26D	EXT.2340	EXT.2354	EXT.2289	EXT.2358	EXT.2350	EXT.2362	EXT.2294	EXT.2366
US28	EXT.830	EXT.827	EXT.398	EXT.608	EXT.438	EXT.646	EXT.442	EXT.738

BEFORE INSTALLATION

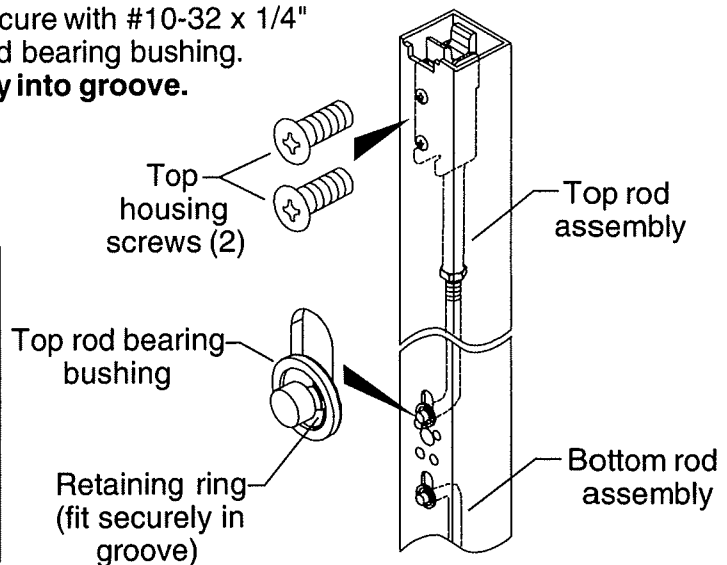
1. Check "Parts List" (see page 2).
2. Prepare door using template on page 16.
3. Set initial rod lengths (see page 11). Rods are factory set for standard 7' door.
4. If door width is non-standard, cut device (see page 12).
5. If necessary, re-hand device (see page 11).

INSTALLATION

1 Install rod assemblies.

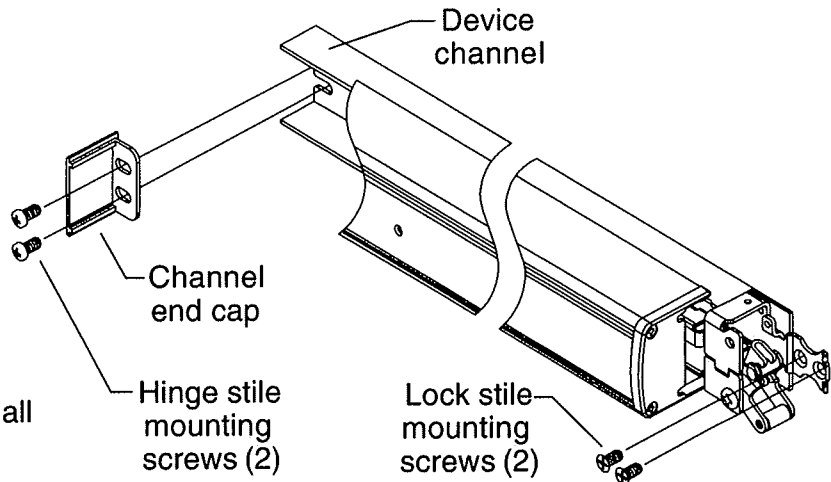
- 1.1. Install top rod assembly into door. Secure with #10-32 x 1/4" housing screws, retaining ring, and rod bearing bushing.
Make sure retaining ring fits securely into groove.
- 1.2. Install bottom rod assembly into door same as top rod assembly.

NOTE
For hex bottom rod, hex guide mounting holes are horizontal. Use two #10-24 x 3/8" mounting screws provided in hex mounting package to mount hex guide. Discard two extra #10-32 x 1/4" mounting screws in device mounting package.

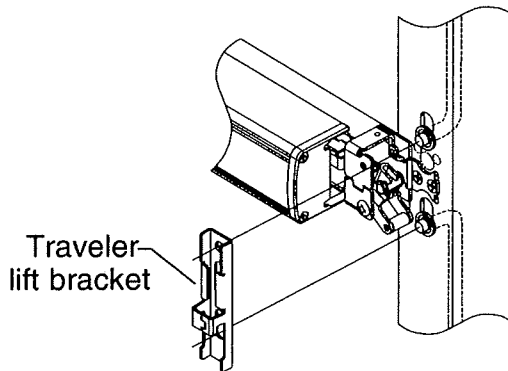


2 Mount device.

- 2.1. Start two 1/4-20 x 1/2" pan head hinge stile mounting screws in channel end cap. Leave screws loose.
- 2.2. Slide device channel under channel end cap aligning channel slots.
- 2.3. Attach lock stile of device to door using two 1/4-20 x 1/2" flat head lock stile mounting screws and tighten securely all four mounting screws.

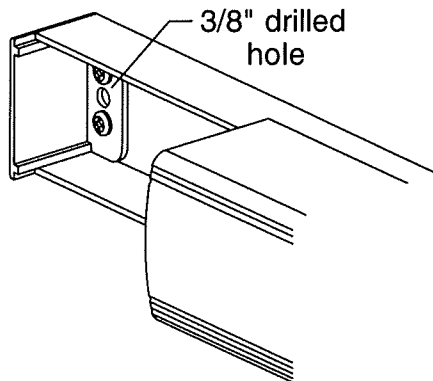


3 Install traveler lift bracket over rod ends as shown.



4 Prepare hole and wire EL/RX device. (If device is not EL/RX, go to Step 5.)

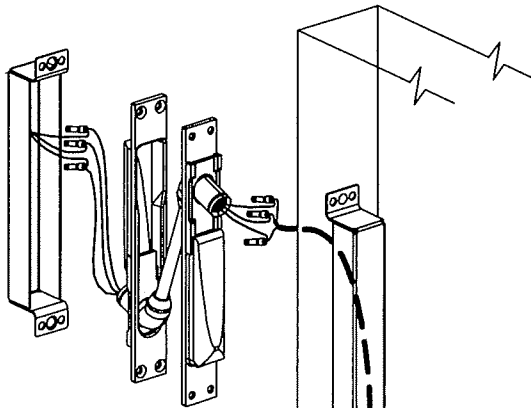
4.1. Drill 3/8" diameter hole for EL/RX wiring through channel end cap, channel, and inside face of door.



NOTE

Hole must be free of burrs.

4.2. Wire RX switch as shown below. For EL wiring, go to Step 4.3.



Electric power transfer
(EPT-2 part No. 012011
EPT-10 part No. 012012)

- The RX switch is activated when the touchbar is depressed.
- Use the Von Duprin EPT-10 power transfer (for three wires), EPT-2 power transfer (for two wires), electric hinge, electric pivot, or door loop to transfer the wiring from the door to the frame.
- Connect the power transfer wires and switch assembly wires with crimp connectors. Unused wires should be insulated separately.



NOTE

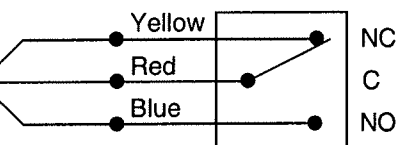
The RX switch is available only as a factory installed item. Part No. WIRE.1001 can be used only to replace the factory installed RX switch.



CAUTION

Wiring must be pulled tight so cable will not interfere with touchbar and channel movement.

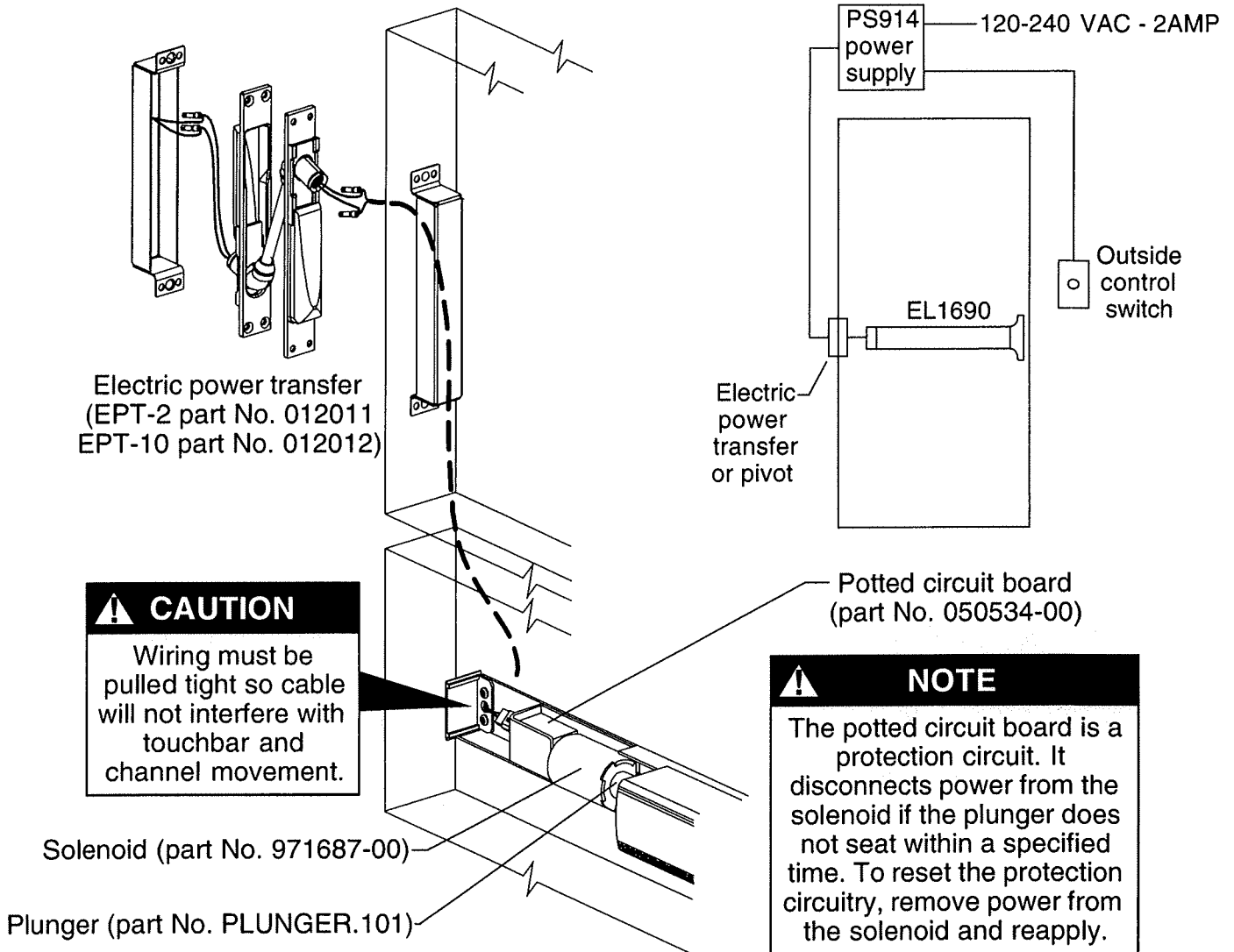
RX switch
(part No. WIRE.1001)



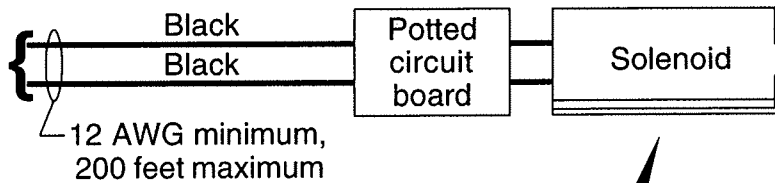
Switch shown not activated
(touchbar not depressed)

Touchbar

4.3. Wire EL solenoid as shown below. All EL1690 devices are fail secure.



Solenoid must be wired to a PS914 power supply with a 900-2RS or 900-4RL option board installed.



Electrical Specifications

Voltage: 24 VDC
 Current: 16 A inrush (0.3 sec.)
 0.25 A holding

5 Adjust rods.

Top Rod Adjustment

- 5.1. Dog the device. If it dogs and undogs freely, go to Step 5.2. If it does not, the top rod is too long. To determine how much to shorten the top rod:
- Undog the device.
 - Hold the top rod all the way up and push the lift arm to the bottom of its travel with the touchbar completely out.
 - Measure the distance between the bottom of the traveler projection and the top of the lift arm roller (see Figure 5-1).
 - Subtract the distance from 1/2".
 - Using the difference from Step D, find the number of turns to shorten the top rod from the "Rod Adjustment Table" below.
 - Remove the top rod and shorten it by the required number of turns. Reinstall the top rod.
- 5.2. Dog the device and push the traveler against the lift arm while maintaining pressure on the traveler. Attempt to pivot the top latch bolt (See Figure 5-2). If the top latch bolt pivots freely, go to Step 5.3. If the top latch bolt drags or lifts the top rod, the top rod is too short. To determine how much to lengthen the top rod:
- Push the traveler all the way down then slowly lift it away from the lift arm until the top latch bolt moves freely.
 - Measure the distance between the bottom of the traveler projection and the top of the lift arm roller (see Figure 5-1).
 - Using the measured distance, find the number of turns to lengthen the top rod from the "Rod Adjustment Table" below.
 - Remove the top rod and lengthen it by the required number of turns. Reinstall the top rod.

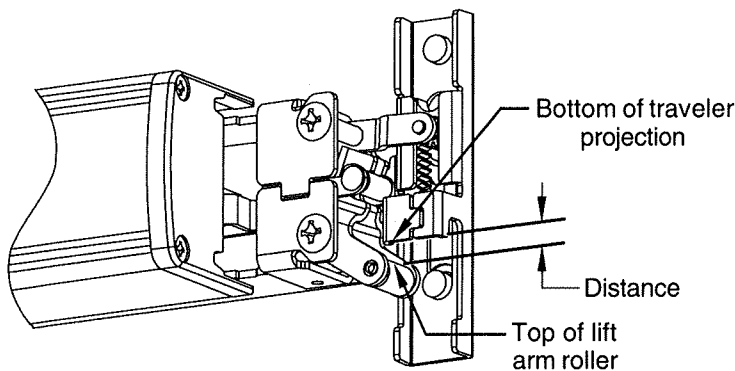


Figure 5-1

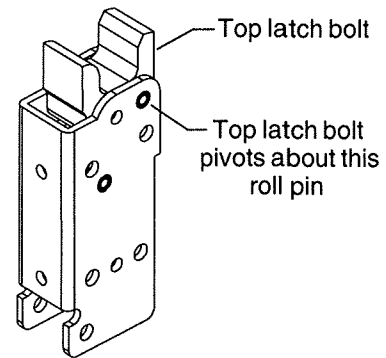


Figure 5-2

Rod Adjustment Table																
Distance	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	9/32"	5/16"	11/32"	3/8"	13/32"	7/16"	15/32"	1/2"
No. of Turns	1	2	3	3	4	5	6	6	7	8	9	9	10	11	12	12

Bottom Rod Adjustment

- 5.3. Undog the device and push down firmly on the lift arm and on the end of the bottom rod (be sure the touchbar is all the way out). Find the distance of the bottom rod from the bottom of the door. Make sure you measure from the bottom of the door, **not** from the latch housing. If the bottom rod is flush with the door or sticks out from the door no more than 1/32" go to **Step 7**.
- 5.4. If the bottom rod sticks out more than 1/32" the bottom rod is too long. To determine how much to shorten the bottom rod:
- Measure the distance that the bottom rod sticks out of the door and look up the number of turns required to shorten the bottom rod in the "Rod Adjustment Table."
 - Remove the bottom rod, shorten it by the required number of turns, and reinstall the bottom rod.
- 5.5. If the bottom rod is recessed into the door by more than 1/16" the bottom rod is too short. To determine how much to lengthen the bottom rod:
- Measure the distance that the bottom rod is recessed into the door and look up the number of turns required to lengthen the bottom rod in the "Rod Adjustment Table."
 - Remove the bottom rod, lengthen it by the required number of turns, and reinstall bottom rod.

6 Install outside cylinder. (If no outside cylinder, go to Step 8.)

- 6.1. Remove traveler lift bracket and axle (Figure 6-1).
- 6.2. Cut cylinder tailpiece to correct length (Figure 6-2).
- 6.3. Install cylinder into door and secure with two mounting screws. Screws must be flush with surface of door.

NOTE
The lift arm should remain attached to the device. Removing the axle simplifies Step 6.2.

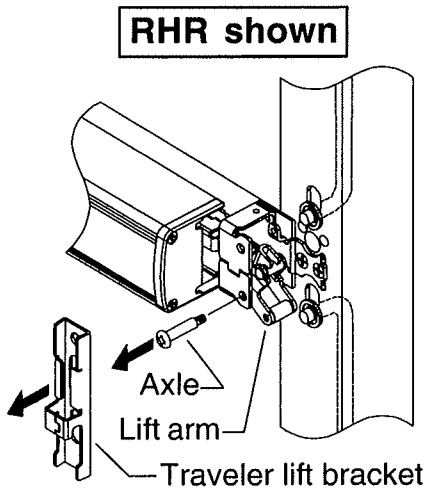


Figure 6-1

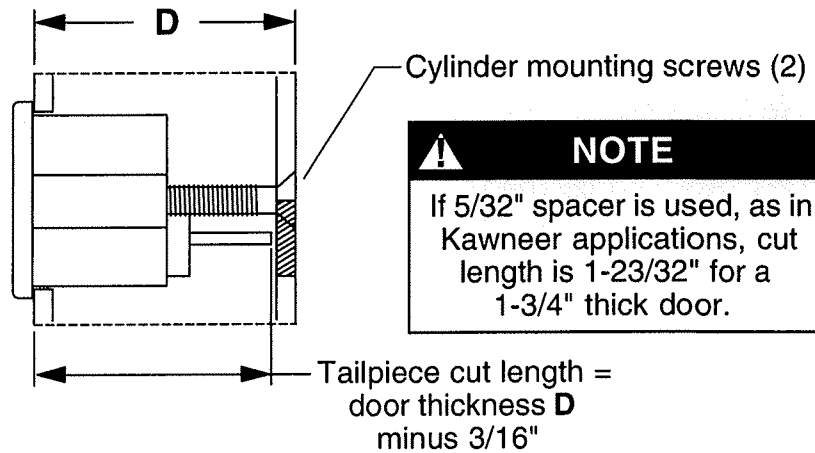


Figure 6-2

7 Install pinion cam, retractor, and traveler lift bracket (for outside cylinder only).

- 7.1. With cylinder in locked position and key removed, install cylinder bushing and pinion cam into hole (Figure 7-1). Orient pinion cam as shown.
- 7.2. Install retractor into traveler under tabs and place over rods (Figure 7-2). **Position retractor as shown for NL or HB function (Figure 7-3).**

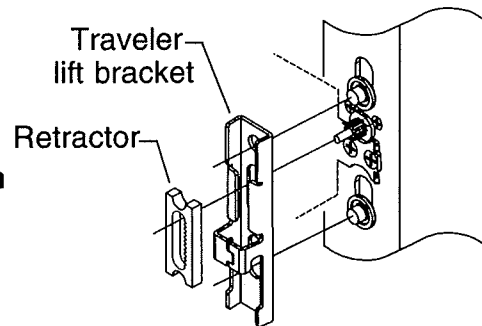
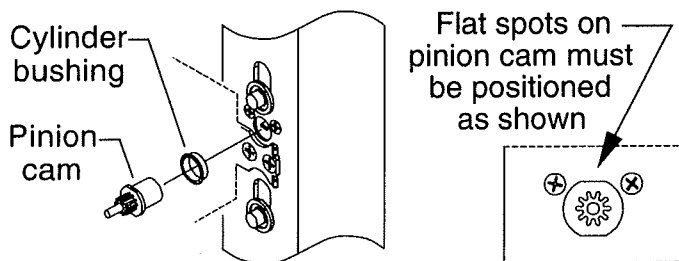
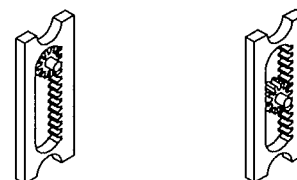


Figure 7-2



NOTE
Apply a light coating of Duralub or equivalent lubricant to prolong life of pinion cam.

