Addendum No. 07

April 15, 2024

BAKERSFIELD COLLEGE STUDENT HOUSING

(for DSA Project Name - New Residence Hall)

OWNER: KERN COMMUNITY COLLEGE DISTRICT
2100 Chester Avenue
Bakersfield, CA 93301

PREPARED BY: PBK Architects, Inc.
4900 California Avenue, Suite 130-A
Bakersfield, CA 93309

PBK PROJECT NO.: S2103400AR
DSA FILE NO.: 15-C1
DSA APPLICATION NO.: 02-122124

NOTICE TO BIDDERS

A. Receipt of this Addendum shall be acknowledged on the Proposal Form.
B. This Addendum forms part of the Contract Documents for the above referenced project and shall be incorporated integrally therewith.
C. Each proposer shall make necessary adjustments and submit their proposal with full knowledge of all modifications, clarifications, and supplemental data included therein. Where provisions of the following supplemental data differ from those of the original Contract Documents, this Addendum shall govern.

DRAWINGS:

ARCHITECTURAL:

ELECTRICAL:

AD7-01 **E0.03 – ELECTRICAL ENLARGED SITE PLAN: ADD** Refer to clouded keynotes.

AD7-02 **E1.22 – ELECTRICAL ENLARGED POWER PLAN – LEVEL 02 - SOUTH:** Refer to clouded changes.

AD7-03 **E1.23 – ELECTRICAL ENLARGED LIGHTING PLAN – LEVEL 02 - NORTH:** Refer to clouded changes.

AD7-04 **E1.24 – ELECTRICAL ENLARGED LIGHTING PLAN – LEVEL 02 - SOUTH:** Refer to clouded changes.

AD7-05 **E1.32 – ELECTRICAL ENLARGED POWER PLAN – LEVEL 03 - SOUTH:** Refer to clouded changes.

AD7-06 **E1.33 – ELECTRICAL ENLARGED LIGHTING PLAN – LEVEL 03 - NORTH:** Refer to clouded changes.

AD7-07 **E1.43 – ELECTRICAL ENLARGED LIGHTING PLAN – LEVEL 04 - NORTH:** Refer to clouded changes.

Addendum No. 07

April 15, 2024

BAKERSFIELD COLLEGE STUDENT HOUSING

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AD7-08 **E6.04 – LIGHTING FIXTURE SCHEDULE:** Refer to clouded changes.

FIRE ALARM:

AD7-09 **FSX.01 – FIRE SPRINKLER DETAILS:** Omit Details 03 and 07 on Sheet FSX.01, pertaining to the hanging of CPVC piping. Details are now obsolete and shall not be used.

LOW VOLTAGE:

AD7-10 **T1.11A, T1.21, T1.22, T1.31, T1.32, T1.41, T1.42 – TECHNOLOGY SHEETS** the technology sheets have been updated to include added card readers and door contacts at all unit entry doors and at office doors. Changes are shown in red.

AD7-11 **TECHNOLOGY ADDITION – SHEET E0.03 – ELECTRICAL ENLARGED SITE PLAN:** Technology exterior camera locations have been shown and card readers and door contacts at exterior gates have been shown. Provide data cable and from nearest main floor data room to data box for connection to camera. Provide data conduit and power conduit to card readers and door contacts. Rout to nearest data room.

SPECIFICATIONS:

AD7-12 **SECTION 05 51 33.23 ALTERNATING TREAD LADDERS: Add** entire section.

AD7-13 **SECTION 06 48 00 WOOD FRAMES: Add** entire section.

AD7-14 **SECTION 06 73 00 COMPOSITE DECKING: Add** entire section.

AD7-15 **SECTION 07 21 29 SPRAYED INSULATION: Add** entire section.

AD7-16 **SECTION 07 42 13 METAL WALL PANELS: Add** entire section.

AD7-17 **SECTION 07 72 36 SMOKE VENTS: Add** entire section.

AD7-18 **SECTION 07 51 00 Built-up Roofing: Delete** entire section.

AD7-19 **SECTION 07 56 00 Fluid Applied Roofing: Delete** entire section.

AD7-20 **SECTION 08 45 23 Insulated Translucent Fiberglass Sandwich Panel: Delete** entire section.

AD7-21 **SECTION 10 14 25 Marquee Panel Signs: Delete** entire section.

AD7-22 **SECTION 10 14 26 Post and Panel/Pylon Signs: Delete** entire section.

AD7-23 **SECTION 10 14 33 Illuminated Panel Signs: Delete** entire section.

AD7-24 **SECTION 10 21 13 Toilet Compartments: Delete** entire section.

AD7-25 **SECTION 10 21 13.13 Metal Toilet Compartments: Delete** entire section.

Addendum No. 07

April 15, 2024

BAKERSFIELD COLLEGE STUDENT HOUSING

(for DSA Project Name - New Residence Hall)

AD7-26 **SECTION 10 21 13.17 Phenolic Toilet Compartments: Delete** entire section.

AD7-27 **SECTION 26 26 53 - ELECTRIC VEHICLE CHARGING EQUIPMENT: Add** entire section.

AD7-28 **SECTION 27 05 36 – CABLE TRAYS FOR COMMUNICATIONS SYTEMS: REMOVE SECTION FROM SCOPE OF WORK.** Cable tray requirement is eliminated. Structured cable shall be supported using J-Hooks in corridors routed above ceiling.

AD7-29 **SECTION 28 46 00 – FIRE DETECTION AND ALARM: Replace** entire section with attached section 28 46 00 – FIRE DETECTION AND ALARM.

AD7-30 **SECTION 28 23 00 – IP SECURITY CAMERA SYSTEM: Replace** entire section with attached section 28 23 00 – Provide allowance for Camera System per specification.

AD7-31 **SECTION 28 16 00 – INTRUSION DETECTION SYTEM:** Remove entire section. Intrusion detection system is not required, scope of work is eliminated.

AD7-32 **SECTION 27 51 23 – INTEGRATED ELECTRONIC COMMUNICATIONS: Replace** entire section with attached section 27 51 23.

AD7-33 **SECTION 28 13 00 – ACCESS CONTROL SYSTEM: Replace** entire section with attached section 28 10 00.

AD7-34 **SECTION 33 05 13 - Manholes and Structures: Add** entire section.

AD7-35 **SECTION 33 10 00 - Water Utilities**: Add **entire section.**

AD7-36 **SECTION 33 13 00 - Disinfection and Bacteriological Testing of Water Main System: Add** entire section.

PRE_BID RFIS:

AD7-37 **Refer to attached RFI Log for Pre-BID RFI Responses**.

END OF ADDENDUM NO. 7

SECTION 05 51 33.23 ALTERNATING TREAD LADDERS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Custom fabricated steel sloped alternating tread stairs, with attachment hardware, fasteners, and accessories required.

B. Reference Standards:
   1. ASTM International (ASTM):
      a. A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
      b. A513 Standard Specification for Electric-Resistance-Welded Carbon and Alloy Steel Mechanical Tubing.
      c. A780 Standard Practice for Repair of Damaged Hot-Dip Galvanized Coatings.
      d. A1011 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength Low-Alloy with Improved Formability, and Ultra-High Strength.

1.3 PERFORMANCE REQUIREMENTS

A. Stair Treads: Shall be capable of withstanding a concentrated 1,000-pound load without deformation.

B. Handrail: Shall be capable of withstanding load of 200 pounds applied in any direction at any point on the rail.

C. Landings, Treads, and Mounting Base: Shall be stamped and formed from single piece of material. Stock shapes and hand forming or welded remnants are not permitted. All stamped parts shall have integrally formed ridgidizing bends and shall be spot welded to stringers of like material.

D. Welds: Shall be a minimum of eight (8) welds per tread and ten (10) welds each on the landing and mounting base. Each weld shall be quality controlled and capable of withstanding a minimum of 2,800 pounds in shear.