Figure 7-1



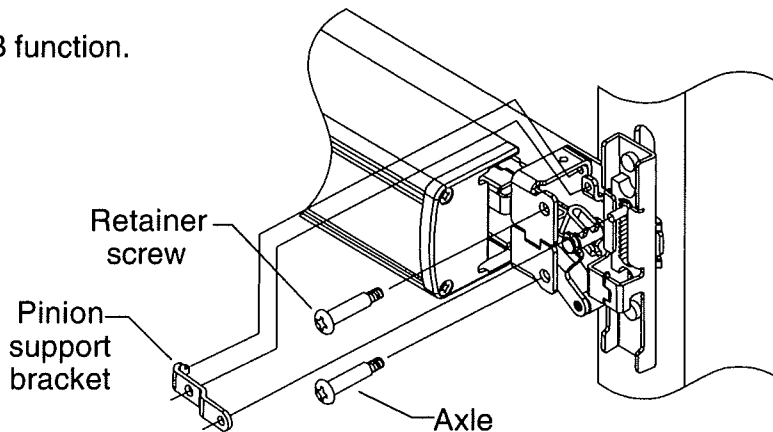
Hold back (HB) Night latch (NL)
Install retractor with teeth to right as shown for both RHR and LHR doors; this makes all keys function in the same direction

Figure 7-3

8 Install pinion gear support bracket, retainer screw, and axle.

8.1. Install pinion gear retainer, retainer screw, and axle. (Retainer screw and axle are interchangeable.)

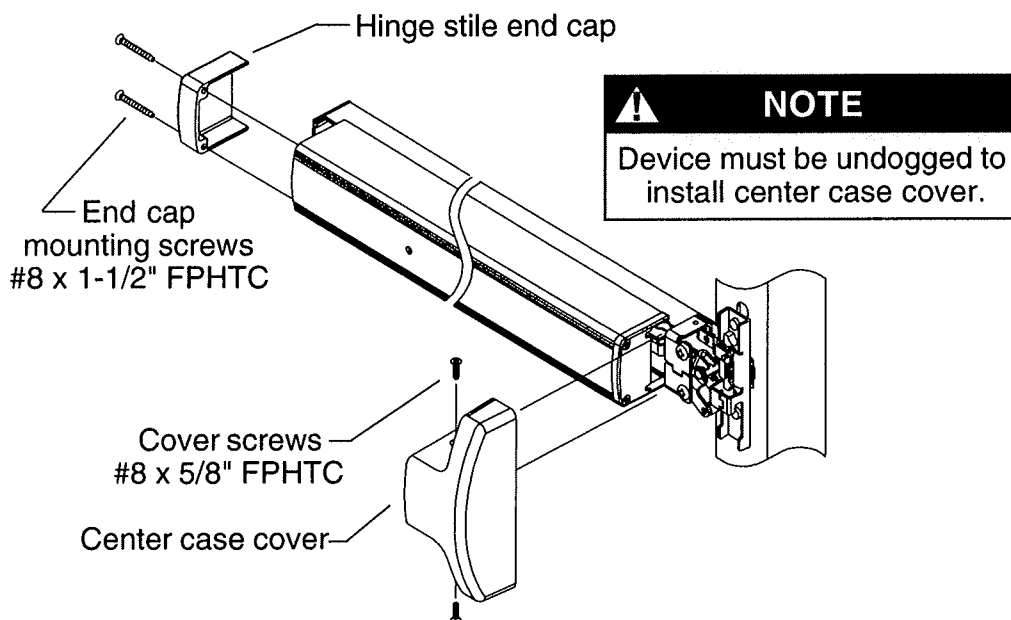
8.2. Test NL or HB function.



9 Install covers.

9.1. Install center case cover over center case and tighten securely with two (#8 x 5/8" FPHTC) cover screws.

9.2. Place hinge stile end cap over pushbar and secure with two (#8 x 1-1/2" FPHTC) end cap mounting screws.



10 Perform functional check.

10.1. Press touchbar and release so top latch locks forward. Bottom latch bolt should be flush to within 1/32" to bottom of door.

10.2. Dog device. Top latch should pivot freely.

TOUCHBAR DOGGING



NOTE

These instructions are for touchbar dogging of **new style** DOM 1690 devices. **New style** devices have two cover screws installed vertically into the center case cover. (Old style devices have four cover screws installed horizontally into the center case cover.)

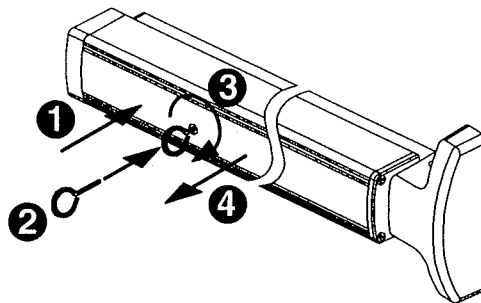


NOTE

EL (electric latch retraction) devices cannot be mechanically dogged using the touchbar. If mechanical hold back is required in addition to electric latch hold back, use the pull side HB key cylinder option.

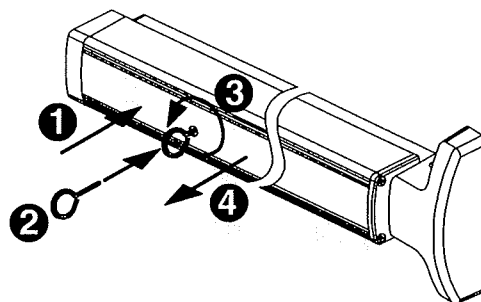
To Dog Device (hold latch retracted)

1. Depress touchbar with hand and maintain pressure on touchbar.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn clockwise.
4. Release pressure on touchbar (touchbar will remain depressed to door).



To Undog Device (panic latch locks upon closing)

1. Depress touchbar with hand and maintain pressure on touchbar.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn counterclockwise.
4. Release pressure on touchbar (touchbar will extend from door).



SETTING ROD LENGTHS

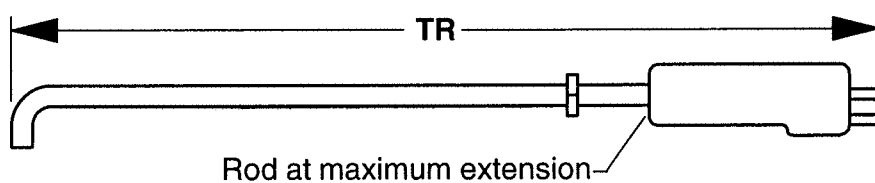


NOTE

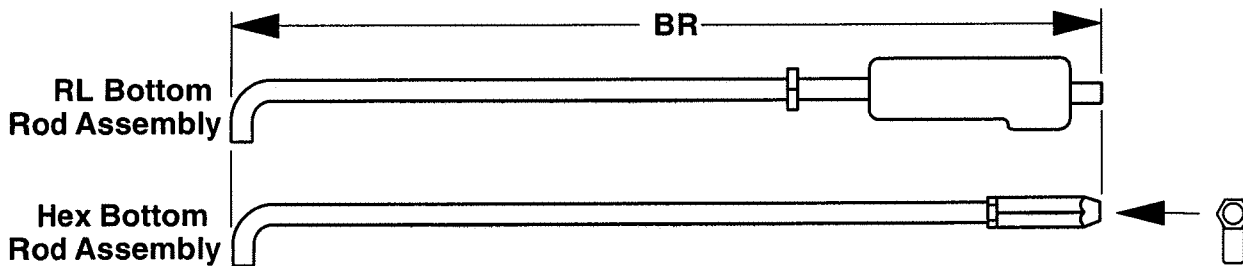
Factory length settings are for standard 7' door (door height = 83.187") with **C** dimension = 41.313":
TR = 41-7/32" (41.219") and **BR** = 39-25/32" (39.781")

1. Determine top rod set length TR: **TR = door height - C - 0.655"**

where **C** = distance from center line of pinion to bottom of door (template standard is 41-5/16").



2. Set top rod to nearest 1/32" as determined in Step 1. Jamb nut must be tightened so bent end of rod is parallel to sides of latch housing.
3. Determine overall bottom rod length BR: **BR = C - 1.532"**



4. Set bottom rod to nearest 1/32" as determined in Step 3. For RL bottom rod assembly, jamb nut must be tightened so bent end of rod is parallel to sides of latch housing. For hex bottom rod assembly, jamb nut must be tightened so bent end of rod is perpendicular to flat on hex bolt (see end view).

End View
 Rod end must be parallel to flat on hex bolt

RE-HANDING DEVICE

1. Remove axle (Figure 1).
2. Remove lift arm and reinstall on opposite side (Figure 2).
3. Reinstall axle and tighten securely (Figure 3).
4. Verify that lift arm moves smoothly when touchbar is depressed.

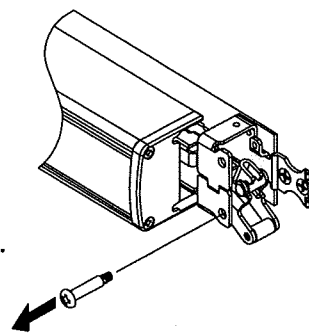


Figure 1

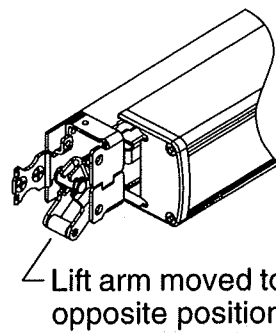


Figure 2

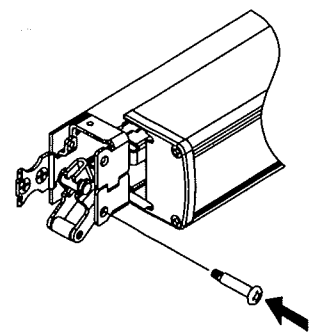


Figure 3

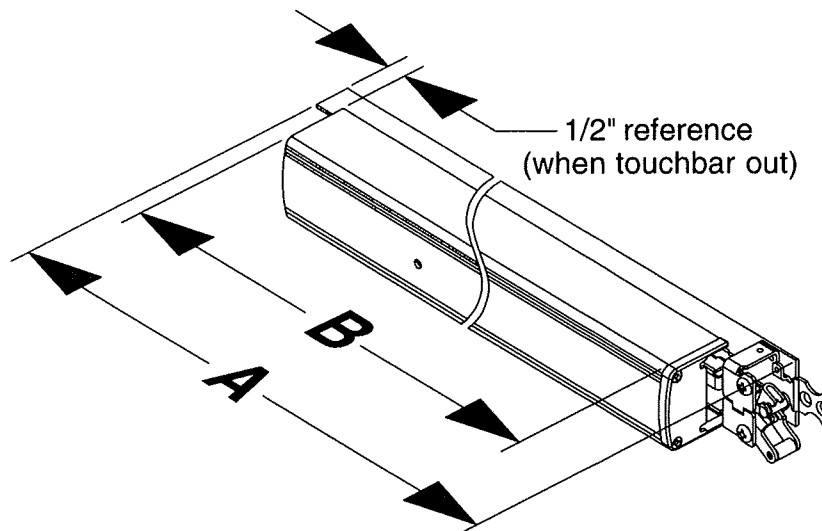
FIELD SIZING DEVICE

Note: These instructions assume a 1/2" blade stop on the door frame.

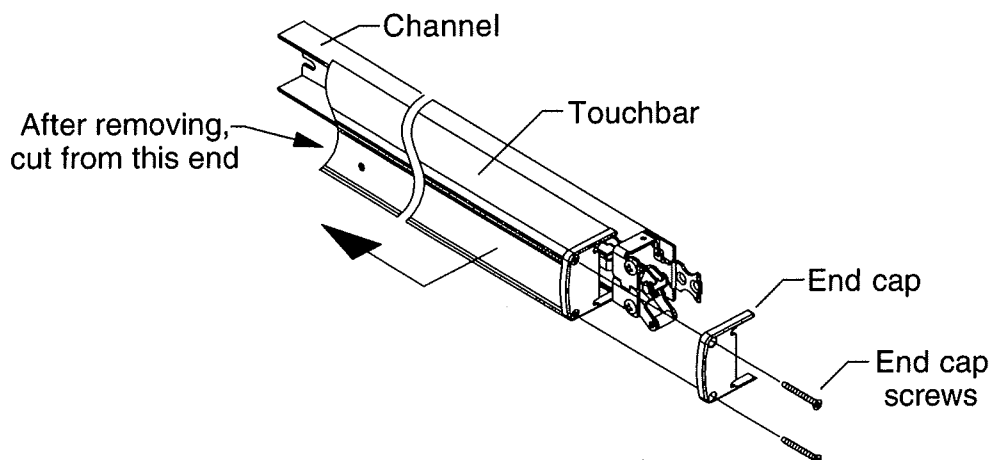
1. Determine door clear opening. This is the distance inside the frame.
2. Determine channel cut length **A**: **A = door opening – 2-27/32"**
3. Verify that **A** determined in Step 2 is not less than minimum **A** dimension listed in table. Standard 1690 devices can be shortened by up to 6". EL devices can be shortened by up to 1.5".

Standard Device Size	Factory Dimension A	Standard Device Minimum Dimension A	EL Device Minimum Dimension A
2' 6"	27.138"	21.138"	25.638"
3' 0"	33.138"	27.138"	31.638"
3' 6"	39.138"	33.138"	37.638"
4' 0"	45.138"	39.138"	43.638"

4. Determine touchbar cut length **B**: **B = door opening – 5-7/32"**



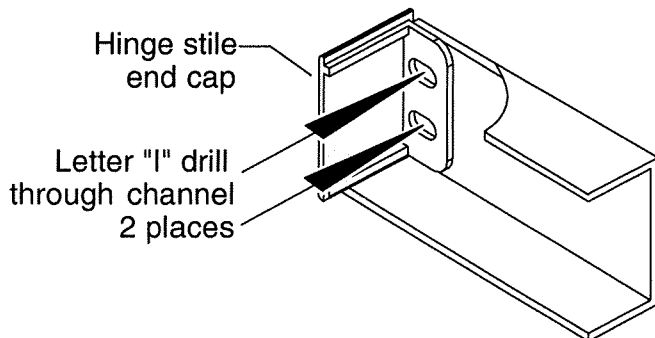
5. Remove two end cap screws, end cap, and touchbar.



6. Cut **hinge side** of touchbar to dimension **B** from Step 4.
7. **Cover device mechanism to keep chips out** and cut channel to dimension **A** from Step 2.

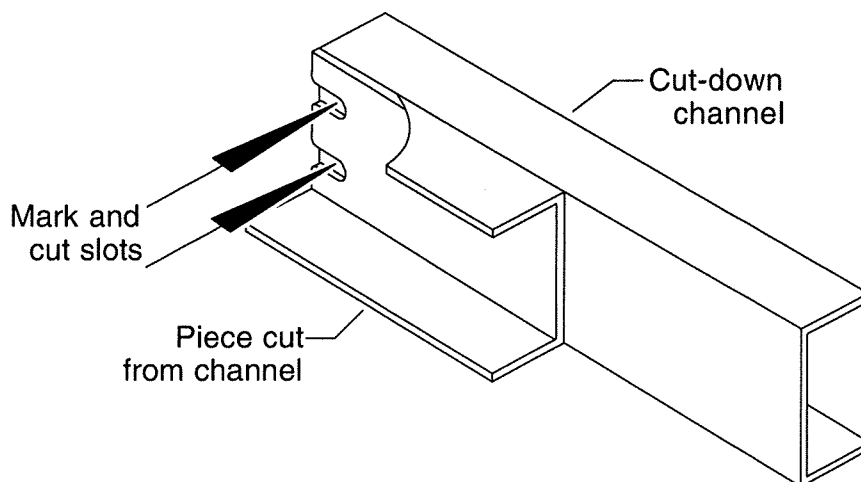
8. If hinge stile has not been prepared for channel hinge stile 1/4-20 mounting screws:

Place hinge stile end cap into hinge end of channel. Drill through the center of end cap slots using a letter "I" drill. These two holes will be used to transfer location of mounting screw holes to hinge stile when device is applied to door.

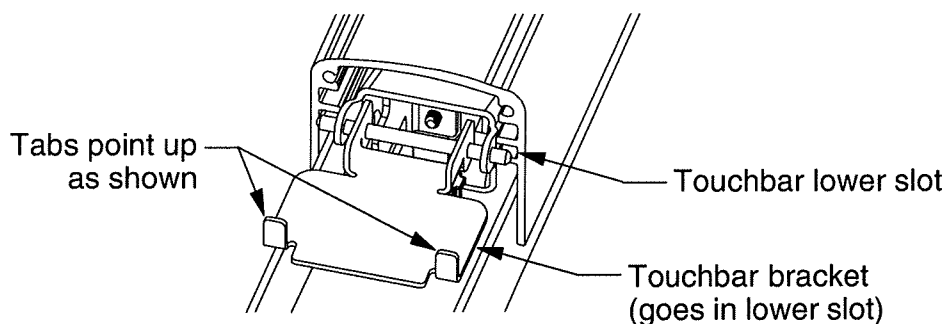


- If hinge stile has been prepared for channel hinge stile 1/4-20 mounting screws:

Using end cut from channel in Step 3 as a template, place backs of channel sections against each other and align ends. Mark slot pattern on the cut-down channel. Following all safety precautions, use a drill and aluminum saw to cut slots in cut-down channel section.



9. Clean debris from touchbar and channel.
10. Slide pushbar over touchbar pins. Make sure to install both pins in lower slot in pushbar. If touchbar bracket is removed, it should be reinstalled with stop tabs turned up away from channel.

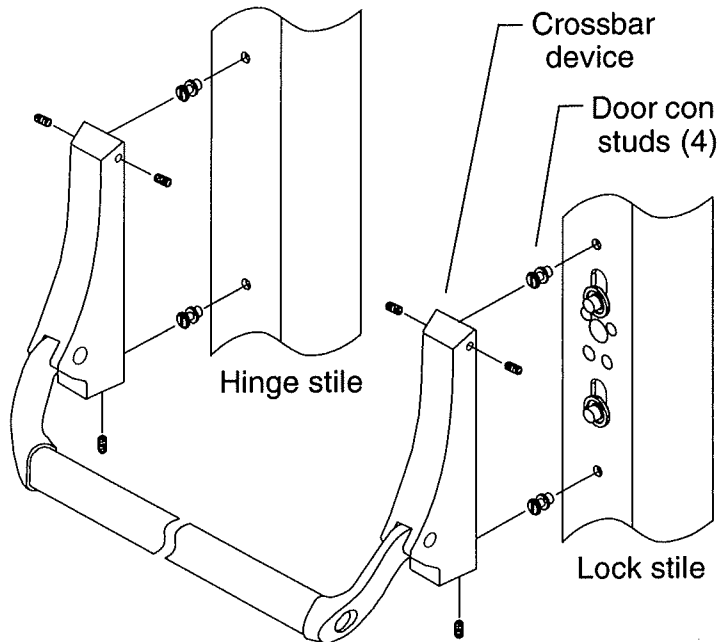


11. Reinstall end cap and screws.

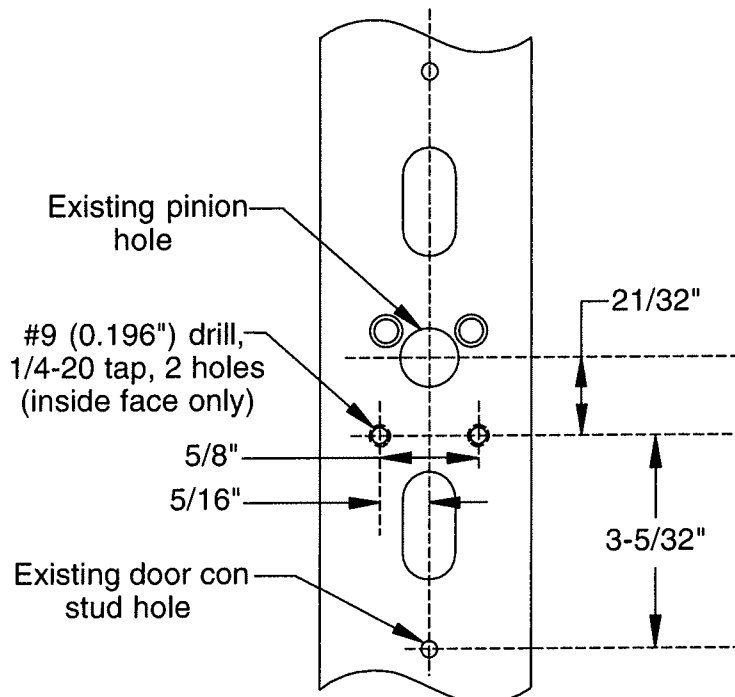
1990 RETROFIT INSTRUCTIONS

1. Remove crossbar device, door con studs, traveler, retractor, pinion, pinion bushing, rod bushings and rings from door.

Note: Pinion, pinion bushing, and retractor present on NL/HB devices only.

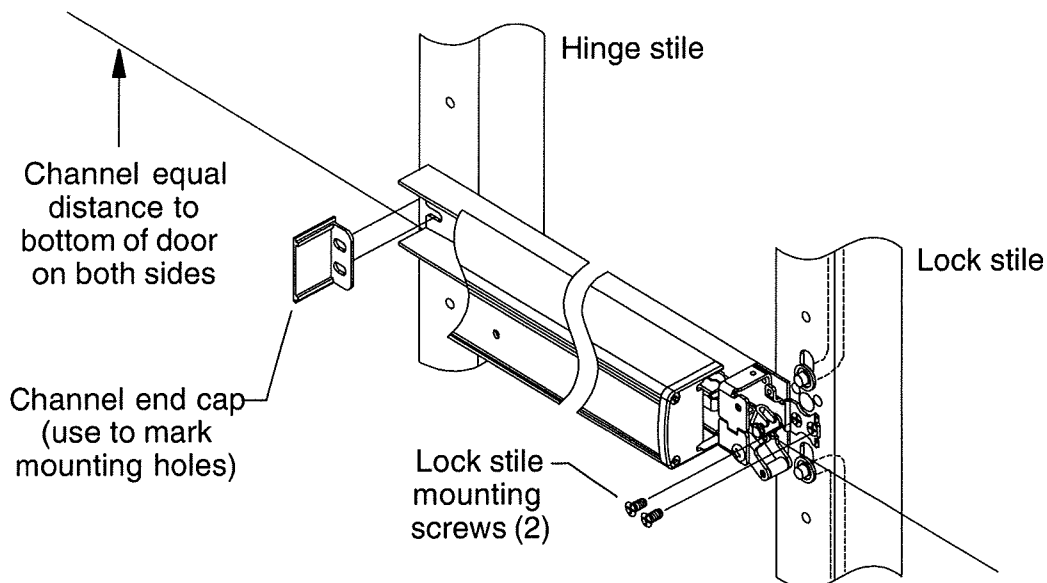


2. If non-standard door width, follow field sizing directions on page 12 to size device to appropriate length.
3. Using existing pinion or door con stud holes as a reference, locate the two 1/4-20 mounting holes on the lock stile. Drill and tap 1/4-20, inside face only.



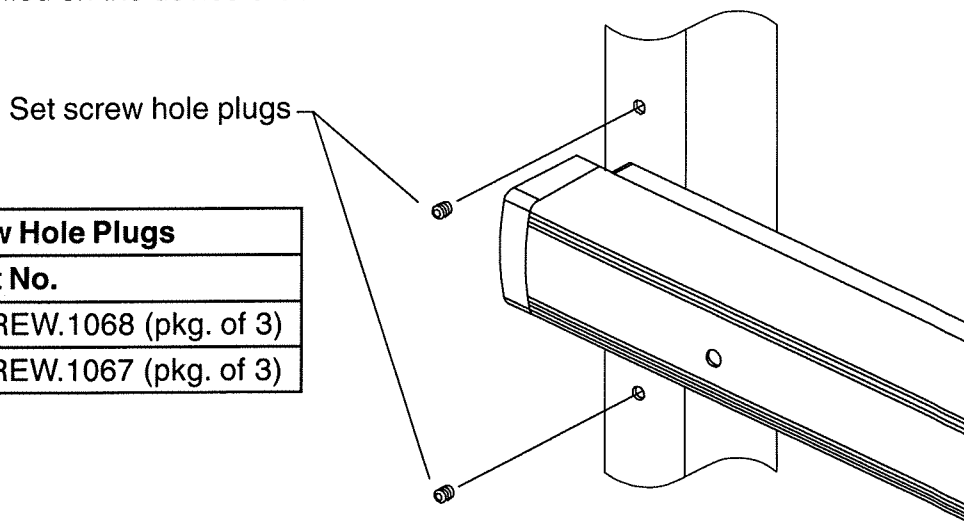
Continued on next page

4. Install new rod bushings and retaining rings (refer to Step 1 on page 4 of instructions).
5. Mount the device to the lock stile using the supplied 1/4-20 undercut flat head screws.
6. Position the device horizontally on the door (same distance from bottom of door to bottom of channel on both stiles).
7. Position channel end cap in end of channel and use to mark locations for hinge mounting holes.



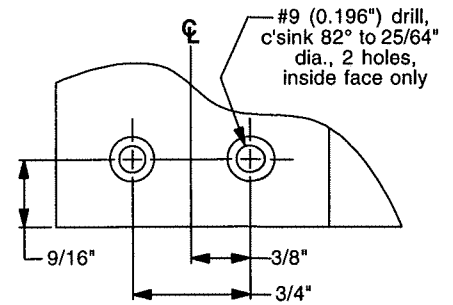
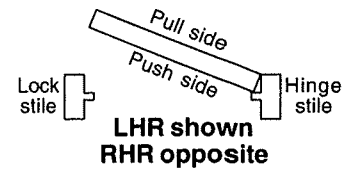
8. Remove the device from the door.
9. Drill and tap through two 1/4-20 mounting holes on hinge stile, inside face only.
10. Continue on with 1690 installation instructions.
11. When installation is complete, remove the 1/4-20 set screws from the old 1990 end cases and install them in the exposed 1990 door con stud holes on the hinge stile. The lock stile holes do not need to be filled. If the set screws in the 1990 end cases are unavailable or unusable, new set screws can be ordered as listed in the table below. New set screw hole plugs are factory supplied if retrofit is specified on the device order.

Set Screw Hole Plugs	
Finish	Part No.
US28	SCREW.1068 (pkg. of 3)
DC13/DC35	SCREW.1067 (pkg. of 3)



With Standard Rods and Latches

1690 Touchbar Concealed Vertical Rod Panic Device Door Preparation Template



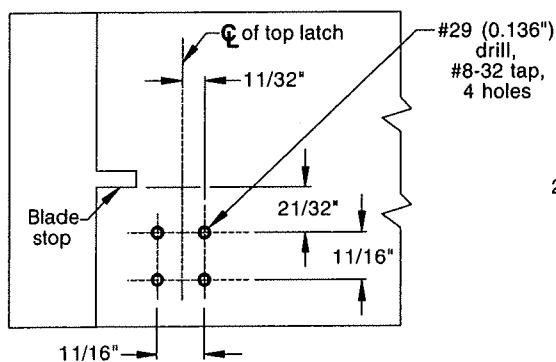
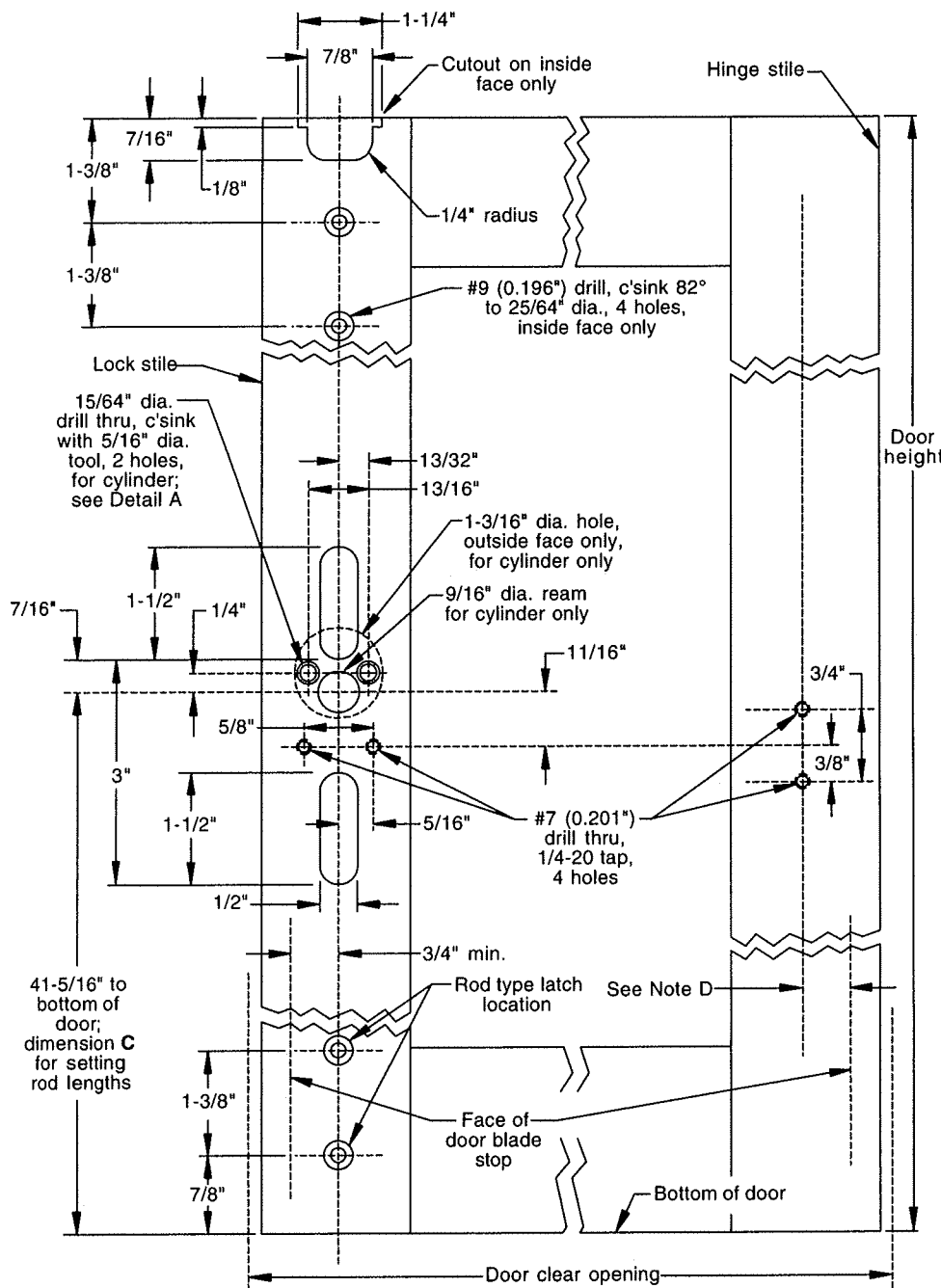
Hex Bottom Bolt Mounting Location

NOTES

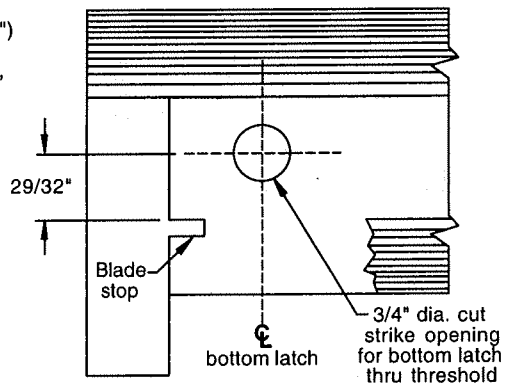
1. All holes inside face only except as noted.
2. All dimensions for 1-3/4" thick, 1/8" wall doors. Consult factory for others.

NOTE D

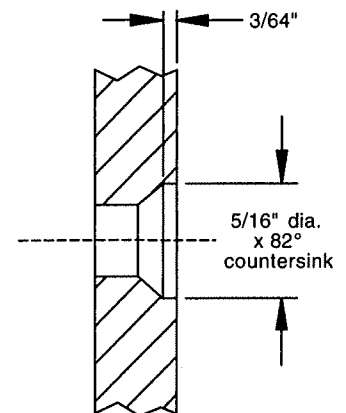
Dimensions from face of door blade stop to mounting hole center lines 3/4" minimum.



Bottom Plan View, Head Jamb (looking up) Showing Upper Strike Mounting Holes



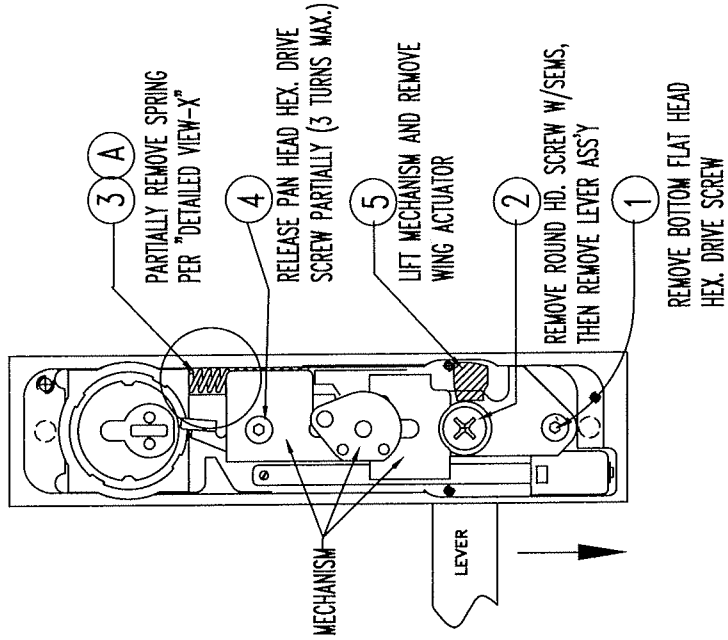
Top Plan View, Rod Latch Showing Strike Cutout in Threshold for Round Latch



Detail A (for cylinder)

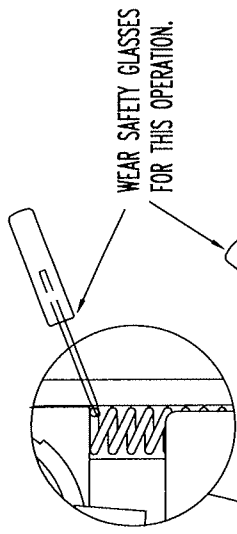
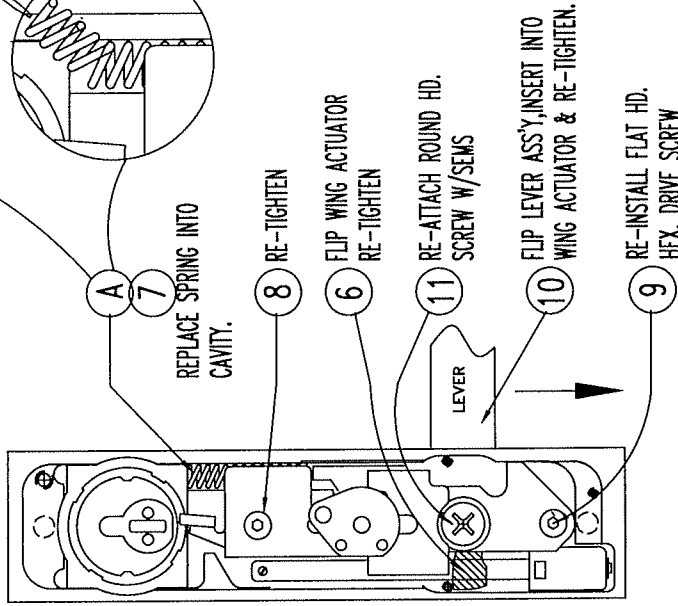
7500E THRU 9500E
LEVER TRIM

LH

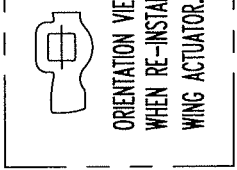


LEVER ACTUATES
DOWNWARD

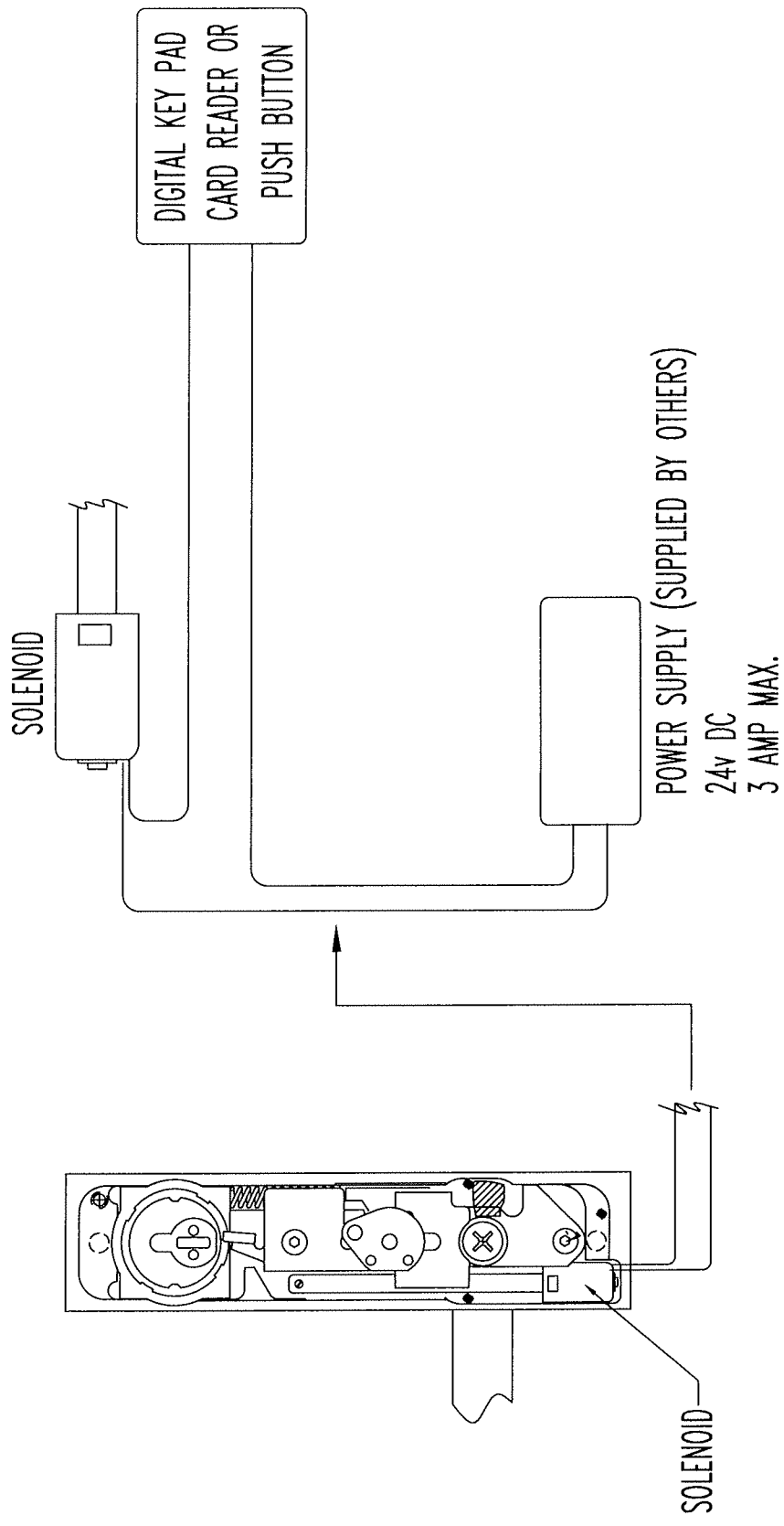
RH




VIEW-X FOR
COMPRESSION SPRING



<p>Jackson CORPORATION® 3447 UNION PACIFIC AVE. LOS ANGELES, CALIF. 90023</p>		<p>APPROVALS</p> <p>DATE</p>
<p>DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED</p> <p>DECIMAL DIMENSIONS .XX ± .010</p> <p>DECIMAL DIMENSIONS .XXX ± .005</p> <p>ANGULAR ± ° FRACTIONAL ± 1/64</p> <p>MATERIAL</p>	<p>APPROVED</p> <p>CHECKED</p> <p>DRAWN R.M. 15.10.03</p> <p>SCALE FULL</p>	<p>SHEET 1 OF 1 SHEETS</p> <p>DWG. NO. 10-1069 A</p> <p>REV.</p>
<p>FILE NO.</p> <p>NEXT ASSY.</p> <p>QTY. USED 1</p>	<p>ELECTRIFIED OUTSIDE TRIM HANDING</p> <p>SELECTION GUIDE</p> <p>7500E,8500E,9500E</p>	

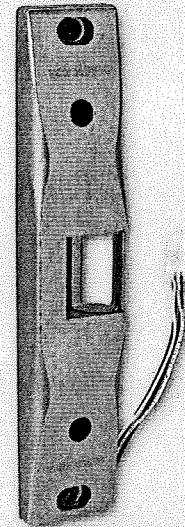


 JACKSON CORPORATION 3447 UNION PACIFIC AVE. LOS ANGELES, CALIF. 90023		APPROVALS	DATE
DIMENSIONAL TOLERANCES UNLESS OTHERWISE SPECIFIED DECIMAL DIMENSIONS .XX ± .010 DECIMAL DIMENSIONS .XXX ± .005 ANGULAR ± ° FRACTIONAL ± 1/64		APPROVED	
MATERIAL FINISH HEAT TREAT		CHECKED	
FILE NO.		DRAWN	R.M. 5.21.03
NEXT ASSY.		SCALE	FULL
QTY. USED	1	SHEET 1 OF 1 SHEETS DWG. NO. 10-1097 A REV.	
		ELECTRIFIED OUTSIDE TRIM SCHEMATIC 7500E,8500E,9500E	

VON DUPRIN

6300 Series

Surface mounted strike
for rim exit devices



Overview

Von Duprin electric strikes are known for their reliability, durability and security. The 6300 Series strike is designed to withstand abuse with its heavy-duty stainless steel certification construction is fully UL 1034 and UL 10C listed.

The 6300 Series strike is designed for use with a variety of rim exit devices. As an electrified strike, it allows remote release of a locked door by activating a movable lip (keeper) using an entry/exit button or credential reader and can be a cost effective means for managing access. It is ideal for aftermarket applications and designed to install without modifying or altering the door frame.

Designed for fail-secure (FSE) only mode, the 6300 Series strike achieves compliance with UL10C for 3-hour fire-rated openings. It also enables field-selectable 12 or 24 VDC with AC conversion optional.

To assure the proper selection of an electric strike on new applications, lockset compatibility charts are shown on the next page. When using a lockset not listed or when retrofitting a strike to an existing application, please contact Von Duprin Technical Support for application assistance.

Features and benefits

- Designed for use with rim exit devices
- Heavy-duty stainless steel construction in BHMA 630 satin finish
- Surface mounted - requires no alteration or cutting to existing frame
- Field selectable voltage 12VDC or 24VDC
- Plug-in voltage connectors included for ease of installation and removal during strike servicing
- Non-handed design provides greater flexibility
- Suitable for interior and exterior doors
- UL 10C 3-hour fire-rated (fail secure only)
- UL 1034 listed for burglary-resistant electric door strikes
- UL 294 listed for access control system
- CSFM California State Fire Marshal listed
- Dynamic strength 70 ft-lbs
- Endurance 2,000,000 cycles

6300 Series power requirements

Model	Voltage	Current	Duty	Amps	Ohms
6300	12V	DC	Continuous	0.50	22
6300	24V	DC	Continuous	0.24	89

Continuous duty = Energized 1 minute or more

Rim exit device compatibility 6300 strikes

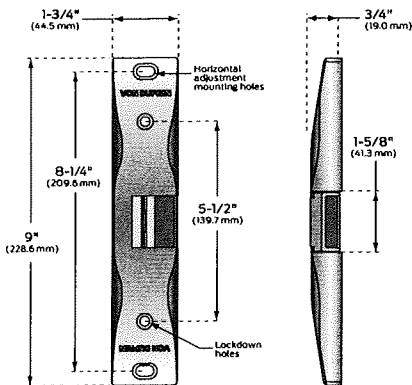
Manufacturer	Model Number
Von Duprin	VD 22/22-F Rim
Von Duprin	VD 33A/35A Rim*
Von Duprin	VD 55 Rim
Von Duprin	VD 88 Rim
Von Duprin	VD 98/99 and 98/99-F Rim
Falcon	Falcon 24/24-F Rim*
Falcon	Falcon 25/25-F Rim
Falcon	Falcon 19/19-F Rim
Falcon Doromatic	Falcon Doromatic 1590*
Falcon Doromatic	Falcon Doromatic 1790*
Falcon Doromatic	Falcon Doromatic 2090*

*Stile and frame condition may affect compatibility.