E. Pedestrian Surfaces: Shall be punched through with upset non-skid openings.

F. Riser Spacing: Shall be equally spaced to within 3/16 inch for adjacent risers and to within 3/8 inch for any two (2) non-adjacent risers on a stair.

G. Handrails: Shall be contoured for body guidance and underarm support and shall be attached to the outside stringers and landings by bolting.

H. Landing Reinforcement: Shall be with 1/4-inch steel angle notched and punched and factory welded to the landing at the points of a handrail attachment.

I. Rubber Foot Divider: Shall be affixed to the central portion of the landing. A rubber bumper

shall be attached or will be provided for field gluing to the central stringer.

J. Dimensions:
1. Stair angle: 56 and/or 68 degrees from horizontal as shown on Drawings or required.
2. Vertical drop: The change in elevation, as shown on the Drawings or required, between the upper surface where the top landing will be attached and the lower surface where the base of the stair will be secured.

1.4 SUBMITTALS

A. Product Data:
1. Manufacturer's specifications and technical data.

B. Shop Drawings:
1. Indicate size, material, and finish. Show location and installation procedures. Include details of joints, attachments, and clearances.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Specifications are based on products of Lapeyre Stair, Inc., 220-R Laitram Lane, Harahan, LA 70123 (800) 535-7631. Other manufacturers with a minimum of five (5) years' experience manufacturing products meeting or exceeding the specifications and who comply with Division 01 requirements regarding substitutions to be considered.

2.2 MATERIALS

A. Treads: 13-gauge 1010/15 HRPO in accordance with ASTM A1011.

B. Landings and Foot Stampings: 11-gauge 1010/15 HRPO in accordance with ASTM A1011.

C. Stringers:
1. Two-inches (2") x 1-3/4-inch x 11-gauge 1010/15 in accordance with ASTM A1011 for 56-degree stairs under ten (10) vertical feet and for 68-degree stairs under 12 vertical feet.
2. Three-inches (3") x 1-3/4-inch x 11-gauge 1010/15 in accordance with ASTM A1011 for 56-degree stairs over 10 vertical feet and for 68-degree stairs over 12 vertical feet.

D. Handrails: 1-1/2-inch O.D. x 0.083-inch 1010/15 CS in accordance with ASTM A1011 cold drawn, fully annealed tube in accordance with ASTM A513.

E. Miscellaneous Materials:
1. Rubber spine: Hollow neoprene.
2. Rubber foot divider: Solid neoprene.

F. Finish: Hot-dip galvanized in accordance with ASTM A123.

G. Galvanizing Repair Paint: ZRC cold galvanizing compound or Galvilite manufactured by ZRC Worldwide, Marshfield, MA; Galvax Zinc-rich Cold Galvanizing Coating manufactured by Alvin Products, Inc., Lawerence, MA; or paint complying with military specification MILP-21035A, Type I or II. Apply repair paint in accordance with ASTM A780.

2.3 FABRICATION

A. General: Fabricate to conform with performance and construction requirements and in accordance with approved shop drawings. Fabricate and shop-assemble to greatest extent possible.

B. Fabrication and Assembly: Gas metal arc welded with treads spot welded to stringers and bolt on handrails with included bolts using the specified materials.

PART 3 EXECUTION

3.1 PREPARATION

A. Coordination: Coordinate start and installation of stairs with all other related and adjacent work. Installation shall not start until conditions and construction to which stairs are to be attached and secured are ready to receive work.

B. Verification: Verify that dimensions and angle(s) are correct, and that substrate is in proper condition for stair installation. Do not proceed to install until all necessary corrections have been made.

3.2 INSTALLATION

A. Install at locations shown on the Drawings.

B. Install in accordance with manufacturer's printed instructions.

C. Touch up damage to galvanized surfaces using galvanized repair paint in accordance with ASTM A780.

3.3 CLEANING

A. Clean work area of debris.

B. Clean exposed surfaces of stairs of dirt, grease, and other foreign materials detrimental to good paint adhesion and leave surfaces ready for field painting as specified or required.

END OF SECTION 05 51 33.23

SECTION 06 48 00 WOOD FRAMES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Exterior frames and jambs.
   2. Interior frames and jambs.

1.3 SUBMITTALS

A. Product Data:
   1. For each type of product, including fire retardant treated materials and finishing materials and processes:
      a. Include data for fire retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Samples for Initial Selection:
   1. Shop-applied transparent finishes.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver wood frames until operations that could damage wood frames have been completed in installation areas. If wood frames must be stored in other than installation areas, store only in areas where environmental conditions are appropriate for protection of materials.

PART 2 PRODUCTS

2.1 FRAMES AND JAMBS FOR TRANSPARENT FINISH

A. Grade: Premium.

B. Wood Species: Southern yellow pine.

C. For frames or jambs wider than available lumber, use veneered construction. Do not glue for width.

D. Fire-Rated Interior Frames and Jambs:
   1. Products fabricated from fire retardant particleboard or fire retardant medium-density fiberboard with veneered exposed surfaces and listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252:
      a. Fire rating: 20 minutes.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality

standard for each type of wood frame and quality grade specified unless otherwise indicated.

B. Water-Repellent Preservative Treated Materials:
   1. Comply with AWPA N1 (dip, spray, flood, or vacuum-pressure treatment) for exterior wood frames indicated to receive water-repellent preservative treatment:
      a. Preservative chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC), combined with an insecticide containing chloropyrifos (CPF).
      b. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
      c. Extent of water-repellent preservative treatment: Treat all exterior wood frames unless otherwise indicated.

2.3 FIRE RETARDANT TREATED MATERIALS

A. Fire Retardant Treated Materials, General:
   1. Where fire retardant treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency:
      a. Identify fire retardant treated materials with appropriate classification marking of qualified testing agency in the form of removable paper label or imprint on surfaces that will be concealed from view after installation.

B. Fire Retardant Treated Lumber:
   1. Products with a flame spread index of 25 or less when tested according to ASTM E84, with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test:
      a. Kiln dry lumber after treatment to a maximum moisture content of 19 percent.

2.4 MISCELLANEOUS MATERIALS

A. Exterior Blocking, Shims, and Nailers:
   1. Softwood or hardwood lumber, pressure preservative treated, fire retardant treated, kiln dried to less than 15 percent moisture content:
      a. Preservative treatment by pressure process - AWPA U1; Use Category UC3b:
         1) Kiln dry lumber after treatment to a maximum moisture content of 19 percent.
         2) Preservative chemicals: Acceptable to authorities having jurisdiction.
         3) Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

B. Interior Blocking, Shims, and Nailers: Fire retardant treated softwood lumber, kiln dried to less than 15 percent moisture content.

C. Nails for Exterior Use: Hot-dip galvanized.

D. Screws for Exterior Use: Hot-dip galvanized.

E. Provide self-drilling screws for metal framing supports, as recommended by metal framing manufacturer.

F. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post installed anchors.

Use nonferrous metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

2.5 FABRICATION

A. Fabricate wood frames to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
   1. Edges of solid-wood (lumber) members: 1/16 inch (1.5 mm) unless otherwise indicated.

PART 3 EXECUTION

3.1 FIELD CONDITIONS

A. Weather Limitations for Exterior Work: Proceed with installation of exterior wood frames only when existing and forecasted weather conditions permit work to be performed and at least one (1) coat of specified finish to be applied without exposure to rain, snow, or dampness.

B. Environmental Limitations for Interior Work: Do not deliver or install interior wood frames until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

C. Environmental Limitations for Interior Work: Do not deliver or install interior wood frames until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during the remainder of the construction period.

D. Field Measurements:
   1. Where wood frames are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work:
      a. Locate concealed framing, blocking, and reinforcements that support wood frames by field measurements before being enclosed, and indicate measurements on Shop Drawings.

E. Established Dimensions: Where wood frames are indicated to fit to other construction, establish dimensions for areas where wood frames are to fit. Coordinate construction to ensure that actual dimensions correspond to established dimensions.

3.2 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that wood frames can be supported and installed as indicated.