Model specifications

Model number	6300
Retrofits model	N/A
Latchbolt throw	3/4"
Face plate length	9"
Projection	3/4"
Lockset	Rim exit device
Number of doors	Single or pair with mullion
Door/frame type	Hollow metal, aluminum and wood
EB (entry buzzer)	Optional
Certifications/ listings	UL 1034, UL 10C, UL 294, CSFM

Application notes Surface mounted electric strike ideal for aftermarket applications. Strike designed for use with Von Duprin 98/99, however it can be used with most rim exit devices.

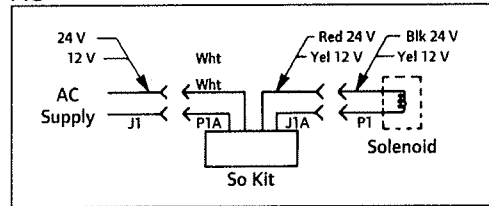


About Allegion

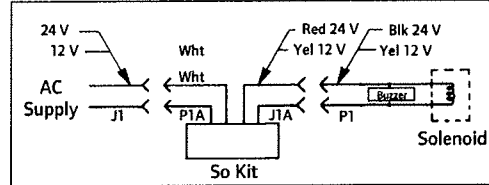
Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit www.allegion.com.

KRYPTONITE ■ LCN ■ SCHLAGE ■ STEELCRAFT ■ VON DUPRIN

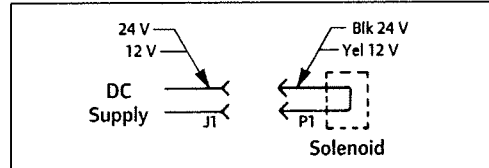
AC



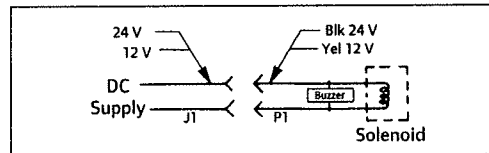
AC with buzzer



DC

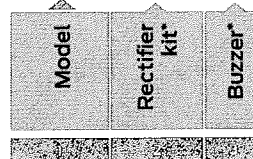


DC with Buzzer



Ordering information

6300-S024-EB



* Optional

Selections correspond with the numbers above

1	Model
6300	Surface mounted strike for rim exit devices
2	Rectifier kits (optional)
S012	Converts 12 VAC voltage to 12 VDC to operate the solenoid
S024	Converts 24 VAC voltage to 24 VDC to operate the solenoid
3	Buzzer (optional)
EB	Entry Buzzer

Standard features

- Power failure mode: Fail-secure only (FSE)
- Voltage: field selectable 24 VDC or 12 VDC
- Finish: stainless steel, satin (BHMA 630/US32D)



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First Choice
Building Products

MEL3000 S E R I E S

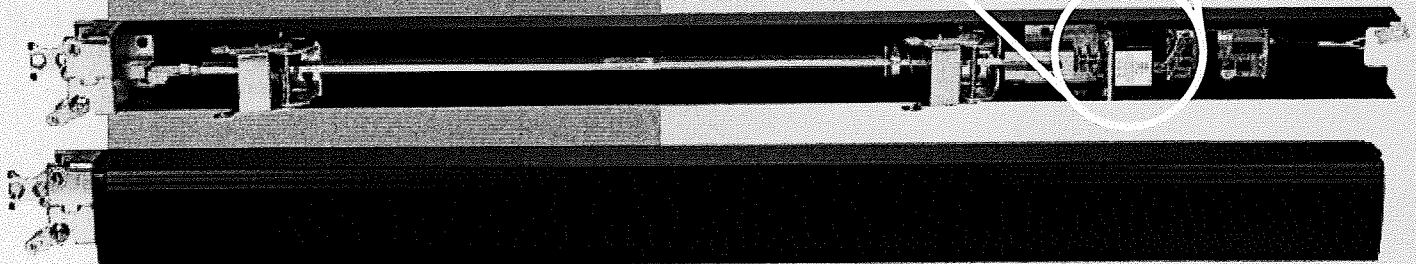
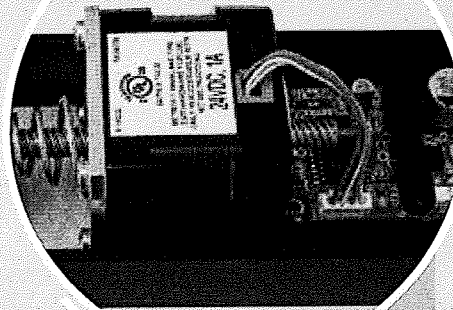
MOTOR DRIVEN ELECTRONIC LATCH RETRACTION (For CVR or RIM Devices)

*MEL is available on First Choice model 3690
vertical rod devices and 3790 rim devices*

- Seamlessly integrate your exit devices with building security systems.
- Unlock your exit devices remotely
- Coordinate exit device operation with auxiliary devices such as automatic doors

UL Listed – ANSI Grade 1
(Reference UL File SA12590)

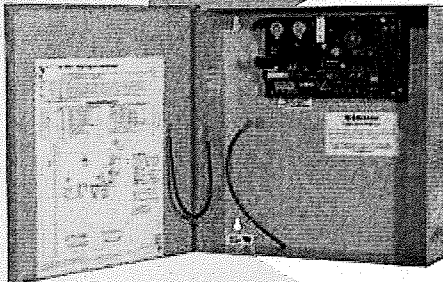
These devices are equipped with quiet powerful motors suitable for high traffic conditions and capable of extended periods of activation.



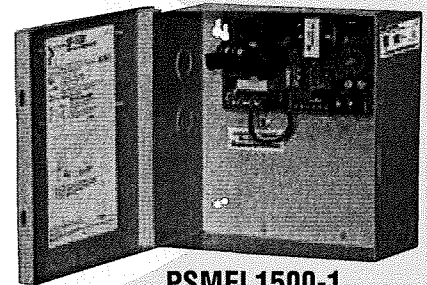
POWER SUPPLIES

The MEL panic devices are partnered with the PSEL3000-2 and PSMEL1500-1 power supplies.

These power supplies are 115vAC and come equipped with terminal blocks for easy connection to input devices. The PSEL3000-2 is capable of supplying power to ancillary devices such as key pads, card readers, and automatic door activation switches.



PSEL3000-2



PSMEL1500-1

www.firstchoicebuildingproducts.com

Phone (800) 793-4544 • Fax (800) 867-5016
sales@firstchoicebuildingproducts.com

MEL3000 S E R I E S

2-CONDUCTOR (Stranded Only)	
Wire Gauge	Maximum Distance
12 AWG	720 FEET
14 AWG	450 FEET
16 AWG	280 FEET
18 AWG	180 FEET
20 AWG	110 FEET
22 AWG	70 FEET

Complete Your System
with a Selection of
Power Transfers



POWER SUPPLY SELECTOR

	PSMEL 1500-1	PSEL 1500	PSEL 3000-2
Powers up to One MEL Device	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Powers up to Two MEL Devices	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adjustable delay for exit device relocking	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Capable of triggering external relays	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Provide delayed triggering for Automatic Doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Includes unswitched voltage outputs to power card readers, key pads, timers, & more	24VDC ONLY	24VDC ONLY	12 or 24 VDC
Designed with logic protecting against accidental shorting of lock outputs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Battery Back-Up available	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fire Alarm Interface	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

www.firstchoicebuildingproducts.com

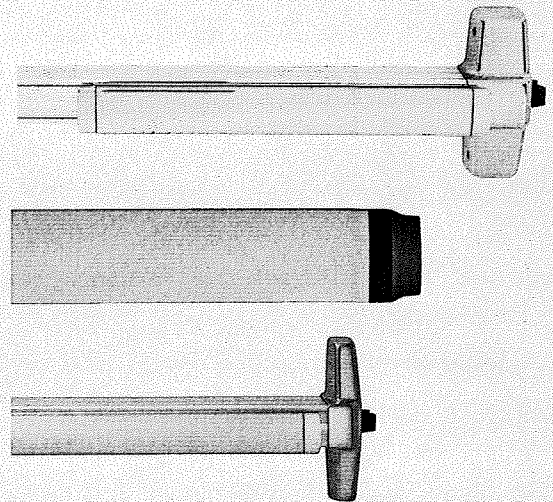
Phone (800) 793-4544 • Fax (800) 867-5016

sales@firstchoicebuildingproducts.com

VON DUPRIN

Quiet Electric Latch Retraction-QEL

Featuring 98/99, 94/95
and 33A/35A series
exit devices



Overview

Quiet electric latch retraction (QEL) provides electronic control of an exit device for environments where limited operational noise is desired. The QEL option is Von Duprin's solution of choice for hospitals, libraries, museums and theaters where ambient noise can be disruptive. It is available on all Von Duprin 98/99, 94/95 and 33A/35A series exit devices.

These devices always provide mechanical egress. The electrified latch retraction can also be activated by an access system or building automation system to unlatch the exit device momentarily. Often the QEL is used with a credential reader and access control system to unlock the door momentarily for authorized users.

The QEL can also be configured to electronically retract the latch for an extended period of time to allow free entry. This is a convenient alternative to mechanical dogging. If manual dogging is required, the hex dogging option is available, to order specify HD-QEL. Special center case dogging is also available for 98/99 rim and vertical systems, specify SD-QEL.

The QEL option is available on panic devices and fire rated devices. Fire rated openings have several additional requirements. They must be self latching and self closing. To satisfy these requirements the QEL must be paired with an automatic operator and under the control of an automatic fire alarm system when used on fire rated openings.

Features and benefits

- QEL option available on all 98/99, 94/95 and 33A/35A series exit devices
- Energy efficient motorized latch retraction utilizes standard 2 amp power supply, enabling longer wire runs from power source
- Quiet operation in both mechanical and electronic states
- Modular design allows for a simplified installation
- On-board installation and troubleshooting diagnostics built into device
- Auto adjust latch retraction – automatically adjusts latch throw and pull
- Pushbar is pulled in electronically for quieter operation when dogged
- Vandal resistant – detects and responds to events of attack and tampering

Specifications compliance

- Devices are BHMA Certified to ANSI/BHMA A156.3 (2001) Grade 1 for Exit Devices
- Devices are UL and cUL Listed as "Panic Hardware" (UL 305) and as "Fire Exit Hardware" (UL 10C)
- The QEL Conversion Kit is UL Classified under "Accessories for Single-Point Locks and Latches and Fire Exit Hardware" (UL 10C)

Electronic specifications

QEL electrical load

Voltage	24 VDC
Current	1.0 A Inrush (0.5 sec) 0.14 A Holding

QEL wire run lengths

Distance (one way)	Wire gauge
200'	18 AWG
320'	16 AWG
500'	14 AWG
800'	12 AWG

Accessories

The QEL has a low in rush current = 1.0 amps, so it can be used with standard Schlage power supplies. When powering multiple components, verify that the amperage requirements of all components combined does not exceed the power supply output rating, see table below for output ratings.

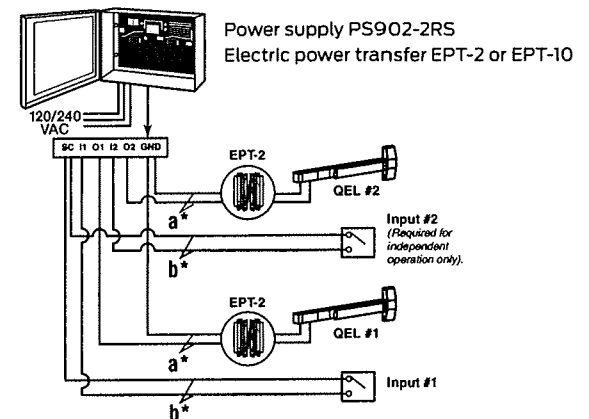
Schlage PS902	Schlage PS904	Schlage PS906
up to 2 amps	up to 4 amps	up to 6 amps

The QEL device is compatible with the following equipment: PS900 Series power supplies - PS902, 904, 906, 914; 900 Series Option Boards - 900-2RS, 900-4R, 900-4RL, 900-2Q; PS873 Power Supply Including 871-2, 871-2Q, 873-4TD/AO Option Boards. The power transfer is also sold separately. Please refer to Von Duprin catalog for more information on EPT-2/EPT-10 power transfers and PS900 series power supplies.

How to order

- **Standard** – Use prefix QEL, example QEL99L.
- **Special Center Case Dogging** – Use prefix SD-QEL, example SD-QEL99L.
- **Hex Dogging** – Use prefix HD-QEL, example HD-QEL99L.

Popular application



About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit www.allegion.com.

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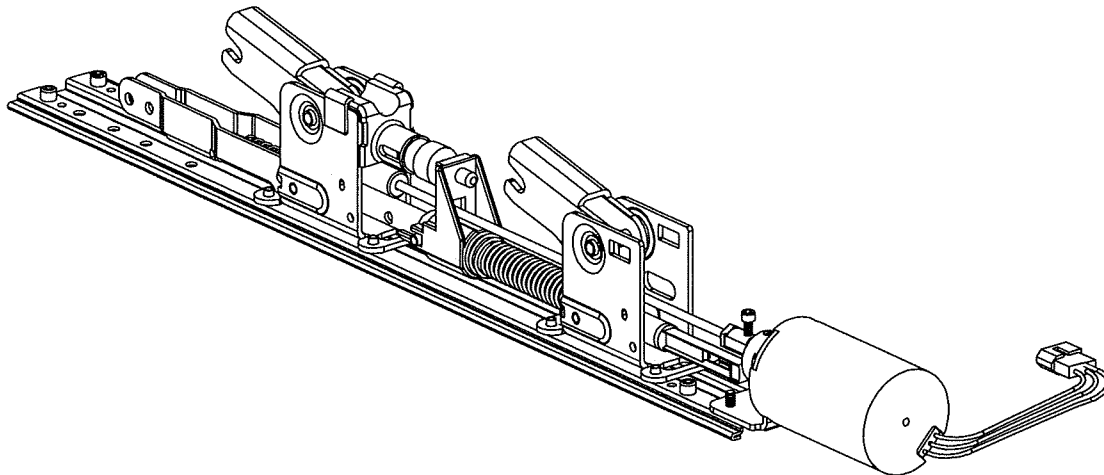
941255-00

EL/HD-EL

VON DUPRIN®

Conversion Kit

Installation Instructions



Read All Warnings
Before Starting Installation!

Index	
• General Information	2
• Specifications	2
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• Tools Needed	2
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 941255-00 Rev. 01/14-c

GENERAL INFORMATION

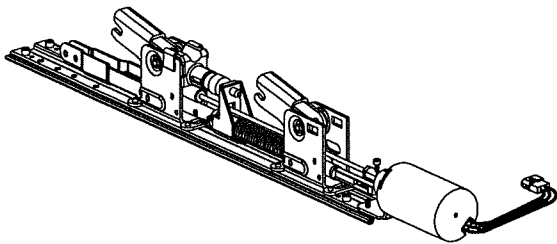
This kit converts 33/35, 33A/35A, and 98/99 series devices to electric latch (EL) retraction devices. Before beginning installation, review "Specifications," "Parts List," "Warnings," and "Tools Needed."

SPECIFICATIONS

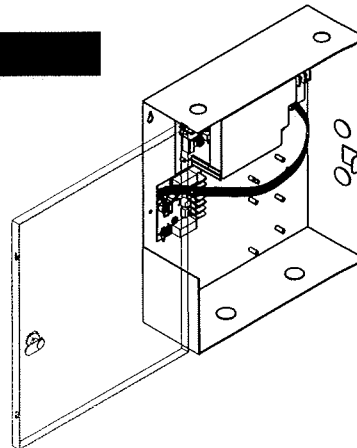
Solenoid:

- Continuous duty: 24 VDC
- Current inrush: 16 A
- Current holding: 0.3 A

PARTS LIST



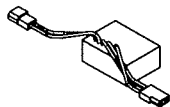
Baseplate with solenoid



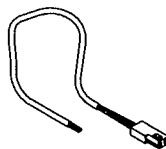
PS914 power supply with 900-2RS logic board
*not in kit



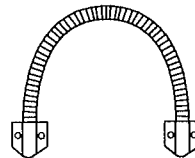
Pin and retaining clip



Circuit breaker



Cable



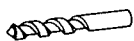
DL-12 door loop
*not in kit

* This part is required for installation but not included in this kit. Contact factory to order.

WARNINGS

1. This kit cannot be used to convert 33/35 Rim devices. Consult factory.
2. Install according to instructions or device will not function and panic or fire label will be void.
3. The solenoid wiring must be attached to the fire alarm system if installed on fire exit hardware.
4. PS914 power supply with 900-2RS logic board must be used for EL device to operate properly.
5. Field wiring between the power supply and the door must be 12 AWG.

TOOLS NEEDED



5/8" dia. drill bit



Flat blade screwdriver



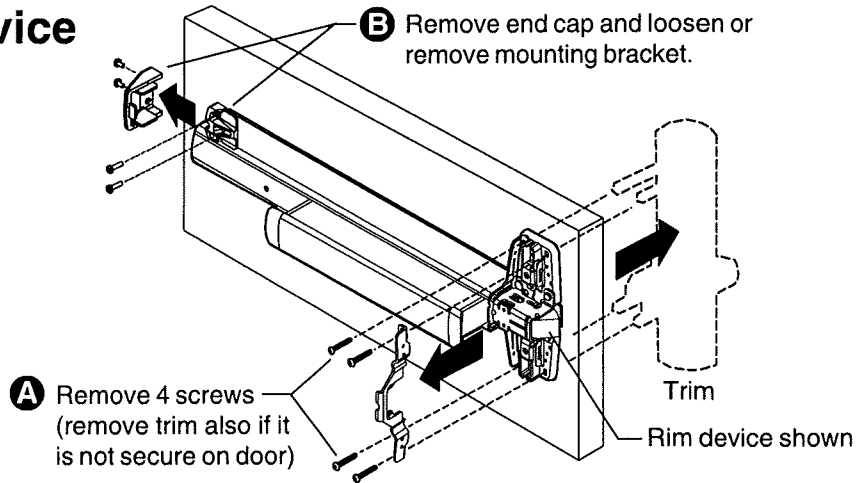
Phillips screwdriver

1 Remove device from door if installed (find correct device on page 3 or 4).

⚠ WARNING

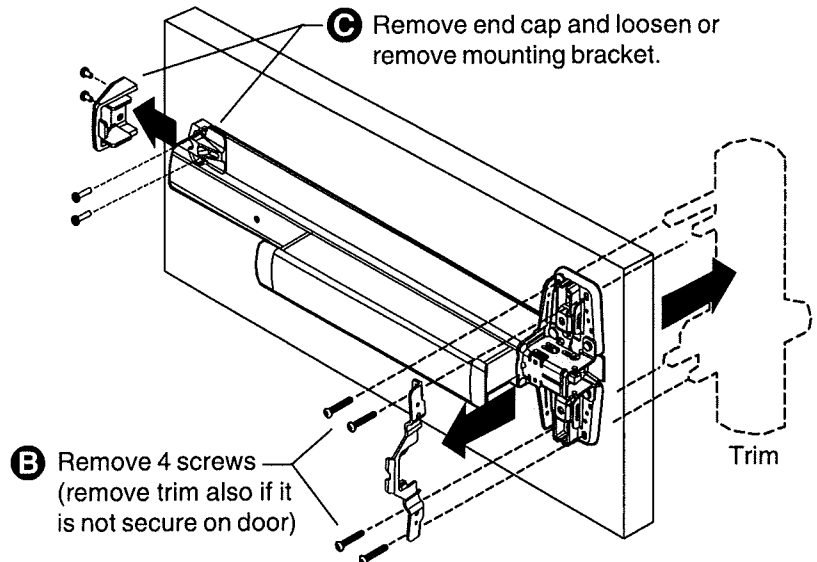
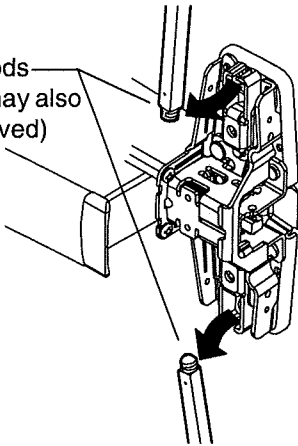
Device and trim must be held securely while removing mounting screws to prevent device and trim from dropping to the floor.