3.3 PREPARATION

A. Before installation, condition wood frames to average prevailing humidity conditions in installation areas.

B. Before installing wood frames, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.4 INSTALLATION

A. Grade: Install wood frames to comply with same grade as item to be installed.

B. Assemble wood frames and complete fabrication at Project site to the extent that it was not completed in the shop.

C. Install wood frames level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2,400 mm).

D. Scribe and cut wood frames to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Fire Retardant Treated Wood: Handle, store, and install fire retardant treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.

F. Anchor wood frames to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork:
   1. For shop finished items, use filler matching finish of items being installed.

G. Touch up finishing work specified in this Section after installation of wood frames. Fill nail holes with matching filler where exposed:
   1. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are applied in shop.

3.5 ADJUSTING AND CLEANING

A. Repair damaged and defective wood frames, where possible, to eliminate functional and visual defects; where not possible to repair, replace wood frames. Adjust joinery for uniform appearance.

B. Clean wood frames on exposed and semi-exposed surfaces. Touch up shop applied finishes to restore damaged or soiled areas.

END OF SECTION 06 48 00

SECTION 06 73 00 COMPOSITE DECKING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements including but not limited to:
   1. Deck.
   2. Accessibility ramp and railing.
   3. Bench.
   4. Framing and supports.
   5. Accessories necessary for a complete installation.

B. Related Sections:
   1. Section 05 50 00: Metal Fabrications.
   2. Section 06 10 00: Rough Carpentry.

1.3 SUBMITTALS

A. Product Data: Technical data and installation recommendations for plastic decking and metal framing anchors.

B. Samples: Submit samples not less than 24 inches (600 mm) long showing the range of variation anticipated in appearance of decking, including surface texture.

C. Design Calculations: Submit design calculations prepared by the licensed engineer based on deck design loads and spans.

D. Evaluation Reports:
   1. For the following, from ICC-ES:
      a. Plastic deck planks.
      b. Expansion anchors.
      c. Metal framing anchors.
      d. Deck fasteners.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance:
   1. Uniform load, deck: 100lbf/sq.ft.
   2. Stable, firm, and slip resistant similar to CBC Sections 11B-302 and 11B-403.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements:
   1. Building code: Comply with applicable provision of the 2019 CBC with local amendments for exterior plastic materials and components and structural loading for decks.
   2. Surface burning characteristics:
      a. Comply with ASTM E84; testing by a qualified testing agency. Identify products

with appropriate markings of applicable testing agency:
1) Flame spread index: 25 or less.
2) Smoke developed index: 450 or less.

B. Plastic Lumber: Products complying with applicable Code provisions for indicated type of construction. Allowable loads and spans as documented in evaluation reports or in information referenced in evaluation reports shall not be less than design loads and spans indicated.

C. Source Limitations: Obtain access-flooring system from single source from single manufacturer.

1.6 WARRANTY

A. Commercial Warranty:
1. Written warranty signed by manufacturer warranting against rot, decay, splitting, checking, splintering, fungal damage, and termite damage:
a. Materials and installation warranty period: Ten (10) years from the date of Substantial Completion.

B. Fade and Stain Warranty:
1. Written warranty signed by manufacturer in which manufacturer warrants against food staining and fading beyond 5 Delta E (CIE units):
a. Fade and stain warranty period: Ten (10) years from the date of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store materials under cover and protected from weather and contact with damp or wet surfaces. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

B. Handle and store plastic lumber to comply with manufacturer's written instructions.

PART 2 PRODUCTS

2.1 PLASTIC DECK

A. Basis of Design: Trex Company Transcend series.
1. Subject to compliance with requirements, provide products by one of the following:
a. Trex Company, Inc.
b. TimberTech.
c. Weyerhaeuser Company.

B. Composite Plastic Lumber:
1. Solid shapes made from a mixture of low-density polyethylene and recycled wood:
a. Deck standard: ICC-ES AC109, ICC-ES AC174, or ICC-ESR 3168.
b. Deck board size: 7/8 inch by six inches by 12 inches (22 mm by 150 mm by 300 mm) and one inch by six inches by 12 inches (25 mm by 150 mm by 300 mm).
c. Strength: Deck boards of strength to resist concentrated load of 300 lbf (1.33 kN) when installed at maximum center to center space complying with 12-inch (300 mm) maximum span.
d. Configuration: Grooved edges designed for fastening with concealed decking fasteners.
e. Surface texture: Woodgrain.

f. Color: Selected by Architect.

C. Deck Framing: Same composite board lumber as deck floor, with structural capabilities complying with requirements.

D. Fasteners:
1. Fasteners of size and type indicated, acceptable to AHJ, comply with requirements. Provide stainless steel nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into substrate:
   a. Nails: ASTM F1667.
   b. Power driven fasteners: ICC-ES AC70.
   c. Wood screws and lag screws: ASME B18.2.1, ASME B18.6.1, or ICC-ES AC233.
   d. Stainless steel bolts: ASTM F593, Alloy Group 1 or 2 with ASTM F594, Alloy Group 1 or 2 hex nuts and, where indicated, flat washers.
   e. Post installed anchors: Stainless steel, torque-controlled expansion anchors with capability to sustain, without failure, a load equal to six (6) times the load imposed when installed in unit masonry assemblies and equal to four (4) times the load imposed when installed in concrete as determined by testing according to ASTM E488 conducted by a qualified independent testing and inspecting agency:
      1) Stainless steel bolts and nuts complying with ASTM F593 and ASTM F594, Alloy Group 1 or 2.

E. Metal Framing Anchors:
1. Allowable design loads: Provide products with allowable design loads published by manufacturer that meet or exceed those indicated on Drawings. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.
2. Stainless steel sheet: ASTM A666, Type 304.
3. Joist hangers:
   a. U-shaped, with two-inch (50 mm) long seat and 1-1/4-inch (32 mm) wide nailing flanges at least 85 percent of joist depth:
      1) Thickness: 0.062 inch (1.6 mm).
4. Joist ties:
   a. Flat straps, with holes for fasteners, for tying joists together over supports:
      1) Width: 1-1/4 inches (32 mm).
      2) Thickness: 0.062 inch (1.6 mm).
      3) Length: Recommended by manufacturer.

F. Concealed Decking Fasteners:
1. Deck splines: Corrosion resistant metal that fit in grooves routed into the sides of decking material and are fastened to deck framing with screws. Splines provide uniform spacing of decking material.
2. Deck clips: Black oxide coated, stainless steel clips designed to be fastened to deck framing with screws, and to secure decking material with teeth that also provide uniform spacing of decking material.
3. Deck tracks: Formed metal strips designed to be fastened to deck framing and to secure decking material from underside with screws. Made from epoxy powder coated, hot dip galvanized steel or stainless steel.

G. Access Ramp: Access ramp units, slope indicated to comply with requirements of ADA Regulations and California Accessibility Standards, of the same construction as composite wood deck. Equip ramp with handrails and permanently attach ramp to deck to prevent movement or separation.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the work. Proceed with installation after correcting unsatisfactory conditions.

3.2 PREPARATION

A. Clean substrates of projections and substances detrimental to application.

3.3 INSTALLATION

A. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit work to other construction; scribe and cope as needed for accurate fit.

B. Framing Standard: Comply with AF&PA WCD1 unless otherwise indicated.

C. Install plastic lumber to comply with manufacturer's written instructions. Secure decking to framing with deck clips or screws:
   1. Install metal framing anchors to comply with manufacturer's written instructions.
   2. Do not splice structural members between supports unless otherwise indicated.
   3. Provide blocking and framing as necessary to support facing materials, fixtures, specialty items, and trim.

D. Securely attach deck framing to substrate by anchoring and fastening using fasteners recommended by manufacturer. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced and with adjacent rows staggered.

E. Ramp: Securely attach ramp to deck framing.

F. Railings: Secure railing to ramp in accordance with accessibility regulations.

END OF SECTION 06 73 00

SECTION 07 21 29 SPRAYED INSULATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section is related to sprayed insulation instillation and includes information related to the provision of materials, equipment, labor, and services required to install the sprayed cellulose fiber in accordance with these Specifications and as indicated on the Drawings.

1.3 SUBMITTALS

A. Product Data:
   1. Manufacturer’s specifications and other data needed to prove compliance with specified requirements.
   2. Manufacturer’s installation instructions.

B. Certification:
   1. Manufacturer's certificate that the product meets or exceeds specified requirements.
   2. Manufacturer's written certification that product contains no asbestos, fiberglass, or other man-made mineral fibers.

1.4 QUALITY ASSURANCE

A. Contractor must use a total system, encompassing equipment, fiber, and adhesive as supplied and tested by the manufacturer. No substitution may be made.

B. Fibers supplied under this Section shall have each bag coded with the date and lot number of manufacture and retained samples shall be kept by the manufacturer for not less than one (1) year.

C. Contractor must be licensed and trained by the manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Materials shall be delivered in original, unopened containers bearing name of manufacturer, product identification, and reference to UL testing.

B. Store materials off ground, under cover, and away from damp surfaces; keep material dry at all times.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Specifications are based on “K-13 Spray-On-Systems” manufactured by International Cellulose Corporation, 12315 Robin Boulevard, Houston, Texas; (713) 433-6701 or (800) 444-1252. Other manufacturers must have a minimum of five (5) years’ experience manufacturing products meeting or exceeding the specifications and comply with Division 01 requirements regarding substitutions to be considered.

2.2 MATERIALS

A. K-13 Spray-On-Systems:
   1. Color: Black, unless noted otherwise.
   2. Field-tested bond strength report per ASTM E736: Tested at over five (5) years; not less than 400 psf; not less than 600 times its weight at one inch (1”).
   3. Fire resistance per ASTM E84:
      a. Tested at a minimum of five-inch (5”) thickness, Class A:
         1) Flame spread: 0-25.
         2) Smoke development: 0-450.
   4. The sprayed insulation shall meet appropriate building code requirements.
   5. Thickness: 1-1/2-inch minimum typically at ceiling of Stage area. Thickness will be determined as the minimum thickness measured in accordance with ASTM E605 field test procedure.
   6. Bond deflection per ASTM E759: Six-inch (6”) deflection in ten feet (10’) span - no spalling or delamination.
   7. Cohesive strength at time of application per Method WS-2000: > 700 Grams.

PART 3 EXECUTION

3.1 INSPECTION-PREPARATION-INSTALLATION

A. Related Work:
   1. Clips, hangers, supports, sleeves, and other attachments to spray bases are to be placed by other trades prior to the application of sprayed insulation.
   2. Ducts, piping, conduit, or other suspended equipment shall not be positioned until after the application of sprayed insulation.

B. A representative surface of not less than 100 square feet shall be sprayed and approved by the Architect prior to proceeding with finished work.

C. The installing contractor shall examine all surfaces and report all unsatisfactory conditions in writing to Contractor and Architect. The work shall not proceed until unsatisfactory conditions are corrected.

D. Provide masking, drop cloths, or other satisfactory coverings for all materials/surfaces that are not to receive insulation to prevent damage from over-spray.

E. Surfaces to receive spray insulation shall be inspected prior to application to determine if priming/sealing is required to ensure bonding and/or to prevent discoloration caused by migratory stains. Prime accordingly.

F. The work shall be coordinated with other trades whose work may be affected or have an effect on the installation of the sprayed cellulose fiber.

G. Installation, clean up, and curing shall be accomplished according to the manufacturer's recommendations and common construction standards.

H. Provide natural or mechanical ventilation continuously to properly cure the insulation.

3.2 PROTECTION

A. Protect finished installation from damage caused by work of other trades.

END OF SECTION 07 21 29

SECTION 07 42 13 METAL WALL PANELS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Supplementary Conditions and Division 01 Specification Sections apply to this section.

1.2 SUMMARY

A. This Section includes pre-formed flat seam wall panel system complete with anchor clips, fasteners, flashing, and trim.

B. Includes all labor, materials, and equipment to install a metal wall panel system over the properly prepared substrate.

C. Includes a metal wall panel system over self-adhering underlayment and with all accessories as needed for a complete warrantable roofing system.

D. Related Sections:
1. Section 06 10 00 : Rough Carpentry.
2. Section 07 22 00 : Roof and Deck Insulation.

E. Reference Standards:
1. American Iron and Steel Institute (AISI):
   a. Specification for the Design of Cold-Formed Steel Structural Members.
2. American Society for Testing and Materials (ASTM):
   a. ASTM A240 Specification for Heat Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
   b. ASTM A792 Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   c. ASTM A875 Specification for Steel Sheet, Zinc-5% Aluminum Alloy-Coated by the Hot-Dip Process.
   d. ASTM B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   e. ASTM B370 Specification for Copper and Sheet and Strip for Building Construction.
   f. ASTM E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
   g. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.
   h. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Air Pressure Differences.
3. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
   a. Architectural Sheet Metal Manual.

1.3 SUBMITTALS

A. Shop Drawings: Show wall panels (and roofing system, if applicable) with flashings and accessories in elevations, sections, and details. Include metal thickness and finishes, panel lengths, joining details, anchorage details, flashings, and special fabrication provisions for termination and penetrations. Indicate relationships with adjacent and interfacing work.

Indicate fastener types and spacing and provide fastener pullout values. Shop drawings must be completed by the wall panel manufacturer's engineering department. Any and/or all changes recommended by the successful bidder must be approved by the manufacturer in writing prior to submittal.

B. Product Data: Include manufacturer's detailed material and system description, concealed anchor clips, sealant, and closure installation instructions, and finish specifications. Indicate fastener types and spacing and required fastener pullout values.

C. Samples:
   1. Provide full-size samples of the following materials and system components. Samples shall be of identical material type, thickness, panel width, and material grade/alloy as the system specified for this Project:
      a. Submit sample of panel section, at least four inches (4") long by full panel width, showing panel profile and a sample of color selected.
      b. Submit sample of foam closure strips to fit inside and outside specified panel profile.
      c. Submit sample of panel fasteners.

D. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the manufacturer and the Owner.

E. Any material submitted as equal to the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the State of California. This report shall show that the submitted equal meets the design and performance criteria in this specification. Substitution requests submitted without licensed engineer approval will be rejected for nonconformance.

F. Design and Test Reports:
   1. Provide the following certified test reports from an independent testing laboratory:
      a. Independent laboratory testing report for system design load and seam integrity.
      b. A letter from an officer of the manufacturing company certifying that the materials furnished for this Project are the same as represented in tests and supporting data.
      c. Manufacturer's verifications that the panels are factory roll formed.
      d. ASTM E283 test results must clearly demonstrate compliance with the performance requirements specified in article 1.9 ASTM E331 Test Report.
      e. ASTM E330 test results must clearly demonstrate compliance with the performance requirements specified in article 1.9.
      f. ASTM E331 test results must clearly demonstrate compliance with the performance requirements specified in article 1.9.

G. Mill production reports certifying that the metal thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.

H. Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article.

I. Qualification Data for Wall System Installer: Refer to Quality Assurance Article below.

J. Certification of Work Progress Inspection Frequency: Refer to Quality Assurance Article below.

K. Pre-Installation Conference Proceedings: Refer to Quality Assurance Article below.

L. Test Reports: Submit third party validation of environmental claims, prepared by UL Environment, for all metal wall panels containing recycled content and/or bio-based content.

M. Contract Closeout Submittals:
1. General: Comply with requirements of Section 01 77 00: Closeout Procedures.
2. Special Project warranty: Provide specified warranty for the Project, executed by the authorized agent of the manufacturer.
3. Wall panel maintenance instructions: Provide a manual of manufacturer's recommendations for maintenance of installed systems.
4. Insurance certification: Assist Owner in preparation and submittal of wall installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on wall panel system installation and associated work.
5. Demonstration and training schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed wall panel system installation work.