98/99 Rim/Mortise Device



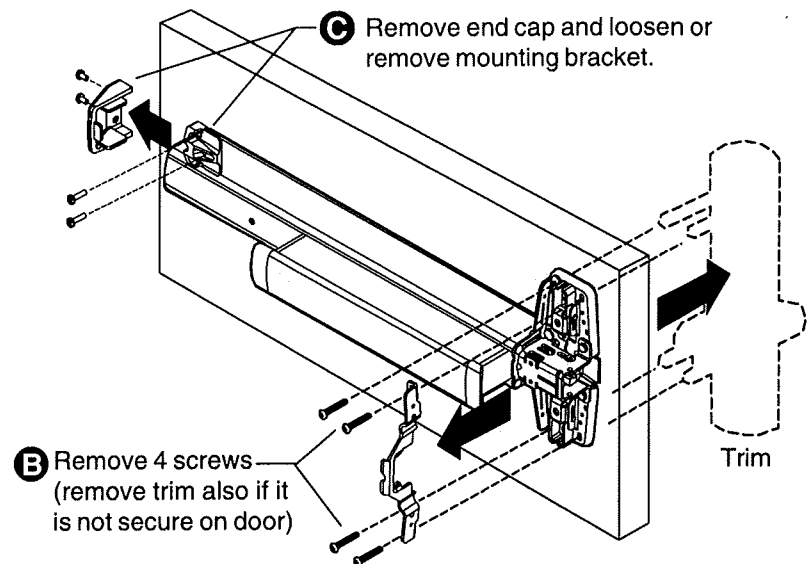
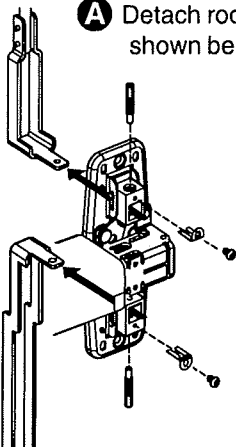
9827/9927 Device

A Detach rods (rod guides may also need removed)

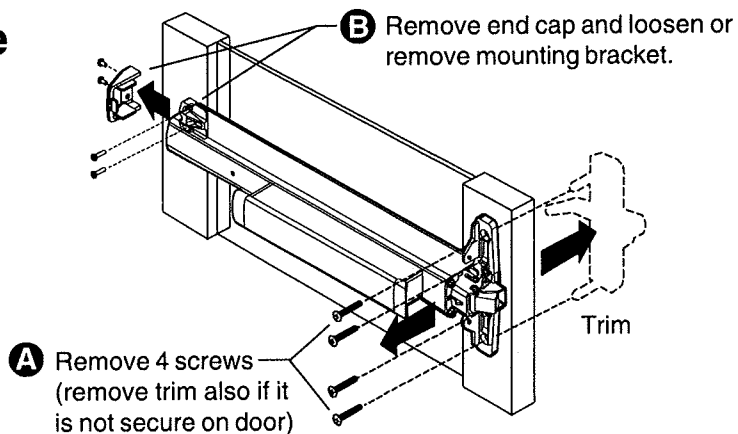


9847/9947 Device

A Detach rods as shown below

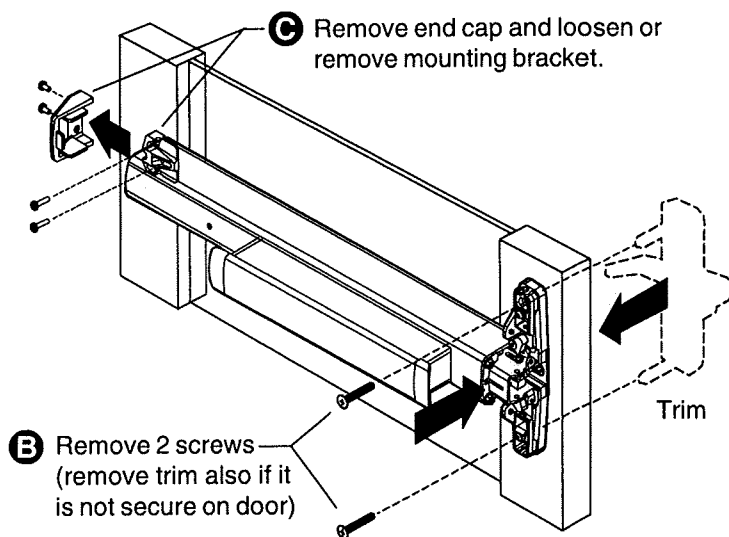
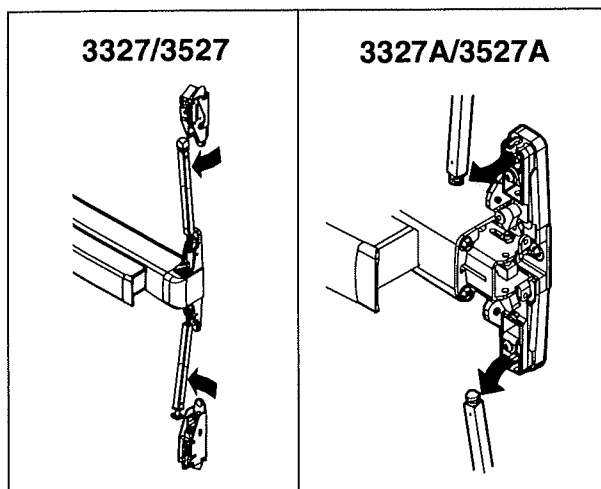


33A/35A Rim Device



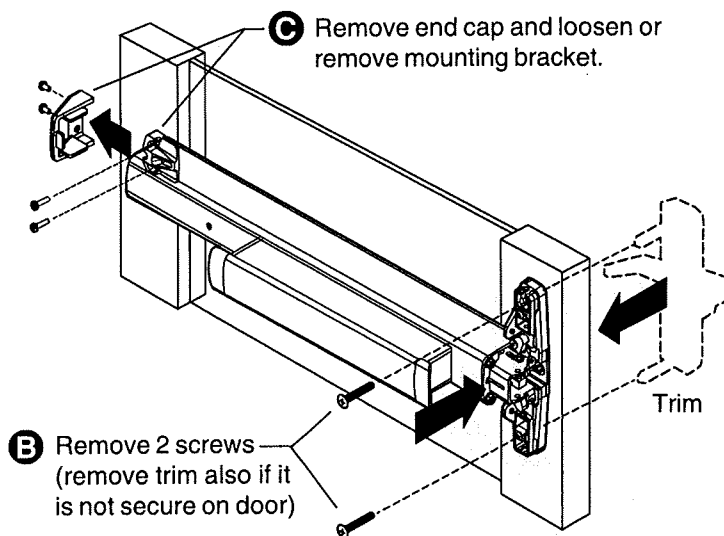
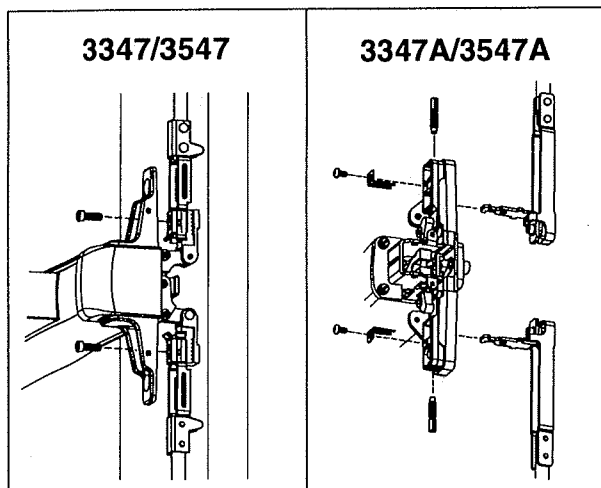
3327/3527 & 3327A/3527A Device

A Detach rods (rod guides may also need removed)



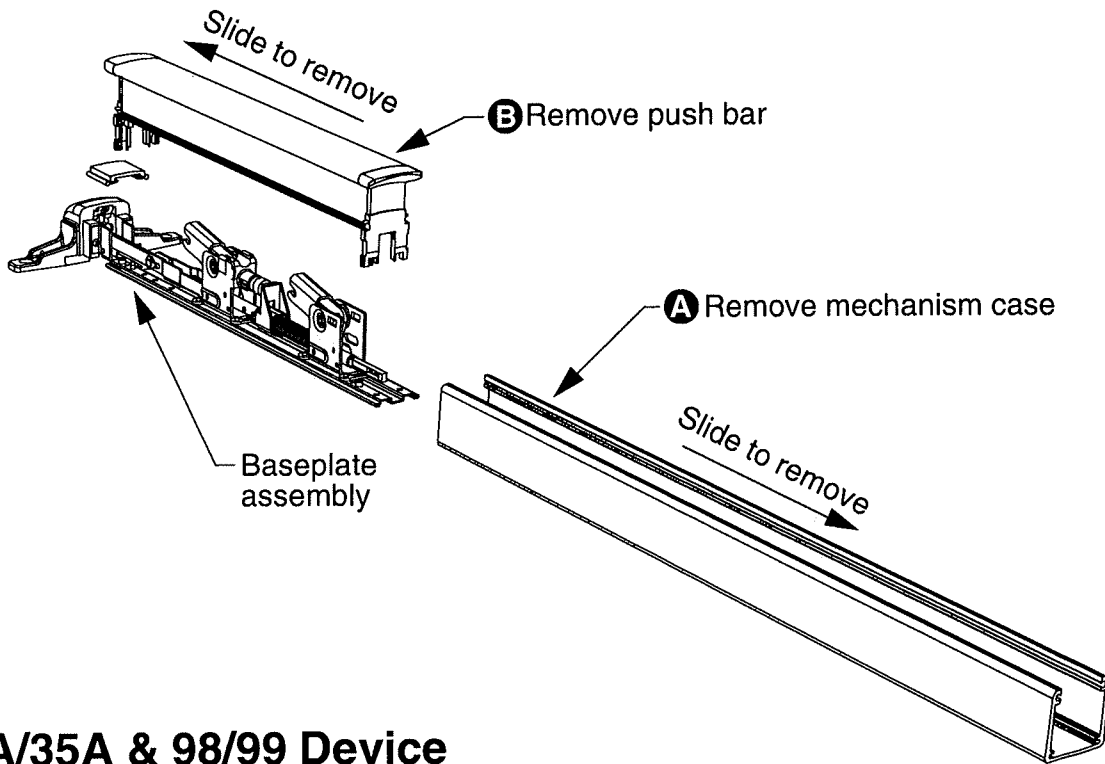
3347/3547 & 3347A/3547A Device

A Detach rods as shown below

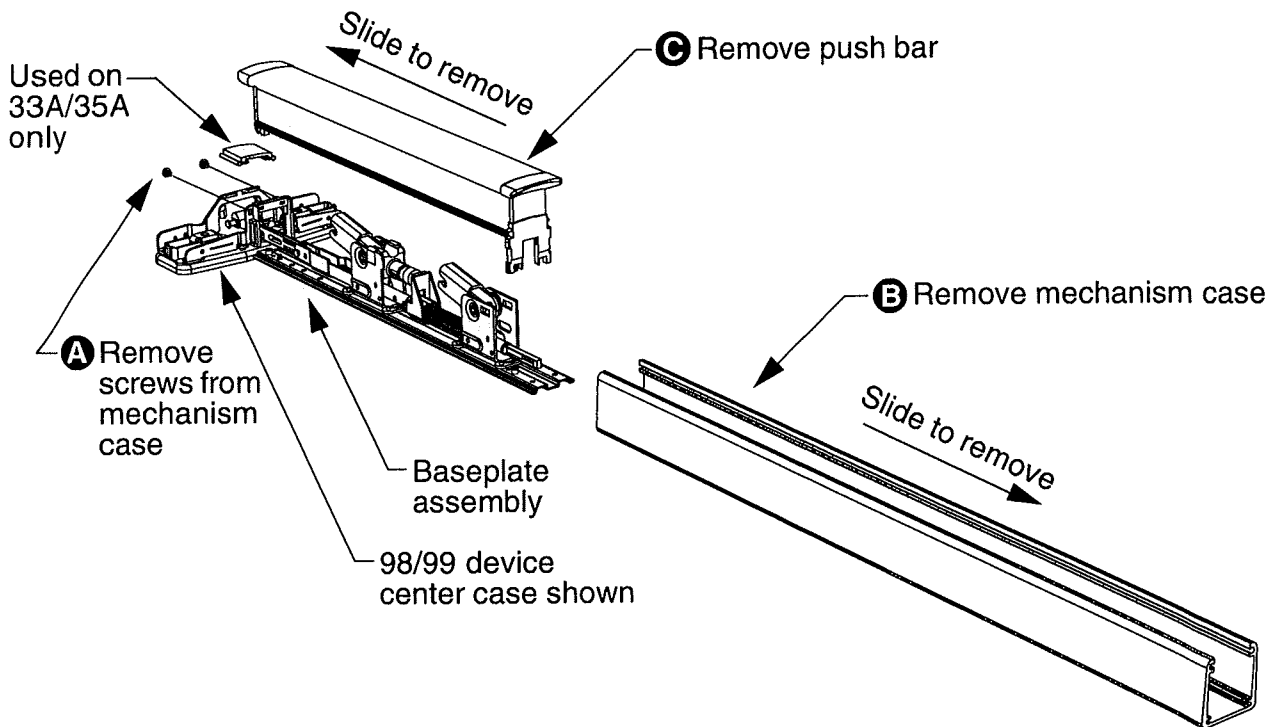


2 Disassemble device.

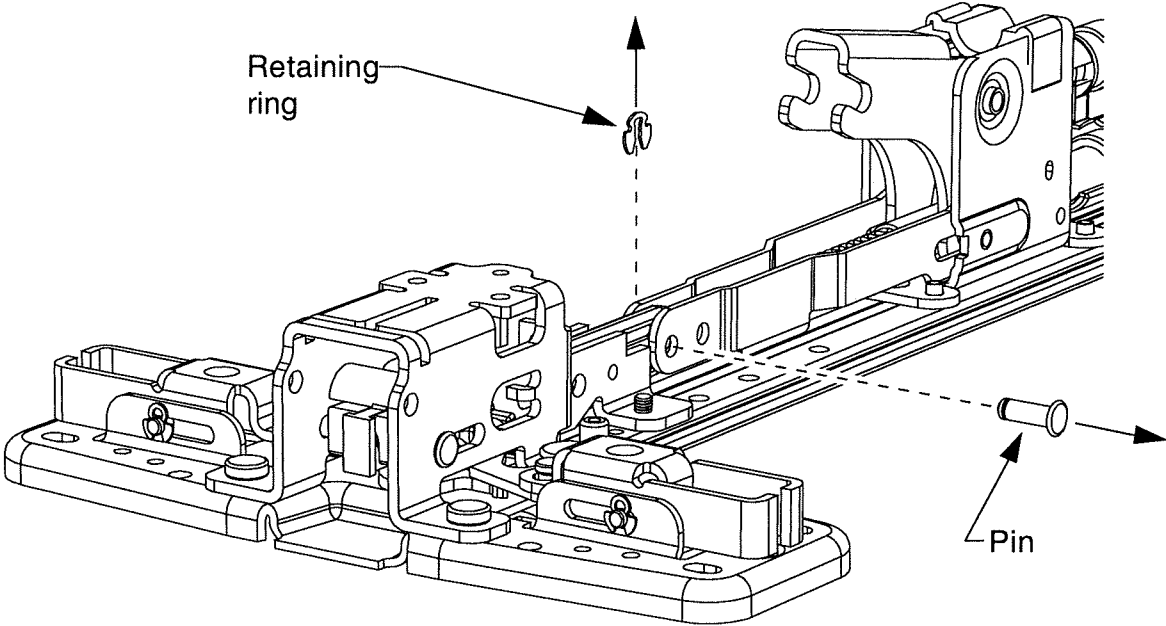
33/35 Device



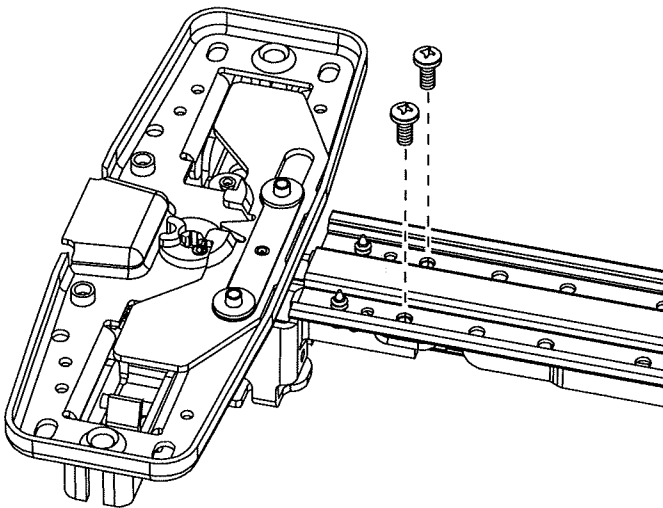
33A/35A & 98/99 Device



3 Remove main link retaining ring and pin.



4 Remove screws connecting center case to baseplate.



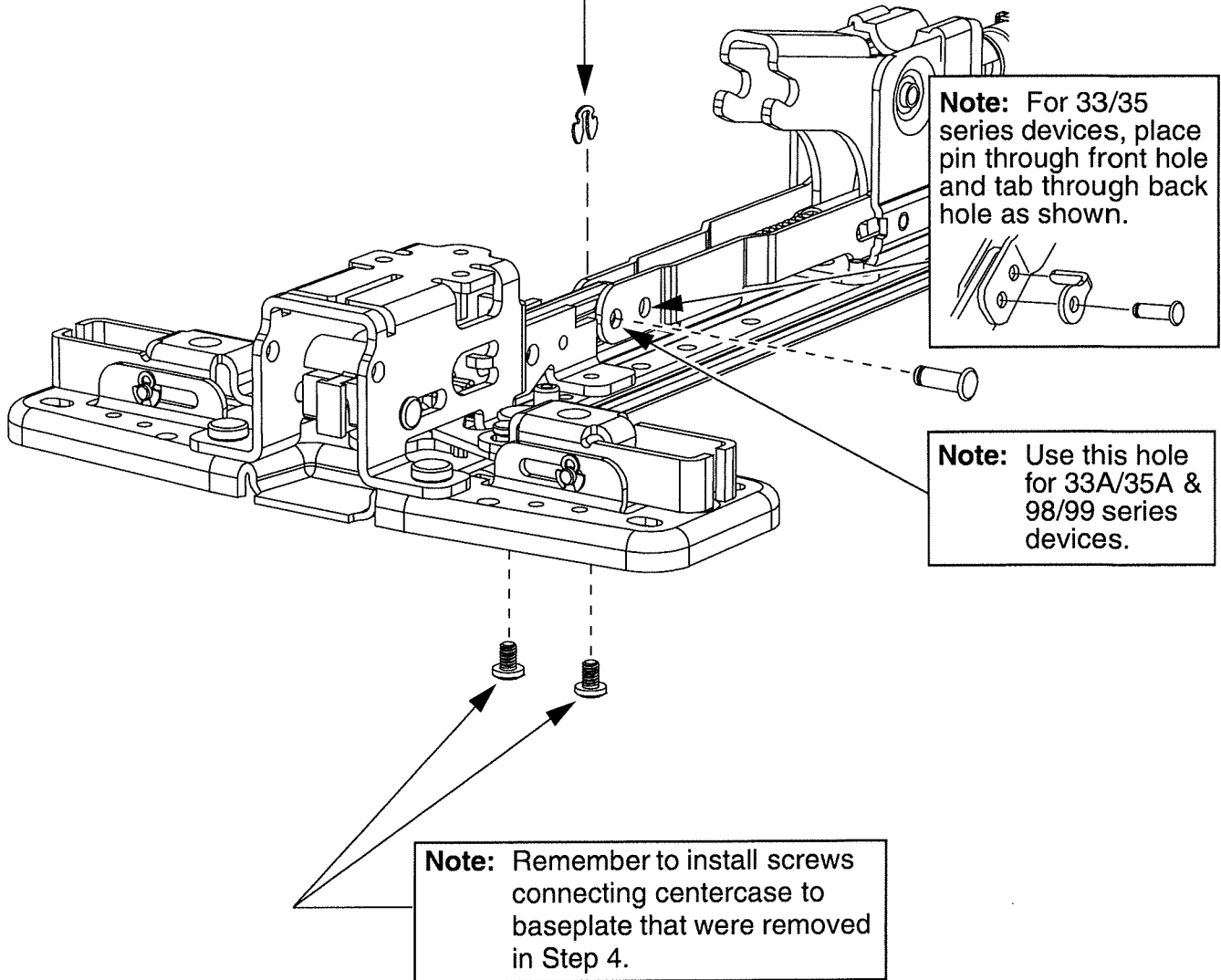
5 Install center case to new EL baseplate.

Warning: Make sure retaining ring is secure in the pin groove. If retaining ring is not secure it could result in an exit device that will not allow exit. This is a serious safety issue.

Note: For 33/35 series devices, place pin through front hole and tab through back hole as shown.