1.4 PERFORMANCE REQUIREMENTS

A. Thermal Expansion and Contraction:
1. Completed metal wall panel and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.
2. The design temperature differential shall be not less than <insert design temperature differential [200] degrees F.
3. Interface between panel and clip shall provide for unlimited thermal movement in each direction along the longitudinal direction.

B. Uniform wind load capacity:
1. Installed wall panel system shall withstand negative design wind loading pressures complying with the following criteria. Anchor clips shall be installed exactly as specified.
2. Attach the results of the ASCE 7 minimum design load calculations, as submitted, to this specification. Detailed Drawings showing the specific wind pressure zones shall accompany the calculations:
   a. Design code: ASCE 7, Method 2 for Components and Cladding.
   b. Safety factor: 1.67 after any load reduction or material stress increase.
   c. Category III Building with an Importance Factor of 1.00.
   d. Wind speed: 115 mph.
   e. Ultimate pullout value: 434 pounds per each of the two (2) fasteners holding the panel anchor to the wall substrate or framing system.
   f. Exposure category: B.
   g. Wall height: Four feet (4').
   h. Minimum building width: 30 feet.
   i. Wall area design wind pressure:
      1) Zone 4: Field of wall 15.5 psf.
      2) Zone 5: Wall corners 19.1 psf.
3. Capacity shall be determined using uniform static air pressure method in accordance with ASTM E330. Allowable safe working loads shall be determined by dividing the ultimate test load by the safety factor specified above.

C. ASTM E283 - Static pressure air infiltration (doors, windows, curtain walls):
1. Pressure leakage rate:
   a. 1.57 PSF 0.0033 cfm/sq. ft.
   b. 6.24 PSF 0.0056 cfm/sq. ft.
   c. 12.0 PSF 0.062 cfm/sq. ft.

d. 15.0 PSF 0.064 cfm/sq. ft
e. 20.0 PSF 0.074 cfm/sq. ft.

D. ASTM E330 - Uniform static load test for structural performance for 1-1/2-inch panel profile:
1. Test results must provide an allowable pressure of no less than:
a. 42 lbs/sqft. For three-foot (3'-0") spans.
b. 52 lbs/sqft for one-foot (1'-0") span.

E. ASTM E331 - Static pressure water infiltration (doors, windows, curtain walls):
1. Pressure result:
a. 5 Gal./Hr. per S.F. and Static No Leakage.
b. Pressure of 20.0 Psf. For 15 minutes.

1.5 QUALITY ASSURANCE

A. Installer Qualifications:
1. Engage an installer who has completed the manufacturer's approved contractor course and is currently certified for the installation of the specified system:
a. If required, fabricator/installer shall submit work experience and evidence of adequate financial responsibility. The Owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

B. Source Limitations:
1. Obtain all components of the wall panel system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the manufacturer:
a. Upon request of the Architect or Owner, submit manufacturer's written approval of secondary components in list form, signed by an authorized agent of the manufacturer.
b. Manufacturer shall have direct authority and control over all fabrication of steel components as well as the raw materials used in their fabrication.

C. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001 approval.

D. Engage the manufacturer's field representative to conduct required periodic inspections of work in progress as described herein and furnish written documentation of all such inspections.

E. Manufacturer shall provide the Owner with a written statement that they will provide a site inspection two (2) days per week that confirms that the Project is being constructed as specified, by an experienced, full-time employee of the company.

F. Alternate Manufacturers:
1. The following manufacturer criteria must be submitted. Alternate systems will not be considered for approval unless each of these items has been submitted for review at least ten (10) business days prior to bid opening:
a. Submit each item listed in article 1.3 (A through E) for evaluation of the proposed system.
b. Tests shall have been made for identical systems within the ranges of specified performance criteria.
c. Empirical calculations for wall performance shall only be acceptable for positive loads.
d. A list of a minimum of five (5) jobs where the proposed alternate material was used under similar conditions. The reference list shall include date of project, size of

project, project address, and telephone number of architect/owner contact.

e. A financial statement demonstrating a minimum of a 3:1 ratio of assets to liabilities.
f. A written statement from the manufacturer stating that they will provide the building owner with a daily site inspection for a minimum of one (1) hour per day by an experienced, full-time employee of the company.
g. A written statement from the manufacturer stating that they will provide the engineer of record with a daily site inspection by an experienced full-time employee of the company.
h. A written statement from a corporate officer of the manufacturing company stating that he or she has reviewed the specifications and confirms that the proposed system meets or exceeds all performance requirements listed as well as meets the panel size, gauge, weight, clip design, sealant design, uplift pressures, and height of the vertical seam.
i. A copy of manufacturer's warranty.
j. Proof that the manufacturer has been in business for a minimum number of years equal to the warranty period required for this Project.

G. Pre-Installation Conference:
1. Convene a pre-installation conference approximately two (2) weeks before scheduled commencement of system installation and associated work.
2. Require attendance of installer of each component of associated work that must precede or follow wall panel work (including mechanical or electrical work if any), Architect, Owner, system manufacturer's representative, and other representatives directly concerned with performance of the work, including (where applicable) Owner's insurers, testing agencies, and governing authorities.
3. Objectives of conference to include:
   a. Review foreseeable methods and procedures related to work, including set up and mobilization areas for stored material and work area.
   b. Tour representative areas of building and inspect and discuss condition of substrates, penetrations, and other preparatory work performed by others.
   c. Review structural loading limitations of wall framing and inspect for unacceptable variations in planarity.
   d. Review system requirements (Drawings, specifications, and other Contract Documents).
   e. Review required submittals both completed and yet to be completed.
   f. Review and finalize construction schedule related to work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   g. Review required inspection, testing, certifying, and material usage accounting procedures.
   h. Review weather and forecasted weather conditions and procedures for unfavorable conditions, including possibility of temporary wall protection (if not mandatory requirement).
   i. Record discussion of conference including decisions and agreements (or disagreements) reached. Furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
   j. Review notification procedures for weather or non-working days.
   k. The Owner's representative will designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.
   l. The intent of the conference is to resolve issues affecting the installation and performance of wall panel work. Do not proceed with work until such issues are resolved the satisfaction of the Owner and Engineer of Record. This shall not be construed as interference with the progress of work on the part of the Owner or Engineer of Record.

H. Manufacturer's Inspections:
1. When the Project is in progress, the wall panel system manufacturer will inspect the work not less than [insert number] days per week. In addition, the manufacturer will:
   a. Keep the Architect or Owner informed as to the progress and quality of the work as observed.
   b. Provide jobsite inspections a minimum of two (2) days per week.
   c. Report to the Architect in writing any failure or refusal of Contractor to correct unacceptable practices called to the Contractor's attention.
   d. Confirm after completion that manufacturer has observed no application procedures in conflict with the specifications other than those that may have been previously reported and corrected.

1.6 WARRANTY

A. Manufacturer shall execute a single warranty covering of the following criteria. Multiple-source warranties are not acceptable:
1. Manufacturer's standard twenty (20) year finish warranty covering checking, crazing, peeling, chalking, fading, or adhesion.
2. Installer's three (3) year warranty covering wall panel system installation.
3. Warranties shall commence on date of Substantial Completion.
4. Provide a single warranty by a single approved manufacturer for roof areas, wall areas, and transitions between the two systems, if applicable.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Responsibilities:
1. All panels shall be shipped from the manufacturer with a strippable film or similar packaging material separating the individual panels to minimize flexing, stressing, scratching, or otherwise damaging the material during transit to the job.
2. Fully cover steel with tarpaulins or similar protective cover during transit to prevent dirt and debris from coming in contact with the finished goods.

B. Installer's Responsibilities:
1. Stack pre-finished materials to prevent twisting, bending, abrasion, and denting and elevate one end to facilitate moisture run-off.
2. Unload wall panels using a boom or crane, supporting the panels in at least two (2) locations during lifting, and never lift more than three (3) panels at a time.
3. Protect moisture-sensitive and water-based materials from the weather.
4. Inspect materials upon delivery. Reject and remove physically damaged or marred material from Project site.

PART 2 PRODUCTS

2.1 PRODUCTS, GENERAL

A. Refer to Section 01 60 00: Product Requirements.

B. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

C. Substitutions:
1. Products proposed as equal to the products specified in this Section shall be submitted in accordance with bidding requirements and Division 01 provisions:

a. Proposals shall be accompanied by a copy of the manufacturer's standard specification. That specification shall be signed and sealed by a professional engineer licensed in the State of California. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.
b. Include a list of three (3) projects of similar type and extent, located within a 100-mile radius from the location of the Project. In addition, the three (3) projects must be at least five (5) years old and be available for inspection by the Architect, Owner, or Owner's representative.
c. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.
d. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 ACCEPTABLE MANUFACTURERS

A. Basis of Design: R-MER Wall Pan wall panel systems engineered and manufactured by

The Garland Company
3800 East 91st Street
Cleveland, Ohio 44105
Telephone: (559) 647-1196
Website: www.garlandco.com
Local Representative: Rich Jones.

B. Site Formed Panels: Bidder will not be allowed to supply panels formed at the jobsite on portable roll formers; metal panels must be factory pre-manufactured and engineered for this Project.

2.3 METAL WALL PANEL SYSTEM

A. General:
1. The products, quality, and performance criteria specified shall be regarded as the minimum standard of quality required for the Project.

B. Materials:
1. Panel material: 24-gauge, zinc-coated (galvanized) steel sheet, as per ASTM A653: G90 (Z275) coating designation; structural quality, grade 40 ksi (275 MPa).
2. Flashing and flat stock material: Fabricate in profiles indicated on Drawings of same material, thickness, and finish as wall panel system, unless indicated otherwise.

C. Finish on Surfaces:
1. Exposed surfaces for coated panels:
   a. Two (2) coat coil applied, baked-on full-strength (70 percent resin) fluorocarbon coating system (polyvinylidene fluoride, PVF2), applied by manufacturer's approved applicator.
   b. Color shall be Garland [Sandstone].
2. Unexposed surfaces for coated panels shall be baked-on polyester coating with .20 - .30 dry film thickness (TDF).
3. Exposed and unexposed surfaces for uncoated panels shall be as shipped from the mill.

D. Characteristics:
1. Fabrication: Panels shall be factory roll-formed from the specified metal. Field rolled panels will not be allowed.
2. Configuration: Interlocking flush/flat seams incorporating concealed anchor clips.

Through fastened or exposed fastener systems are not acceptable.

3. Panel seam legs shall be 1-1/2-inch nominal concealed depth behind the panel face. Seam shall allow for expansion and contraction of panels due to thermal changes.
4. Anchor clips: Clips shall be 22-gauge galvalume steel designed to allow thermal movement of the panel in each direction along the longitudinal dimension.
5. Panel width (seam spacing): [12-inch] nominal.
6. Panel lengths: Full length without joints to the extent as is practical.
7. Profile of panel face shall have a single vee-groove reveal located three inches (3”) in from each panel seam. These will absorb thermal stresses, reduce oil canning, and provide aesthetic appeal.

E. Accessories:
1. Fasteners:
   a. Concealed fasteners: Corrosion resistant steel screws, #10 x 1-inch long, pancake head, Phillips drive. Use self-drilling, self-tapping for metal substrate or A-point for plywood substrate.
   b. Exposed fasteners: Series 410 stainless steel screws or 1/8-inch diameter stainless steel waterproof rivets. All exposed fasteners shall be factory painted to match the color of the wall panels.
2. Provide all miscellaneous accessories for complete installation.

2.4 ACCESSORY PRODUCTS

A. Sealant:
1. Acceptable product:
   a. Concealed application: Non-curing butyl sealant or equal.
   b. Exposed application: Garland SS sealant or equal.
2. Colors: As selected by architect from sealant manufacturer’s standard selection.

B. Wall Substrate:
1. Install 15/32-inch (minimum) thickness exterior grade plywood sheathing along wall area.

C. Underlayment:
1. Underlayment shall be one (1) ply of 45 mil minimum self-adhesive membrane R-Mer Seal by The Garland Company. Seams shall be lapped in accordance with manufacturer’s recommendations.

2.5 FABRICATION

A. Shop fabricate metal panels and flashing components to the maximum extent possible, forming metal work with clear, sharp, straight, and uniform bends and rises. Hem exposed edges of flashings.

B. Form flashing components from full single width sheet in minimum ten-foot (10’) sections. Provide shop fabricated, mitered corners, joined using closed end pop rivets and joint sealant.

C. Fabricate panels and related sheet metal work in accordance with approved shop drawings and applicable standards.

PART 3 EXECUTION

3.1 PROJECT CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage and protection requirements for wall panel system:
   1. Protection:
      a. Protect completed work from subsequent construction operations. Comply with manufacturer's recommendations.
      b. Do not encumber the site with stored materials or equipment.
      c. Do not support wall-mounted equipment directly on the wall panel system.

B. Ascertain that work of other trades that penetrates the wall or is to be made watertight by the wall is in place an approved prior to installation.

3.2 PREPARATION

A. Inspection: Examine the alignment and placement of the building structure and substrate. Correct any objectionable warp, waves, or buckles in the substrate before proceeding with installation of the pre-formed metal panels.

B. Pre-installation conference: Prior to beginning metal wall panel work, convene a pre-installation conference as specified in Part 1 of this Section.

C. It is understood that the ongoing operations of the Owner area of a critical nature as to leak sensitivity. Do not work on more wall area than can be restored completely watertight in one (1) day.

3.3 INSTALLATION, GENERAL

A. Install wall system when the atmospheric dry bulb temperature is minimum 40 degrees Fahrenheit and rising.

B. Install all components of the wall system in exact accordance with the manufacturer's standard published procedures as applicable to these Project conditions and substrates.

3.4 WALL PANEL INSTALLATION

A. Comply with all details and install wall panel materials and flashings in accordance with approved manufacturer's shop drawings and manufacturer's product data within specified erection tolerances.

B. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate, and panels.

C. Limit exposed fasteners to extent indicated on shop drawings.

D. Seal laps and joints in accordance with system manufacturer's product data.

E. Installed system shall be true to line and plane and free of dents, and physical defects. In light gauge panels with wide flat surfaces, some oil canning may be present. Oil canning does not affect the finish or structural integrity of the panel and is therefore not cause for rejection.

F. Form joints in linear sheet metal to allow for 1/4-inch minimum expansion at 20 feet on center maximum and eight feet (8') from corners.

G. At joints in linear sheet metal items, set sheet metal items in two (2) 1/4-inch beads of butyl

sealant. Extend sealant over all metal surfaces. Mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

3.5 CLEANING

A. Clean installed work in accordance with the manufacturer's instructions.

B. Replace damaged work than cannot be restored by normal cleaning methods.

3.6 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during construction. Comply with requirements of authorities having jurisdiction.

3.7 FINAL INSPECTION

A. At completion of installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, system manufacturer's representative, and other representatives directly concerned with performance of system.

B. Inspect work and flashing of penetrations, walls, curbs, and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

D. Notify the Owner upon completion of corrections.

E. Following the final inspection, provide written notice of acceptance of the installation from the system manufacturer.

F. Immediately correct leakage during construction. If the Contractor does not respond within twenty-four (24) hours, the Owner will exercise rights to correct the work under the terms of the conditions of the Contract.

3.8 DEMONSTRATION AND TRAINING

A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:
   1. Troubleshooting procedures.
   2. Notification procedures for reporting leaks or other problems.
   3. Maintenance.
   4. The Owner's obligations for maintaining the warranty in effect and force.
   5. The manufacturer's obligations for maintaining the warranty in effect and force.