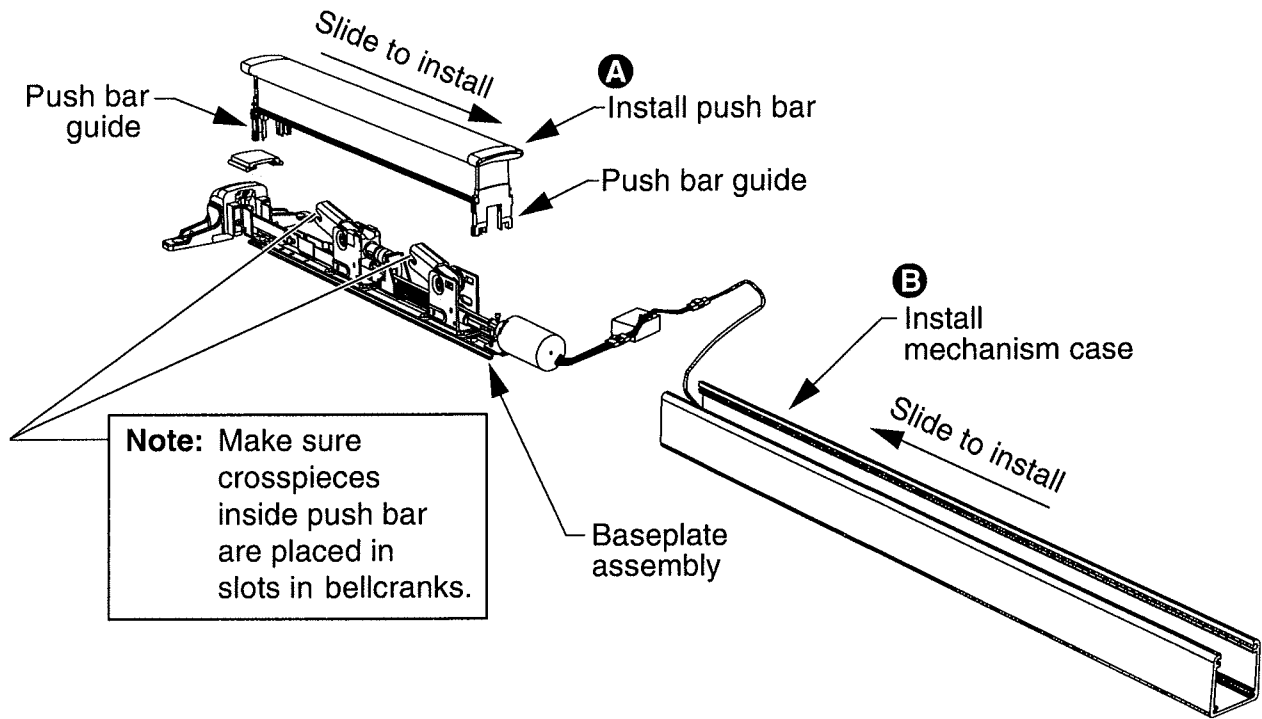
Note: Use this hole for 33A/35A & 98/99 series devices.

Note: Remember to install screws connecting centercase to baseplate that were removed in Step 4.

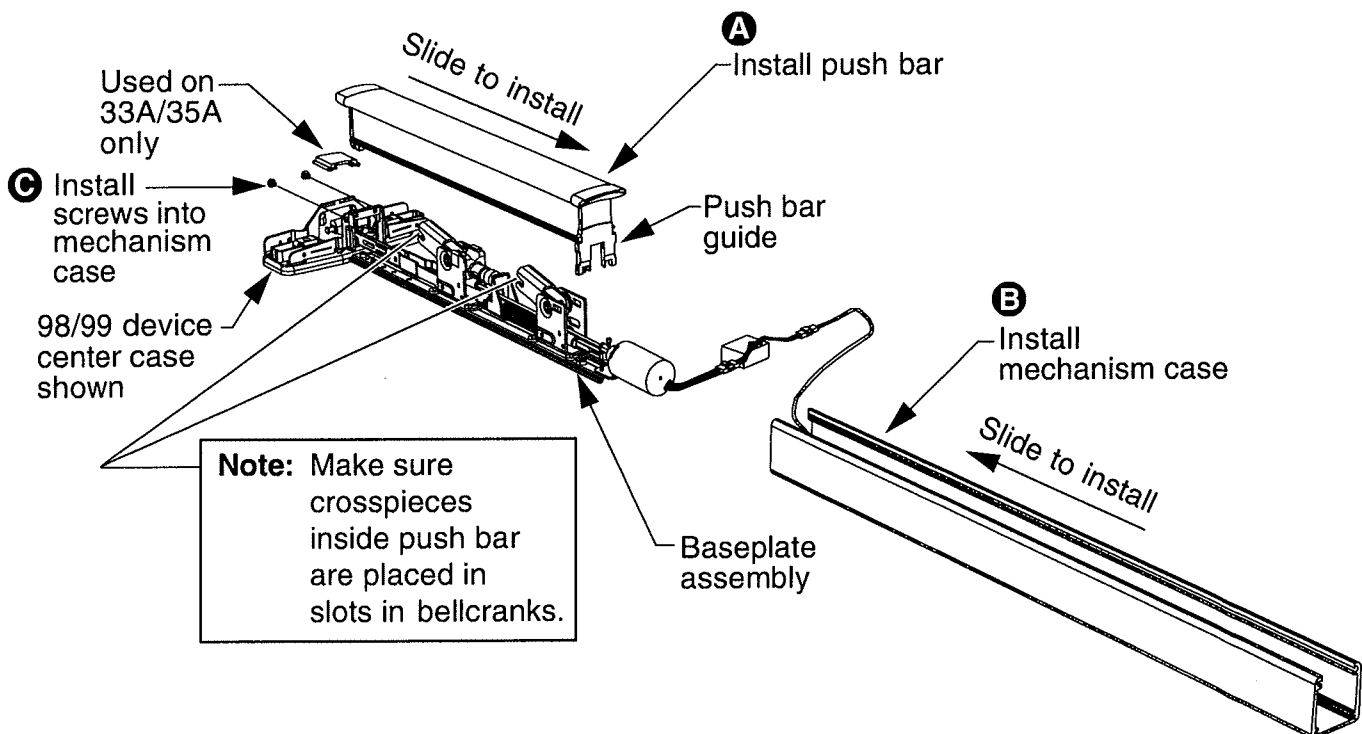


6 Reassemble device.

33/35 Device

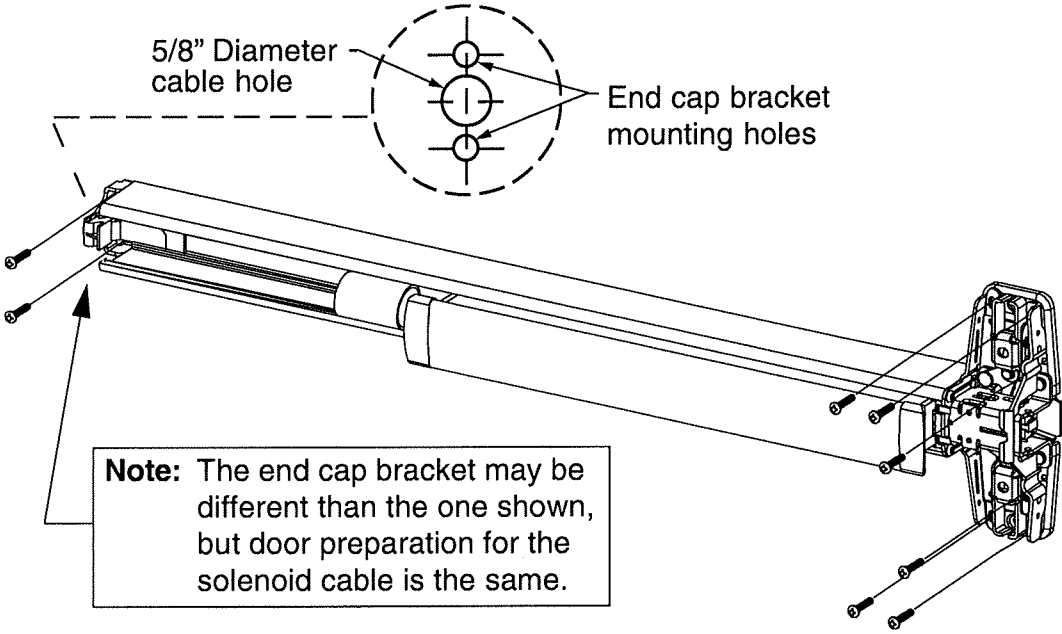


33A/35A & 98/99 Device

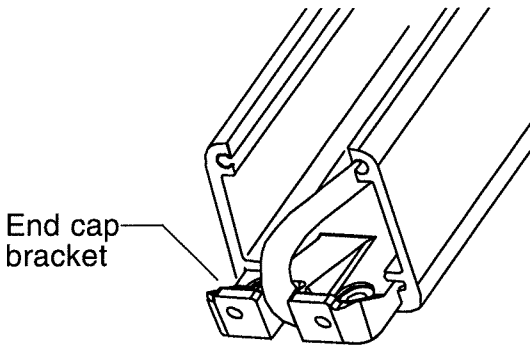


7 Drill solenoid cable hole and install device to door.

- A. Drill 5/8" diameter hole in door centered between end cap bracket mounting holes.
- B. Deburr hole.
- C. Reattach device and trim to door.

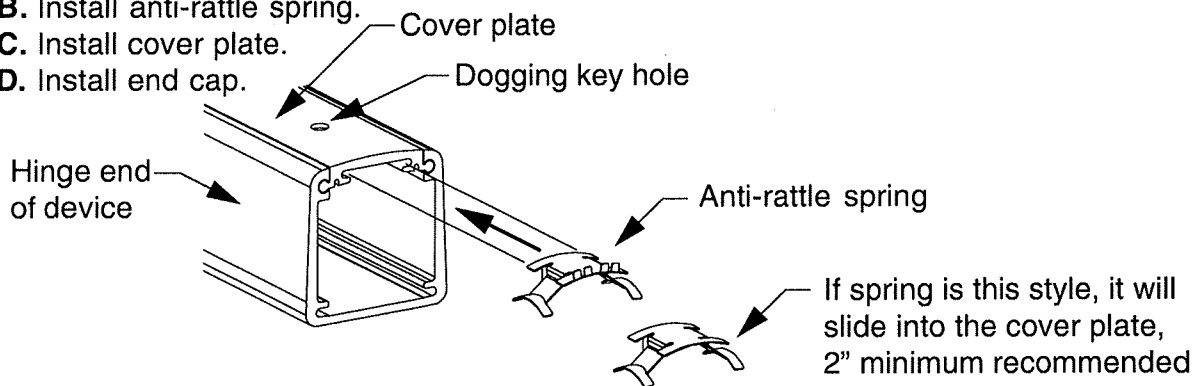


8 Route cable through hole in door.



9 Install cover plate and end cap.

- A. If cover plate has a dogging key hole, rotate cover plate so hole is near end cap for standard EL device and near pushbar for HD-EL device.
- B. Install anti-rattle spring.
- C. Install cover plate.
- D. Install end cap.



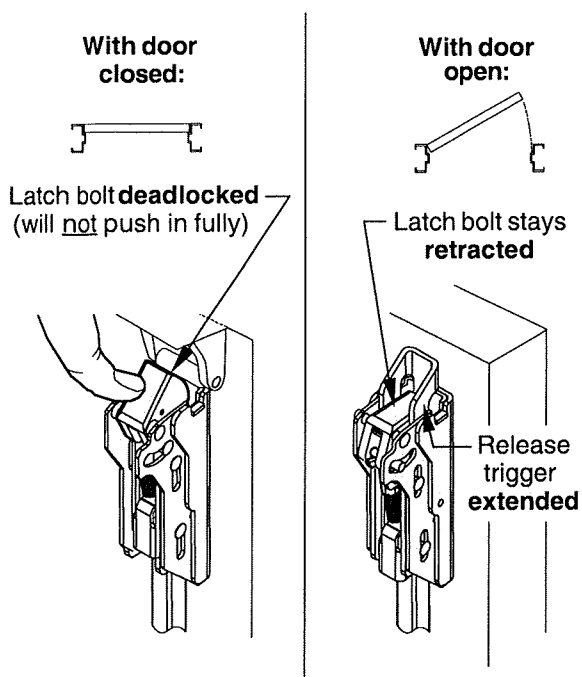
10 For vertical devices, reattach rods.

Reattach rods in reverse of when they were detached on pages 3 and 4.

11 Adjust rods as needed on vertical devices (find correct device on page 10 or 11).

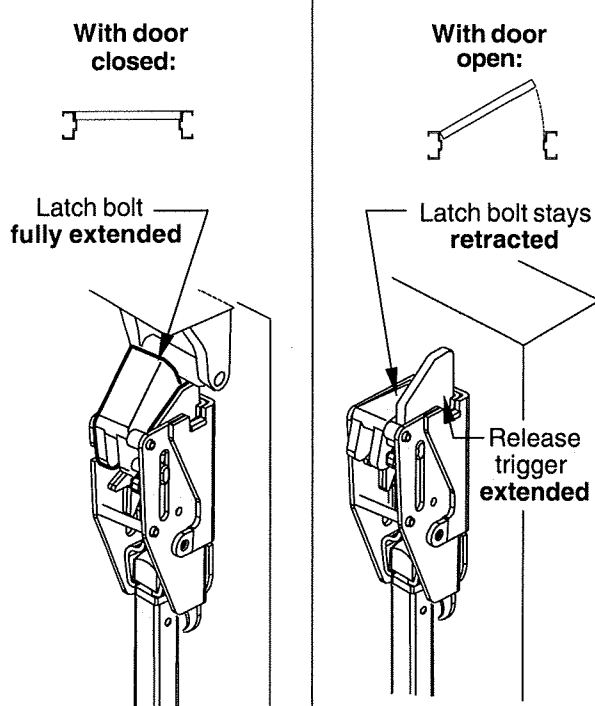
9827/9927 Device or 3327A/3527A Device

Adjust top and bottom rod (screw rod into or out of latch) until adjusted as shown.
Note: On bottom latch, make sure latch bolt clears floor when door is swung open.



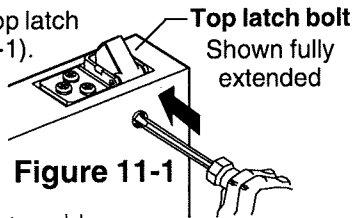
3327/3527 Device

Adjust top and bottom rod (screw rod into or out of center case rod connector) until adjusted as shown.
Note: On bottom latch, make sure latch bolt clears floor when door is swung open.



9847/9947 Device or 3347A/3547A Device

- A. Open door and release top latch bolt as shown (Figure 11-1).



- B. Loosen bottom locking screw (Figure 11-2).

- C. Disconnect bottom vertical rod by removing bottom adjusting screw.

- D. Loosen top locking screw.

- E. Rotate top adjusting screw clockwise until top latch bolt is fully extended (Figure 11-1).

- F. Check top latch bolt for deadlocking (latch bolt should not push in fully).

- G. Turn top locking screw in. Do not over-tighten

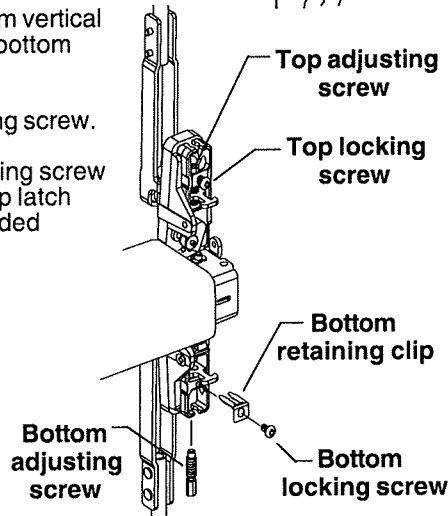


Figure 11-2

- H. Depress pushbar and release. Latch bolt retracted (flush with latch case)

- I. Make sure top latch bolt stays retracted as shown.

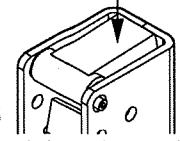


Figure 11-3

- J. Install bottom adjusting screw, retaining clip, and locking screw (Figure 11-2).

- K. With top latch bolt still retracted, adjust bottom rod so latch bolt clears floor and bottom strike.

Bottom latch bolt (clears floor and strike)

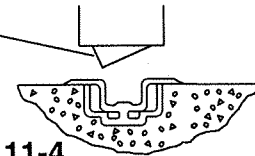


Figure 11-4

- L. Turn bottom locking screw in. Do not over-tighten.

- M. Close door and push up on bottom latch bolt to verify it is deadlocked (will not push in fully).

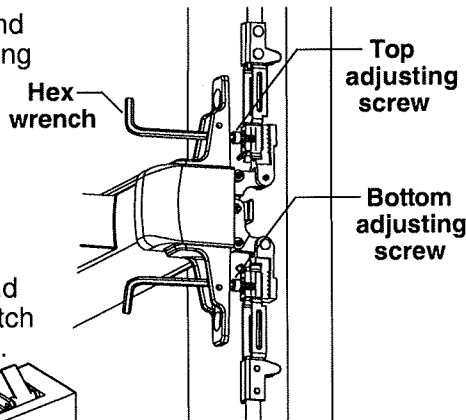
- N. Check device operation by opening and closing door several times from the outside.

Redo adjustment procedure if :

- Top latch bolt is not held retracted
- Bottom latch bolt does not clear floor and bottom strike

3347/3547 Device

- A. Loosen top and bottom adjusting screws.



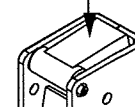
- B. Open door and release top latch bolt as shown.

- C. Check top latch bolt for deadlocking (latch bolt should not push in fully).

- D. With top latch bolt still fully extended and pushbar in full up position (not depressed), tighten top adjusting screw.

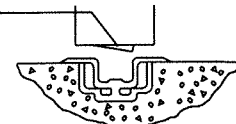
- E. Depress pushbar and release. Latch bolt retracted (flush with latch case)

- F. Make sure top latch bolt stays retracted as shown.



- G. With top latch bolt still retracted, push bottom latch bolt up until it clears floor and bottom strike and hold it there.

Bottom latch bolt (clears floor and strike)



- H. Tighten bottom adjusting screw.

- I. Close door and push up on bottom latch bolt to verify it is deadlocked (will not push in fully).

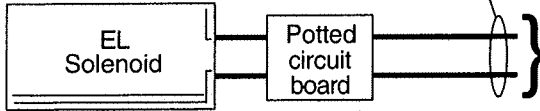
- J. Check device operation by opening and closing door several times from the outside.

Redo adjustment procedure if :

- Top latch bolt is not held retracted
- Bottom latch bolt does not clear floor and bottom strike

12 Complete wiring.

12 AWG required for distances up to 200'
14 AWG permitted for distances 0-100'



ELECTRICAL SPECIFICATIONS

Voltage: 24 VDC
Current: 16 A inrush (0.3 sec.)
0.25 A holding

NOTE

When power is applied to the **potted circuit board**, the solenoid receives a momentary signal to retract and a separate signal to hold as long as power is applied. When attempting to retract solenoid again, power must be removed from the circuit and reapplied.

Troubleshooting solenoid operation

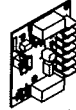
If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:

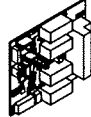
1. Check wiring for proper connections, gauge, and distances.
2. Check for latch bolt binding caused by improper strike installation, warped door, etc. Also check adjustment of vertical rods.

EL WIRING

**Solenoid draws 16 A inrush current from PS914.
Solenoid must be wired to a 900-2RS logic board:**



If 900-2RS logic board, refer to instructions 44487056.

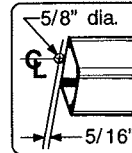


If 900-4RL logic board, refer to instructions 44487080.

Solenoid

Potted Circuit Board
Install after device has been mounted on door

Do not cut device with potted circuit board installed



Drill 5/8" dia. wire access hole thru device side of door.

Electric power transfer

13 Adjust EL device for proper function.

A. Check for proper function:

1. Make sure device is not dogged.
2. Depress pushbar and make sure latch bolt(s) retracts and extends fully (see Figure 13-1).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike, see Figure 13-1).
5. Release solenoid and check latch bolt extension (see Figure 13-1).
6. Continue to Section B if device does not function electrically.

B. Determine if dogging rod adjustment is too long or short:

1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section C for adjustment).
2. The dogging rod adjustment is too **short** if latch bolt does not fully extend or latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).

C. Adjust solenoid if dogging rod is too **long** (see Figure 13-2):

1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
4. Turn threaded bushing ④ in to shorten dogging rod ⑦ so latch bolt fully retracts.
5. Tighten cap screw ③.
Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

Note: Rim device shown, see pages 10 and 11 for verticals

Latch bolt extended 3/4"
Latch bolt retracted Flush within 1/16"



Figure 13-1

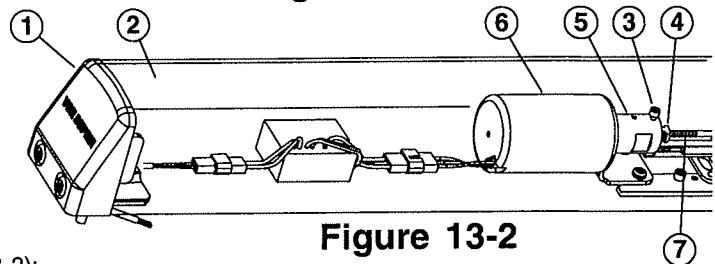


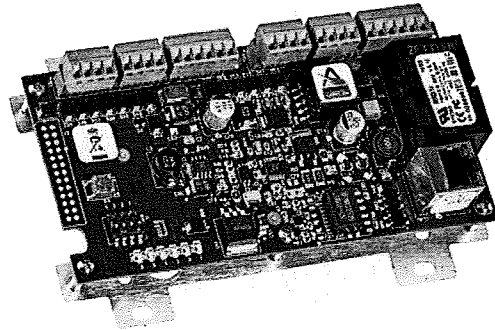
Figure 13-2

D. Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 13-2):

1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
4. Turn threaded bushing ④ out to lengthen dogging rod ⑦ so plunger ⑤ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.
Note: Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
5. Tighten cap screw ③.
Note: Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

Mercury Security MR51e Interface Module

PoE-enabled reader module for up to 1 door



Seamlessly integrated with the Genetec Synergis IP Access Control Solution

The Synergis™ system supports Mercury Security's open field hardware enabling organizations to deploy industry-standard access control modules and protect their investments for years to come. The MR51e dual-reader interface module connects up to two access control readers, controlling one door. Supporting a range of wired and wireless reader technology, the MR51e is managed by a Mercury Security EP1501, EP1502, EP2500 and EP4502 controller and ultimately, the Synergis Cloud Link appliance over IP.