END OF SECTION 07 42 13

SECTION 07 42 43 COMPOSITE WALL PANELS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section Includes:
   1. Exterior, panelized fiber cement cladding system and accessories to complete a drained and back-ventilated rainscreen.
   2. Interior fiber cement panelized cladding system and accessories.

B. Related Sections:
   1. Section 05 12 00: Structural Steel Framing.
   2. Section 05 40 00: Cold-Formed Metal Framing.
   3. Section 07 21 00: Thermal Insulation.
   4. Section 07 25 00: Weather Barriers.
   5. Section 07 62 00: Sheet Metal Flashing and Trim.
   6. Section 07 92 00: Joint Sealants.

C. Reference Standards:
   1. American Architectural Manufacturers Association (AAMA):
      a. AAMA 509 Voluntary Test and Classification Method of Drained and Back Ventilated Rain Screen Wall Cladding Systems
   2. ASTM International (ASTM):
      a. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
      b. ASTM C1185 Standard Test Methods for Sampling and Testing Non-Asbestos Fiber Cement.
      c. ASTM C1186 Standard Specification for Flat Fiber-Cement Sheets.
      d. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials.
      e. ASTM E228 Standard Test Method for Linear Thermal Expansion of Solid Materials with a Vitreous Silica Dilatometer.
      f. ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
      g. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
   3. Underwriters Laboratories (UL):
      a. UL 723/ASTM E84 Standard Test for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Submit under provisions of General Conditions.

B. Product Data: Submit manufacturer’s product description, standard detail drawings relevant to the Project, storage and handling requirements, and installation instructions.

C. Product Test Reports and Code Compliance: Documents demonstrating product compliance

with local building code, such as test reports or evaluation reports from qualified, independent testing agencies.

D. Shop Drawings: Submit drawings, including plan, section, and elevation drawings, showing installation details that demonstrate product layout, dimensions, finish colors, edge/termination conditions/treatments, compression and control joints, openings, and penetrations.

E. Samples: Submit samples of each product type proposed for use.

1.4 PERFORMANCE REQUIREMENTS

A. Fiber Cement Cladding – Must Comply with ASTM C1186, Type A Requirements:
1. Linear variation with change in moisture content: 0.17 percent linear change.
2. Wet flexural strength, lower limit: 580 psi.
3. Water tightness: No water droplets observed on any specimen.
4. Freeze-thaw: No damage or defects observed.
5. Warm water: No evidence of cracking, delamination, swelling, or other defects observed.
6. Heat-rain: No crazing, cracking, or other deleterious effects, surface or joint changes observed in any specimen.

B. Mean Coefficient of Linear Thermal Expansion (ASTM E228): Max 1.0*10^-5 in./in. F.

C. Surface Burning (UL 723/ASTM E84):
1. Flame spread: 0.
2. Smoke Developed: 5.

D. Wind Load (ASTM E330):
1. Refer to manufacturer installation guidelines for ultimate test pressure data corresponding to framing dimensions, fastener type, and attachment clips. Project engineer(s) must determine Zone 4 and 5 design pressures based on Project specifics:
a. Minimum lateral deflection: L/120.

E. Water Penetration (ASTM E331): No water leakage observed into wall cavity.

F. Weather Resistant: No cracking, checking, crazing, erosion, or other detrimental effects observed.

G. Steady-State Heat Flux and Thermal Transmission Properties Test (ASTM C518): Thermal resistance R value of 1.23 F.

H. Fire Resistance (ASTM E119): The wall assembly must successfully endure 60-minute fire exposure without developing excessive unexposed surface temperature or allowing flaming on the unexposed side of the assembly.

I. Drained and Back Ventilated Rainscreen (AAMA 509): System must pass all component tests.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:
1. All fiber cement panels specified in this Section must be supplied by a manufacturer with a minimum of ten (10) years of experience in fabricating and supplying fiber cement cladding systems:

a. Products covered under this Section are to be manufactured in an ISO 9001 certified facility.

2. Provide technical and design support as needed regarding installation requirements and warranty compliance provisions.

B. Installer Qualifications: All products listed in this Section are to be installed by a single installer trained by manufacturer or representative.

C. Mock-Up Wall: Provide a mock-up wall as evaluation tool for product and installation workmanship.

D. Pre-Installation Meetings: Prior to beginning installation, conduct conference to verify and discuss substrate conditions, manufacturer's installation instructions and warranty requirements, and Project requirements.

1.6 WARRANTY

A. Provide manufacturer's 50-year warranty against manufactured defects in fiber cement panels.

B. Provide manufacturer's 15-year warranty against manufactured defects in panel finish.

C. Warranty provides for the original purchaser. See warranty for detailed information on terms.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Panels must be stored flat and kept dry before installation. A waterproof cover over panels and accessories should be used at all times prior to installation.

B. If panels are exposed to water or water vapor prior to installation, allow to completely dry before installing. Failure to do so may result in panel shrinkage at ship lap joints, and such action may void warranty.

C. Panels must be carried on edge. Do not carry or lift panels flat. Improper handling may cause cracking or panel damage.

D. Direct contact between the panels and the ground should be avoided at all times. It is necessary to keep panels clean during installation process.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Nichiha Corporation, 18-19 Nishiki 2-chome Naka-ku, Nagoya, Aichi 460-8610, Japan.

B. Acceptable Manufacturer's Representative: Nichiha USA, Inc., 6465 E. Johns Crossing, Suite 250, Johns Creek, GA 30097. Toll free: 1.866.424.4421, Office: 770.805.9466, Fax: 770.805.9467, www.nichiha.com:

1. Basis of design product - Nichiha Illumination Series (see A series elevations for locations):
   a. Profile colors: Designer-specified custom color (finished in U.S.).
   b. Profiles: Small with added score line.
   c. Optional accessories:
   d. Manufactured corners with 3-1/2-inch returns for each profile color.

e. Dimensions: Nominal – 18 inches high by six-feet or 10-feet long (6'h x 6' or 10'l); Actual - 455mm (h) by 1,818 mm or 3,030 mm (l).
f. Panel thickness: 5/8 inch (16 mm actual).
g. Finish: Satin.
h. Weight: 35.27 pounds per six-foot (6') panel; 57.32 pounds per ten-foot (10') panel.
i. Coverage: Nine (9) square feet per six-foot (6') panel; 15 square feet per ten-foot (10') panel.
j. Factory sealed on six (6) sides.

C. Substitutions: Not permitted.

2.2 MATERIALS

A. Fiber cement panels manufactured from a pressed, stamped, and autoclaved mix of Portland cement, fly ash, silica, recycled rejects, and wood fiber bundles.

B. Panel surface pre-finished and machine applied.

C. Panels profiled along all four edges, such that both horizontal and vertical joints between the installed panels are ship-lapped.

D. Factory-applied sealant gasket added to top and right panel edges; all joints contain a factory sealant.

2.3 INSTALLATION COMPONENTS

A. Ultimate Clip System:
1. Starter track:
   a. Horizontal panel installations - FA 700 – 10 feet long galvalume.
   b. Vertical panel installations (10-foot panels only) – FA 300T – six-foot-six-inch (6'-6") long galvalume.
2. Panel clips - JEL 777 "Ultimate Clip" (10mm rainscreen for 5/8-inch AWP) – 400 series stainless steel:
   a. Joint tab attachments included for six-foot (6') horizontal installations.
3. Single flange sealant backer – FHK 1017 (10mm) – 6.5-foot long fluorine coated galvalume.
4. Double flange sealant backer – FH 1020 (10mm) – ten-foot (10') long fluorine coated galvalume.
5. Corrugated spacer – FS 1005 (5mm), FS 1010 (10mm) – four-foot (4') long.
6. Finish clip (optional) – JE310 (5mm).

B. Aluminum Trim (Optional): Paint as specified in finish schedule.

C. Fasteners: Corrosion resistant fasteners, such as hot-dipped galvanized screws appropriate to local building codes and practices must be used. Use stainless steel fasteners in high humidity and high-moisture regions. Panel manufacturer is not liable for corrosion resistance of fasteners. Do not use aluminum fasteners, staples, or fasteners that are not rated or designed for intended use. See manufacturer's instructions for appropriate fasteners for construction method used.