Synergis Cloud Link

The Synergis Cloud Link appliance is an intelligent and PoE-enabled micro-server that supports a mix of non-proprietary access control modules like the Mercury Security MR51e Interface Module. Modernize your access control environment by deploying Synergis Cloud Link over your network and establish real-time connectivity to your doors.

Overview

Connects to the Synergis Cloud Link appliance and Mercury Security controllers over IP.

Reports all activity in real-time to Synergis Cloud Link and Mercury Security controllers

Controls up to 2 readers for 1 door

Reports Supervised Inputs

Outputs can be configured as general purpose outputs

UL 294 recognized components

OSDPv2 supported

Available Interfaces

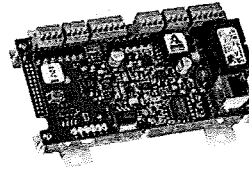
Readers: Up to 2 reader ports

Inputs: 4 supervised, End of Line resistors

Outputs: Form-C contacts: K1, K2: 5A @ 30Vdc



Choose the Synergis IP access control solution to protect your people and assets with your choice of widely-deployed, non-proprietary, and secure access control hardware.



◀ Mercury Security MR51e Interface Module

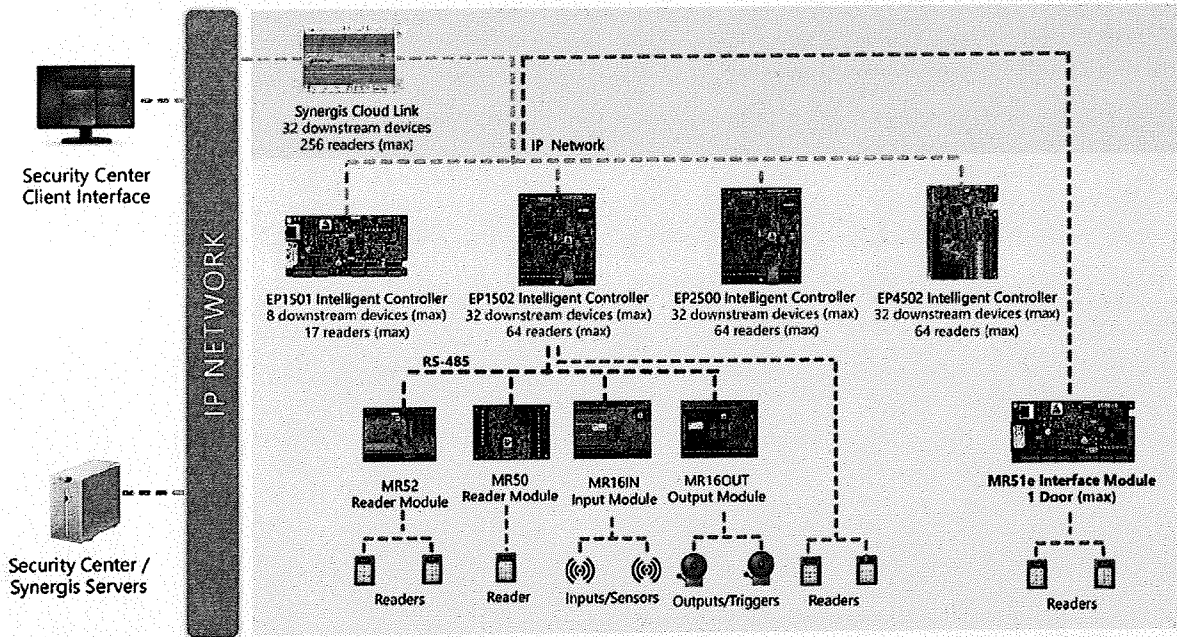
Specifications Table

Dimensions	5.5 in × 2.75 in (140 mm × 70 mm)
Operating Temperature	-55°C to +85°C for storage, 0°C to +70°C while operating
Communications Ports	Ethernet, 10Base-T/100Base-TX

Certifications	UL 294 and UL 294B Recognized, CE Compliant, ROHS, FCC Part 15 Class A, NIST Certified Encryption, EN-60839-11-1
Warranty	24-month warranty. Please refer to Genetec Sales Policy for more information

Architecture ▼

Connected to any Mercury Intelligent Controller and ultimately the Synergis Cloud Link appliance over IP, the Mercury MR51e Dual-Reader Module processes real-time commands and reports all activities upstream, providing an ideal integration solution when a network connection to the access point is desired.



Genetec Inc.

2280 Alfred-Nobel Blvd., Suite 400,
Montreal, QC, Canada H4S 2A4

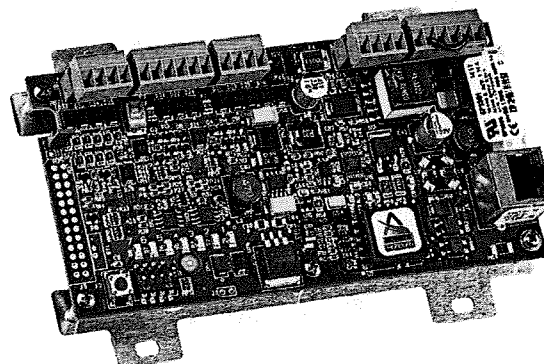
T 514.332.4000

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Mercury Security EP1501 Intelligent Controller

PoE-enabled controller managing
up to 16 input and output modules
or 17 readers



Seamlessly integrated with the Genetec Synergis IP Access Control Solution

The Synergis™ system supports Mercury Security's open field hardware enabling organizations to deploy industry-standard access control modules and protect their investments for years to come. The EP1501 is an edge-capable intelligent controller that is expandable up to 8 downstream SIO controllers and up to 16 MR51e network ready door controllers for a total of 17 readers. Supporting a range of wired and wireless reader technology, the EP1501 connects to the Synergis Cloud Link Intelligent appliance over IP. Supported RS-485 downstream panels include the Mercury Security MR52 as well as the MR51e supported over IP.

Synergis Cloud Link

Synergis Cloud Link is an intelligent and PoE-enabled gateway appliance that supports a mix of non-proprietary access control modules like the Mercury Security EP1501 Intelligent Controller. Modernize your access control environment by deploying Synergis Cloud Link over your network and establish real-time connectivity to your doors.

Overview

Connects to and reports real-time activity to the Synergis Cloud Link appliance over any IP network

Handles access control decisions and monitors activity when disconnected from the Synergis system

Supports up to 250,000 cardholders

Manages a maximum of 8 downstream MR52 devices over RS-485 and up to 16 MR51e over IP

When disconnected from Synergis, the EP1501 buffers up to 50,000 offline events and reports them once connectivity is reestablished

Additional capabilities include elevator control, hard antipassback, and offline input/output (IO) linking

UL 294 and UL 294B recognized components

OSDPv2 supported

Available Interfaces

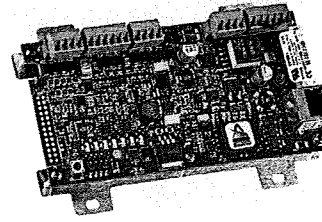
Readers: 2 reader ports or 1 2-wire RS-485 reader port capable of supporting two readers

Inputs: 2 general purpose programmable circuit type, and dedicated tamper

Outputs: 2 relays Form C, 2A @ 30Vdc



Choose the Synergis IP access control solution to protect your people and assets with your choice of widely-deployed, non-proprietary, and secure access control hardware.



◀ Mercury Security EP1501 Intelligent Controller

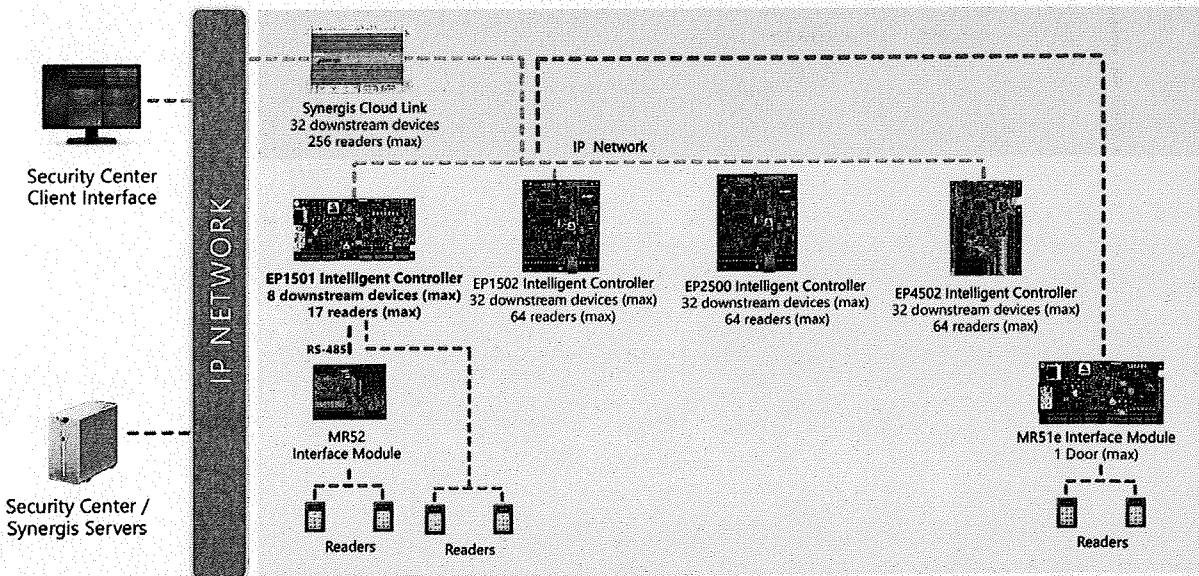
Specifications Table

Dimensions	5.5 in × 2.75 in × 0.96 in (140 mm × 92 mm × 34 mm)
Operating Temperature	0-70°C operational, -55-85°C storage
Communications Ports	10/100 Ethernet

Certifications	UL 294 and UL 294B Recognized, CE Compliant, ROHS, FCC Part 15 Class A, NIST Certified Encryption. ULC-S319 (See Synergis Cloud Link Hardware Installation Guide), EN-60839-11-1
Warranty	24-month warranty. Please refer to Genetec Sales Policy for more information

Architecture ▼

Connected to the Synergis Cloud Link Appliance over IP, the Mercury EP1501 is an IP ready intelligent controller that is expandable up to 8 serial input/output devices and up to 16 MR51e network-ready door controllers. 1 reader port can be used for an additional 2 readers (1 access point) representing access control for up to 17 access points.



Genetec Inc.

2280 Alfred-Nobel Blvd., Suite 400,
Montreal, QC, Canada H4S 2A4

T 514.332.4000

genetec.com
info@genetec.com

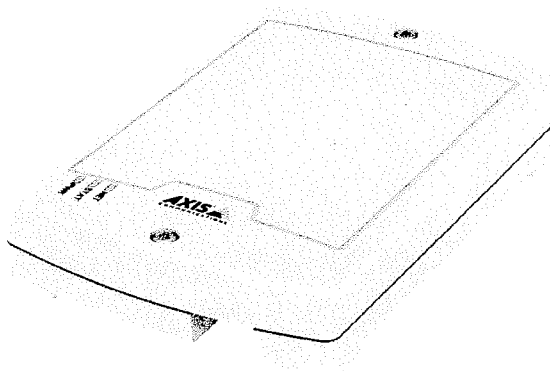
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AXIS A9161 Network I/O Relay Module

Cost-efficient intelligent module

AXIS A9161 Network I/O Relay Module has 6 configurable I/Os with supervised inputs and a relay. The module reacts on inputs, such as signals from PIR motion detectors or switches, to trigger actions. Its open platform enables a high level of integration with AXIS A1001 Network Door Controller, network cameras, and other facility systems. AXIS A9161 also works standalone. Supplying power to I/O devices, it can extend the functionality of Axis products where additional I/Os or relays are needed. Its convenient size and enclosure makes installation easy and flexible.

- > **6 I/Os and 1 form C relays**
- > **12 and 24 V DC output/input or PoE**
- > **Based on Axis open platforms - VAPIX and ACAP**
- > **Used with AXIS Camera Station or third-party software**




AXIS A9161 Network I/O Relay Module

I/O interface	
Digital I/O	6x I/O, configurable as input, supervised input with analog read-out or output (Digital input: 0 to max 40 V DC, possible to supervise between 0-12 V (4 states), Digital output: 0 to max 40 V DC, Open drain, max 100 mA)
Relays	1x Form C relay, NO/NC contacts, max 1 A, 30 V DC
Network	
Security	Password protection, IP address filtering, HTTPS ^a encryption, IEEE 802.1X network access control, Digest authentication
Supported protocols	IPv4, IPv6, HTTP, HTTPS ^a , TLS ^a , QoS layer 3 DiffServ, FTP, SFTP, SMTP, Bonjour, UPnP TM , SNMPv1/v2c/v3 (MIB-II), DNS, DynDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS
System integration	
Application Programming Interface	Open API for software integration, including VAPIX [®] , specifications at www.axis.com Support for AXIS Camera Application Platform enabling installation of third-party applications, see www.axis.com/acap
Events & alarms	
Tamper detection	Removal of top cover
Event history	30 000 First In, First Out (FIFO)
Event actions	Notification via email, HTTP, HTTPS and TCP, External output port Status LED, send SNMP Trap
Event triggers	Tamper detection, Network lost, Configuration, Event logger, Hardware, Input signal, Schedule, System, Time, Supervised inputs (4 states), Relays and outputs, Heartbeat Lost
General	
Sustainability	PVC free
Software	Configuration and basic management through Internet Explorer, Firefox, Chrome, or Safari
Memory	256 MB RAM, 256 MB Flash

Power	Power in: 8-28 V DC, max 26 W or Power over Ethernet IEEE 802.3af Type 1 Class 3 Power out: 12 V DC and 24 V DC. Max power out shared between 12 V and 24 V outputs: PoE Class 3: 7 W, DC-input: 17 W
Connectors	1x RJ45 10BASE-T/100BASE-TX Terminal blocks: 1x DC IN, 1x DC out, 6x Inputs/Outputs, 1x Relays, Cable size for connectors: CSA: AWG 28-16, CUL/UL: AWG 30-14
Operating conditions	-40 °C to 55 °C (-40 °F to 131 °F) Humidity 20-85% RH (non-condensing)
Approvals	EN 55032 Class B, EN 50130-4, EN 61000-3-2, EN 61000-3-3, EN 55024, EN 61000-6-1, EN 61000-6-2, FCC Part 15 Subpart B Class B, ICES-003 Class B, RCM AS/NZS CISPR32 Class B, VCCI Class B, IEC/EN/UL 62368-1, EN 50581
Dimensions	35 x 178 x 120 mm (1.4 x 7 x 4.7 in)
Weight	500 g (1.1 lb)
Included accessories	Jumper kit, Torx Key TR20, DIN-clip, Installation Guide
Optional accessories	AXIS T8120 Midspan 15 W, AXIS T8129 PoE Extender Power supply AXIS T8006 PS12
Languages	English, French, Italian, German and Spanish
Warranty	Axis 3-year warranty and AXIS Extended Warranty option, see www.axis.com/warranty

a. This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>), and cryptographic software written by Eric Young (ey@cryptsoft.com).

Environmental responsibility:
www.axis.com/environmental-responsibility



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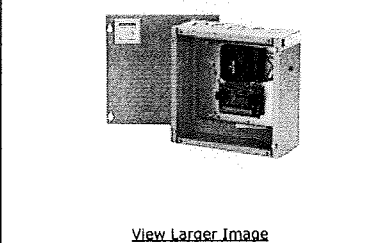
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 - Not a CRL Customer?
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TECHNICAL DETAILS

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- Catalog Number: **301420**
- Filtered and Regulated 24V DC Output - 2A Max
 - Auto-Operator Interface Adds Control of Openings with Both Electrified Door Hardware and Automatic Door Operator
 - Automatically Accepts 120V AC or 240V AC Input
 - Auxiliary 24V DC Output - 1A Max

This CRL Power Supply provides a regulated and filtered 24V DC at 2 amp output. It provides the necessary electronics for controlling a complete automated door opening system by coordinating the control of electrified door hardware and an automatic door operator, resulting in a proper sequence of operation from the beginning to the end of the cycle. Up to two devices can be controlled by this Power Supply.



[CLICK HERE TO VIEW MORE CHOICES](#)

CRL 24V DC 2A Filtered and Regulated Power Supply with Auto-Operator Interface

Other Products:

CATALOG NUMBER	DESCRIPTION
302616	CRL Power Supply for Jackson® 20 Series Electrified Panic Exit Devices
301420	CRL 24V DC 2A Filtered and Regulated Power Supply with Auto-Operator Interface

More Details:

Catalog Number: **301420**

Also Available in These Catalogs: AH18 Architectural Hardware Catalog 2018, PAGE 278Z

Ship Via: Can Ship UPS

Additional Product Information:

Separate 24V DC Outputs for Fail Safe and Fail Secure Electrified Door Hardware. Input for Optional Fire Alarm or Emergency Release Built-In Time Delay Between Activation of Electrified Door Hardware and Automatic Door Operator

Auxiliary 24V DC Output - 1 amp

Automatically Accepts 120V AC or 240V AC Input

UL Listed and Tested to 294 Standard for Access Control Systems

Important Notes:

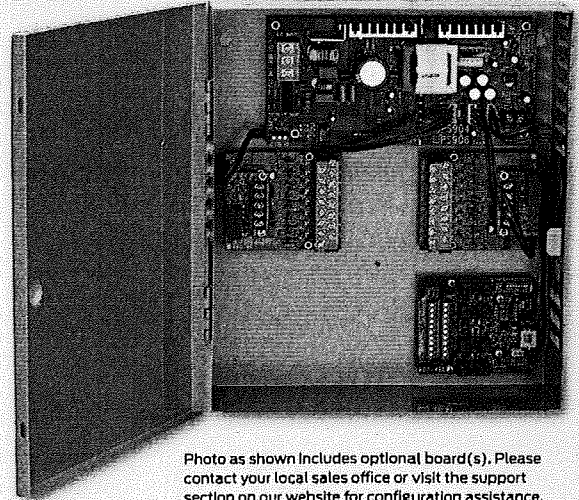
Most shipping weights are approximate and have not been verified. If the exact weight is needed in order to determine shipping costs, and shipping costs are required in order for you to complete your order, please request this prior to submitting your order by contacting [CRL Customer Service](#). Product images shown are of the actual product or a close representation. Colors can vary depending on your computer's video card and on how your monitor's color is adjusted.

- Related Items:**
- | | |
|---|--|
| <p>8500FL02628
CRL Jackson® Electric Outside Lever Trim with Flat Style Lever Satin Aluminum Finish 24 Volt DC</p> | <p>312085FLG628
CRL Jackson® Model 2085E Satin Aluminum Electric Rod Retraction Concealed Vertical Rod Panic Exit Device Left Hand Reverse Bevel Fits 36" to 48" Door</p> |
|---|--|



Questions? Contact CRL Customer Service by calling (800) 421-8144 or online by clicking on Contact Us.
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Overview

The Schlage comprehensive line of power supplies and option boards was designed to address the changing needs of the access control market.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified strikes, electromagnetic locks, card readers, etc.).

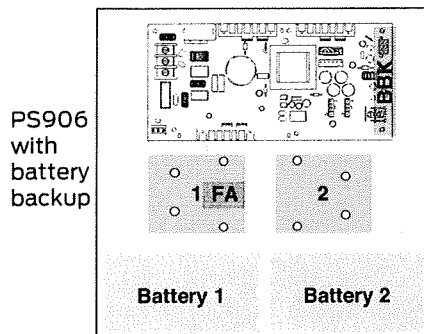
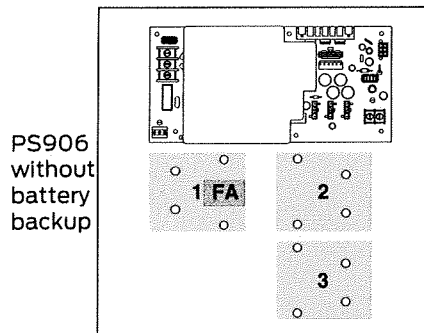
Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 6A @ 12/24 VDC constant output, field selectable with jumper
- Provides low-voltage, Class 1, filtered and regulated power (Class 2 when used with 900-8P option board)
- Universal 120-240 VAC, fused primary input
- Three polarized option board connectors eliminate need for racks and side connectors
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry (not shown)
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, ULC-S318, RoHS, and FCC Part 15 certified

Configuration options

Available option board, fire alarm and battery backup connection locations:



Exit device support

Von Duprin QEL	Up to 8 ¹
Von Duprin EL	None
Falcon EL	None

1. Requires the use of two 900-4RL option boards

PS906 power supply specifications

Specification	Description
Input voltage	120/240 VAC, 50/60 Hz, universal input
Output voltage	6A @ 12 or 24 VDC Field selectable with jumper Switching supply, 5% regulation, 240mVpp max ripple
Enclosure	Grey/baked enamel 14"x 12"x 4" (H x W x D) Eight 1/2" x 3/4" knockouts NEMA Grade 1 Hinged cover with lock down screws
Operating temperature	32° - 120°F (0° - 49°C)
Certifications	ANSI/UL 294 ULC-S318 RoHS FCC Part 15 Class 1 (Class 2 when used with 900-8P option board)
Battery backup (install on main board)	900-BB: Battery backup board only 900-BBK: Battery backup kit (backup board plus battery pack)
Available option boards	900-FA: Plug-in fire alarm (must be installed on option board) 900-2RS*: 2 Relay option board capable of individual or sequential operation for single and pair door applications 900-4R*: 4 Relay option board 900-4RL*: 4 Relay option board with integrated logic and individual or sequential operation capability for controlling security interlocks, auto operators and time delay function 900-8F*: Fused, 8 zone option board 900-8P*: PTC, 8 zone option board
AC primary fuse size	6.3A, 250v, 5 x 20 mm
Battery fuse size	7.5A 32v ATO blade style
DC output protection	Overload protection - current limited foldback circuit
Indicators	LED indicators: - AC input (visible on outside of enclosure) - DC output Isolated SPDT contacts to monitor AC power status
Weight (power supply)	Approx. 9.0 lbs
Weight (each battery)	4.0 lbs
AC input termination	3 position terminal block with protective cover Wire capacity: 10 AWG max.
DC output termination	2 position terminal block Wire capacity: 12 AWG max.
Option board connectors	3
Fire alarm board connector	Yes (requires connection on option board)
Keylock	Optional
Accessories	900-BAT: Backup battery pack

* Compatible with plug-in fire alarm board (900-FA)

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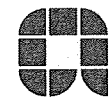
About Allegion

Allegion (NYSE: ALLE) is a global pioneer in safety and security, with leading brands like CISA®, Interflex®, LCN®, Schlage®, SimonsVoss® and Von Duprin®. Focusing on security around the door and adjacent areas, Allegion produces a range of solutions for homes, businesses, schools and other institutions. Allegion is a \$2 billion company, with products sold in almost 130 countries. For more, visit www.allegion.com.

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PS914

4 amp high in rush
power supply

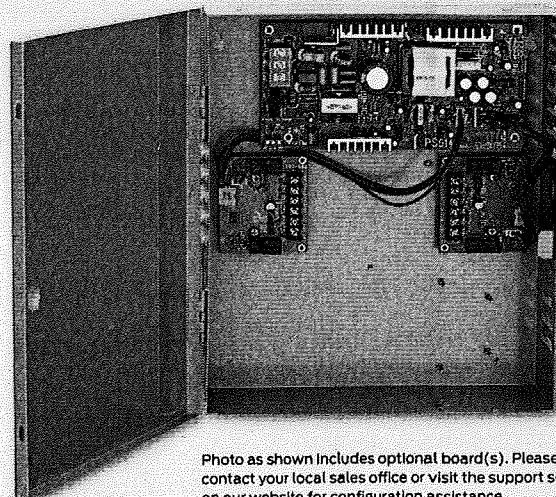


Photo as shown includes optional board(s). Please contact your local sales office or visit the support section on our website for configuration assistance.

Overview

Von Duprin power supply and option board products were designed to meet the specific requirements of electrified fire exit devices.

Installation is simplified by utilizing a flat mounting design and polarized locking connectors for option boards. This design eliminates the need for racks and side connectors. The flat mounting of the option boards also provides for easier access to the terminal blocks for connection of electrified devices (such as electrified panic devices, strikes, card readers, etc.).

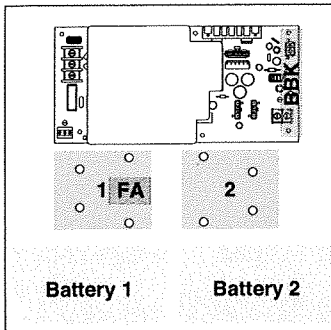
Common to the line of PS900 Series power supplies is a constant output rating at both 12v and 24v settings, universal 120 VAC to 240 VAC input, and polarized option board connectors. New fire alarm interface board mounting allows outputs to be configured as switched (power cut) or unswitched (power continues) when signal is provided.

Features and benefits

- 4A @ 12/24 VDC constant output, field selectable with jumper
- Designed for use with electrified panic devices requiring high in rush current
- Provides low-voltage, Class 2, filtered and regulated power
- Universal 120-240 VAC, fused primary input
- Two polarized option board connectors
- AC input and DC output monitoring circuit with LED indicators
- Externally visible AC input indicator with isolated SPDT contacts
- High-voltage protective cover for AC circuitry (not shown)
- Battery back-up board auto-selects voltage
- Optional Fire Alarm plug-in board available
- UL 294, UL-C-S318, RoHS, and FCC Part 15 certified

Configuration options

Available option board, fire alarm and battery backup connection locations:



Exit device support

Von Duprin QEL	Up to 8 ¹
Von Duprin EL	Up to 8 ^{1,2}
Falcon EL	Up to 8 ^{1,2}

1. Requires the use of two 900-4RL option boards

2. Distance from power supply may be limited with multiple EL applications - consult technical support for wire run lengths

PS914 power supply specifications

Specification	Description
Input voltage	120/240 VAC, 50/60 Hz, universal input
Output voltage	4A @ 12 or 24 VDC Field selectable with jumper Switching supply, 5% regulation, 360mVpp max ripple
Enclosure	Grey/baked enamel 14" x 12" x 4" (H x W x D) Eight 1/2" x 3/4" knockouts Hinged cover with lock down screws
Operating temperature	32° - 120°F (0° - 49°C)
Certifications	ANSI/UL 294 ULC-S318 RoHS FCC Part 15 Class 2
Battery backup (install on main board)	900-BB: Battery backup board only 900-BBK: Battery backup kit (backup board plus battery pack)
Available option boards	900-FA: Plug-in fire alarm (must be installed on option board) 900-2RS*: 2 Relay option board capable of individual or sequential operation for single and pair door applications 900-4R*: 4 Relay option board 900-4RL*: 4 Relay option board with integrated logic and individual or sequential operation capability for controlling security interlocks, auto operators and time delay function 900-8F*: Fused, 8 zone option board 900-8P*: PTC, 8 zone option board
AC primary fuse size	6.3A, 250v, 5 x 20mm
Battery fuse size	7.5A 32v ATO blade style
DC output protection	Overload protection - current limited foldback circuit
Indicators	LED indicators: - AC input (visible on outside of enclosure) - DC output Isolated SPDT contacts to monitor AC power status
Weight (power supply)	Approx. 9.0 lbs
Weight (each battery)	4.0 lbs
AC input termination	3 position terminal block with protective cover Wire capacity: 10 AWG max.
DC output termination	2 position terminal block Wire capacity: 12 AWG max.
Option board connectors	2
Fire alarm board connector	Yes (requires connection on option board)
Keylock	Optional
Accessories	900-BAT: Backup battery pack

* Compatible with plug-in fire alarm board (900-FA)

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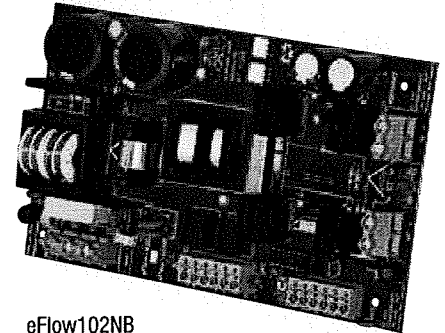
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eFlow102NB Power Supply/Charger

Description

Altronix eFlow102NB UL Listed Sub-Assembly power supply/charger converts a 120VAC, 60Hz input into a single 12VDC output. It also offers a suite of features that includes fire alarm disconnect, overvoltage protection, and low power disconnect which prevents deep discharge of stand-by batteries.



eFlow102NB

Specifications

Input

Voltage	120VAC, 60Hz, 3.5A max.
Fusing	5A / 250V.

Outputs

Voltage	12VDC.
Current	10A continuous max.
Auxiliary	Power-limited @ 1A (unswitched).
Other	Overvoltage protection. Filtered and regulated.

Back-up Battery *(not included)*

Type	Sealed lead acid or gel type.
Fuse Rating	15A @ 32VDC.
Failover	Upon AC loss, instantaneous.

Fire Alarm Disconnect

Supervised	Latching or non-latching.
EOL	10K Resistor.

Supervision

AC Failure	Form "C" contacts.
Battery	Form "C" contacts.

Low DC Power Shutdown

Shuts down DC output terminals if battery voltage drops below 71-73% for 12V units and 70-75% for 24V units (depending on the power supply). Prevents deep battery discharge.

Indicators (LED)

Input	120VAC is present.
DC Output	Powered.
Battery	Discharged or not connected.

Agency Listings

UL:

Access Control	UL294
Burglar Alarm	UL603
Fire Alarm	UL1481

cUL:

Burglar Alarm	ULC-S318-96
Access Control	ULC-S319-05
Signal Equipment	CSA C22.2 No.205

Physical and Environmental

Dimensions (L x W x H)

7.5" x 4.6" x 1.75" (190.5 mm x 116.8 mm x 44.5 mm).

Product Weight 0.85 lbs. (0.39 kg).

Shipping Weight 1.0 lbs. (0.45 kg).

Temperature

Operating 0°C to 49°C (32°F to 120°F).

Storage -20°C to 70°C (-4°F to 158°F).

Relative Humidity 85% +/-5%.

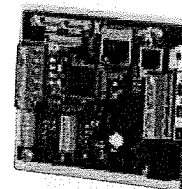
BTU/Hr. (approx.): 61 BTU/Hr.

Accessories

Network Supervision

Altronix model LINQ2 Network Communication Module provides remote supervision, control and monitoring over LAN/WAN

- Remotely reports accurate power diagnostics
- Controls power and resets devices
- Email and SNMP trap message notifications

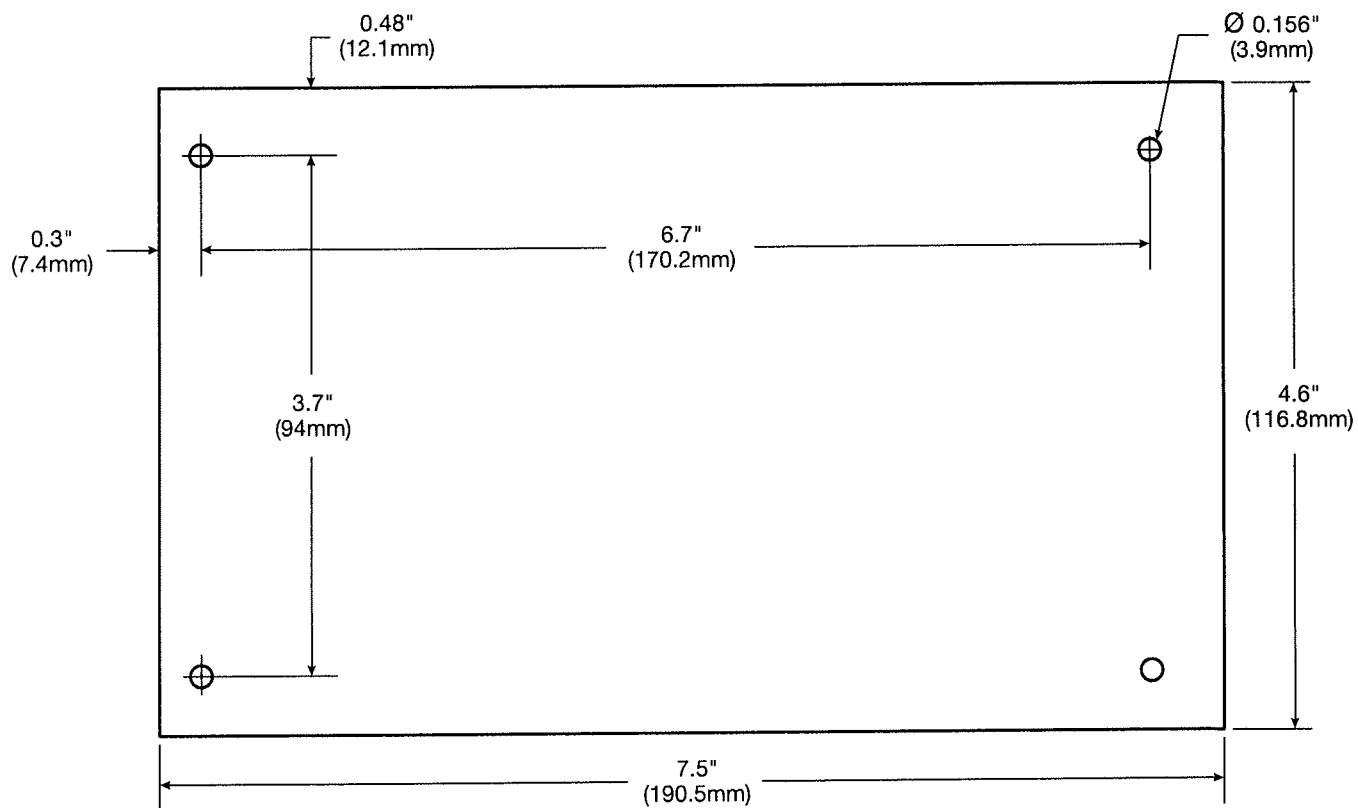




eFlow102NB Power Supply/Charger

Board Dimensions (L x W x H) and Drawing

7.5" x 4.6" x 1.75" (190.5 mm x 116.8 mm x 44.5 mm)

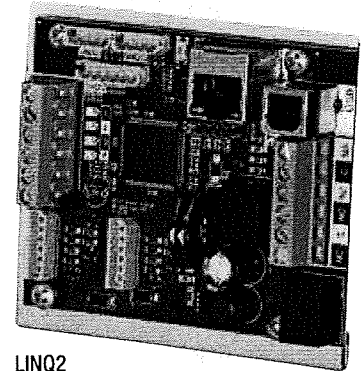




LINQ2 Network Communication Module

Description

Altronix LINQ2 network module is designed to interface with eFlow Series, MaximalF Series, and Trove Series power supply/chargers. It enables power supply status monitoring and control of two (2) eFlow power supply/chargers over a LAN/WAN or USB connection. LINQ2 provides values on demand for AC fault status, DC current and voltage, as well as Battery fault status, and reports conditions via email and Windows Dashboard Alert. LINQ2 can also be used as a standalone network controlled relay powered from any 12VDC to 24VDC power supply. Two separate networked relays can be used for variety of applications, such as: reset an access control system or gate operator, CCTV camera power, trigger camera to start recording, initiate remote test sequence of security system, or trigger HVAC system.



LINQ2

Key Features

- Management interface for up to two (2) eFlow power supply/chargers.
- Two (2) network controlled Form "C" relays.
- Three (3) monitored input triggers
- Management interface software included (USB flash drive).
- Includes interface cables and mounting bracket.
- UL Listed in the U.S. and Canada.
- Lifetime Warranty / Made in the U.S.A.

Status Screen (Example)

The screenshot displays the Altronix eFlow Management Interface. At the top, it shows the Altronix logo and 'eFLOW Management Interface' with 'LINQ' branding. Below this, there are fields for 'Device IP Address' (192.168.168.166) and 'Local IP Address' (192.168.168.166), along with 'SNMP Port' (161) and 'SNMP Trap Manager Port' (162). A navigation bar includes 'Status', 'Setup', 'Network Settings', 'Trap Messages', and 'Events Log'. The main content area is titled 'eFlow' and shows the date and time: 'Friday, 19 September 2014 [11:55 AM]'. It lists two power supplies with their respective status tables.

Power Supply 1		Status		
Voltage	Current	AC Status	Battery Status	Service Battery On
13.15 VDC	0.07 AMP	OK	FAIL	Jun 6, 2018

Power Supply 2		Status		
Voltage	Current	AC Status	Battery Status	Service Battery On
25.15 VDC	5.07 AMP	OK	FAIL	Jun 6, 2018

Unit Temperature : 32.9° C

Local IP Address : 192.168.168.196 - Connected To Device: 192.168.168.166 - SNMP Port: 161 - Trap Port: 162 <-> Trap Receiver LocalHost [192.168.168.196]



LINQ2

Network Communication Module

Specifications

Input

Current consumption 100mA to be subtracted from the eFlow power supply's output.
[COM1 & COM0] ports are currently disabled, reserved for future use.
Visit www.altronix.com for latest software updates.

Outputs

Power output(s) can be locally or remotely controlled.

Status Monitoring

AC status.
Output current draw.
Unit's temperature.
DC output voltage.
Low Battery/Battery presence detection.
Input trigger state change.
Output (relay and power supply) state change.

Programming

Battery service date indication.
Programmable via USB or web browser.
Automated timed events:
- Control output relays and power supply via flexible timing parameter.

Reporting

Programmable dashboard notifications.
E-mail notification selectable by event.
Event log tracks history (100+ events).

Indicators (LED)

Blue LED: Power ON.

Agency Listings

UL

UL 294 Access Control System Units.
UL 603 Power Supplies for Use with Burglar-Alarms Systems.
UL 1481 Power Supplies for Fire Protective Signaling Systems.

cUL

ULC-S318-96 Power Supplies for Burglar Alarm Systems. Also suitable for Access Control.
ULC-S318-05 Power Supplies for Electronic Access Control Systems.

Physical and Environmental

Dimensions with Mounting Bracket (W x L x H)
3.65" x 3.25" x 0.96" (92.7mm x 82.55mm x 24.4mm).

Weight (approx.)

Product Weight: 0.4 lbs. (0.18 kg).
Shipping Weight: 0.7 lbs. (0.32 kg).

Temperature

Operating: 0°C to 49°C (32°F to 120.2°F).
Storage: -30°C to 70°C (-22° to 158°F).

Relative Humidity 85% +/-5%.

Operating Altitude:

-304.8 to 3,048m (-1,000 to 10,000 ft.).



941920-00

Electrical Wiring

E-7500 Mortise Lock SS-7500 Mortise Lock

VON DUPRIN®

Installation Instructions

OPERATION:

The E-7500 Mortise Lock has an electric lock solenoid and two monitor switches. The SS-7500 Mortise Lock has only the two monitor switches.

The solenoid is used to electrically lock or unlock the mechanical trim. The fail secure version requires power to unlock the trim. The fail safe version requires power to lock the trim.

The latch bolt monitor switch S1 indicates the auxiliary bolt is depressed (door closed) and the latchbolt is fully extended (Figure 3).

The trim lock switch S2 indicates whether the mechanical trim inputs are locked or unlocked (Figure 3).

The standard unit is available in either non polarized 12 VDC or 24 VDC operation (must be specified). An optional SO kit is required for AC operation. The SO-12 kit converts 12 VAC to 12 VDC. The SO-24 kit converts 24 VAC to 24 VDC. This equipment must be used in accordance with the National Electric Code.

INSTALLATION:

1. For device or trim preparation, see their directions.
2. Prepare door for mortise lock (see 7500 Mortise Lock instructions).
3. Install SO kit when using 12 or 24 VAC power supply (Figure 1). For wood fire door, locate SO kit in frame.
4. Wire mortise lock as shown. Leave adequate lengths of wire to make all connections before inserting lock in door.
5. Test operation: Applying power to the solenoid of fail secure lock unlocks the trim. Applying power to the solenoid of fail safe lock locks the trim.
6. Install mortise lock.

SOLENOID POWER REQUIREMENTS

Yellow solenoid wires: 12 VDC, 0.65 A
Black solenoid wires: 24 VDC, 0.34 A

NOTES

DC input to solenoid is nonpolarized
For wood fire door locate SO kit in frame

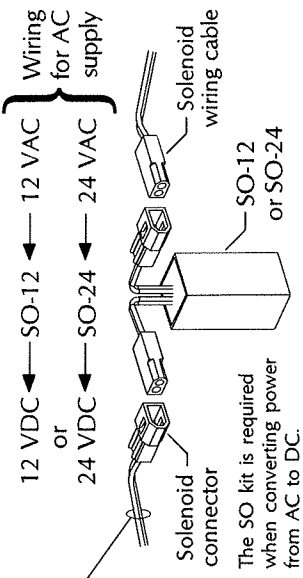


Figure 1

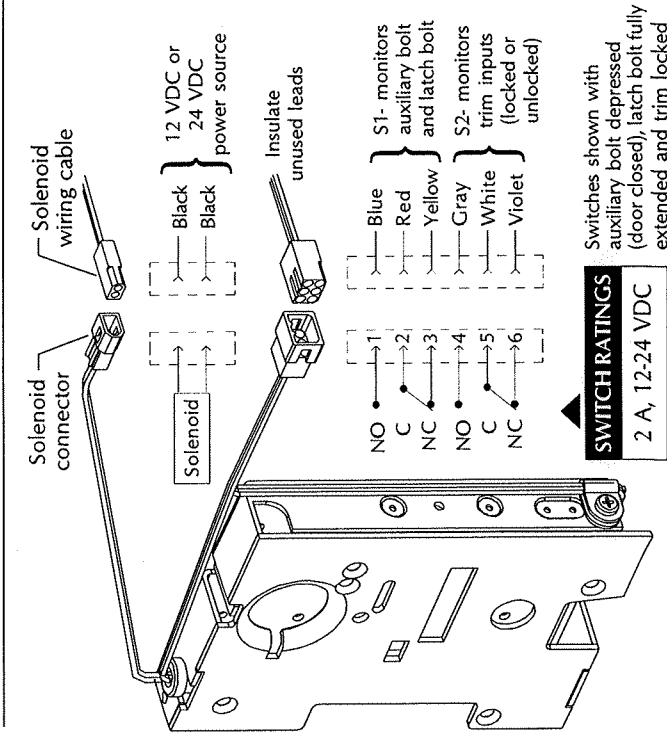


Figure 2

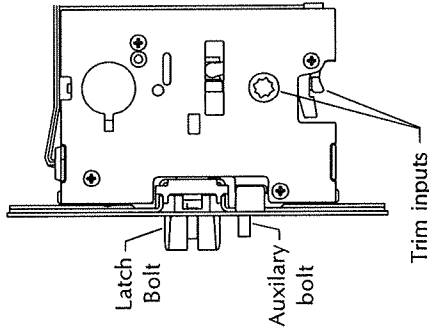


Figure 3



Customer Service

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