D. Flashing: Flash all areas specified in manufacturer's instructions. Do not use raw aluminum flashing. Flashing must be galvanized, anodized, or PVC coated.

E. Sealant: Sealant shall be polyurethane, or hybrid, and comply with ASTM C920.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:
   1. Fiber cement panels can be installed over braced wood, steel studs and sheathing including plywood, OSB, plastic foam, or fiberboard sheathing. Fiber cement panels can also be installed over structural insulated panels (SIPs), concrete masonry units (CMUs) and concrete block structures (CBSs) with furring strips, and pre-engineered metal construction.
   2. Allowable stud spacing: See manufacturer's installation instructions for details.
   3. A weather resistive barrier is required when installing fiber cement panels. Use an approved weather resistive barrier (WRB). Refer to local building codes.
   4. Appropriate metal flashing should be used to prevent moisture penetration around all doors, windows, wall bottoms, material transitions, and penetrations. Refer to local building codes for best practices.

B. Examine site to ensure substrate conditions are within specification for proper installation.

C. Do not begin installation until unacceptable conditions have been corrected.

D. Do not install panels or components that appear to be damaged or defective. Do not install wet panels.

3.2 INSTALLATION

A. General:
   1. Install products in accordance with the latest installation guidelines of the manufacturer and all applicable building codes and other laws, rules, regulations, and ordinances. Review all manufacturer installation, maintenance instructions, and other applicable documents before installation:
      a. Consult with your local dealer or Nichiha Technical Department before installing any Nichiha fiber cement product on a building higher than 45 feet or three (3) stories. Special installation conditions may be required.

B. Panel Cutting:
   1. Always cut fiber cement panels outside or in a well-ventilated area. Do not cut the products in an enclosed area.
   2. Always wear safety glasses and NIOSH/OSHA approved respirator whenever cutting, drilling, sawing, sanding, or abrading the products. Refer to manufacturer MSDS for more information.
   3. Use a dust-reducing circular saw with a diamond-tipped or carbide-tipped blade:
      a. Recommended circular saw: Makita 7-1/4" Circular Saw with Dust Collector (#5057KB).
      b. Recommended blade: Tenryu Board-Pro Plus PCD Blade (#BP-18505).
      c. Shears (electric or pneumatic) or jig saw can be used for complicated cuttings, such as service openings, curves, radii, and scrollwork.
   4. Silica dust warning: Fiber cement products may contain some amounts of crystalline silica, a naturally occurring, potentially hazardous mineral when airborne in dust form. Consult product MSDS or visit www.osha.gov/SLTC/silicacrystalline/index.html.

3.3 CLEANING AND MAINTENANCE

A. Review manufacturer guidelines for detailed care instructions.

END OF SECTION 07 42 43

SECTION 07 72 36 SMOKE VENTS

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Provide factory-fabricated double-leaf automatic smoke vents.

B. Related Sections:
   1. Section 05 50 00: Metal Fabrications.
   2. Section 06 10 00: Rough Carpentry.
   3. Section 07 62 00: Sheet Metal Flashing and Trim.
   4. Section 07 72 00: Roof Accessories.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer’s product data.

B. Shop Drawings: Submit shop drawings including profiles, accessories, location, fusible links, adjacent construction interface, and dimensions.

C. Warranty: Submit executed copy of manufacturer’s standard warranty.

1.4 QUALITY ASSURANCE

A. Manufacturer: A minimum of five (5) years’ experience manufacturing similar products.

B. Installer: A minimum of two (2) years’ experience installing similar products.

C. Manufacturer’s Quality System: Registered to ISO 9001 Quality Standards including in-house engineering for product design activities.

1.5 WARRANTY

A. Manufacturer’s Warranty: Provide manufacturer’s standard warranty. Materials shall be free of defects in material and workmanship for a period of five (5) years from the date of purchase. Should a part fail to function in normal use within this period, manufacturer shall furnish a new part at no charge.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products in manufacturer’s original packaging. Store materials in a dry, protected, well-vented area. Inspect product upon receipt and report damaged material immediately to delivering carrier and note such damage on the carrier’s freight bill of lading.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Basis of Design Manufacturer: Type DSH Automatic Roof Smoke Vent by The BILCO Company, P.O. Box 1203, New Haven, CT 06505, 1-800-366-6530, Fax: 1-203-535-1582, Web: www.bilco.com.

2.2 AUTOMATIC ROOF FIRE VENT

A. Furnish and install where indicated on plans metal fire vent Type DSH, size [insert: width (_____) x length (_____)]. Length denotes hinge side. The roof fire vent shall be double leaf and preassembled from the manufacturer.

B. Performance Characteristics:
   1. Vent shall be UL listed. Comply with UL 793 and UL 790 Class A (burning brand test).
   2. Operation: Vent covers shall open simultaneously against a 10 psf (49kg/m^2) snow/wind load when latch is manually released or when heat breaks the UL listed fusible link. Opening shall be in a controlled manner to avoid damage to surrounding roof surfaces.
   3. Latch operation: When heat parts the UL listed fusible link, the latch shall release instantaneously, allowing vent cover to open. The latch shall be designed for easy resetting, after a fire or test, so that the cover cannot be latched closed unless the mechanism has been reset properly. Manufacturer shall provide instructions for resetting the latch with each unit. Latch mechanism shall hold the covers in the closed position without overstressing the fusible link and withstand 90 psf (438kg/m^2) wind uplift forces acting on the covers.
   4. Covers shall be reinforced to support a minimum live load of 40 psf (195kg/m^2) with a maximum deflection of 1/150th of the span or 20 psf (97kg/m^2) wind uplift.
   5. Entire roof fire vent shall be weather tight with fully welded corner joints on cover and curb.

C. Covers: Shall be [select: 14-gauge (1.9mm) paint bond G-90 galvanized steel OR 11-gauge (2.3mm) aluminum] with a three-inch (76mm) beaded flange with formed reinforcing members.

D. Cover Insulation: Shall be fiberglass of one inch (25mm) thickness, fully covered and protected by a metal liner [select: 22-gauge (.8mm) paint bond G-90 galvanized steel OR 18-gauge (1mm) aluminum].

E. Curb: Shall be 12 inches (305mm) in height and of [select: 14-gauge (1.9mm) paint bond G-90 galvanized steel OR 11-gauge (2.3mm) aluminum]. Curb shall be formed with a 3-1/2-inch (89mm) flange with 7/16-inch (11mm) holes provided for securing to roof deck. Curb shall be equipped with integral metal cap flashing of the same gauge and material as the curb and feature the Bil-Clip® flashing system, including stamped tabs, six inches (153mm) on center, to be bent inward to hold single-ply roofing membrane securely in place. Curb shall have a heavy extruded EPDM rubber gasket that is mechanically fastened to the top of the curb to assure a continuous seal when compressed by the covers.

F. Curb Insulation: Shall be rigid, high-density fiberboard of one-inch (25mm) thickness on the outside of curb.

G. Lifting Mechanisms: Manufacturer shall provide high performance gas spring operators to open the covers against a snow/wind load. Gas springs shall automatically lock covers in the fully open position. A release mechanism shall be provided to allow covers to be closed. Gas springs shall have integral dampers to assure a controlled rate of cover opening and have a cyclic durability of 50,000 cycles.

H. Latch Mechanism: Shall be the BILCO Thermolatch®II positive hold/release mechanism with a separate latching point for each cover controlled by a single UL listed 165 degree F (74 degree C) fusible link. Fusible link shall be curb mounted on a non-hinged end to allow the latching mechanism to be easily reset from the roof level.

I. Hardware:
   1. Heavy pintle hinges shall be provided.
   2. Gas springs have a powder coated outer tube and chromate plated inner rod. All other hardware is zinc plated/chromate sealed or galvanized steel. [For installation in highly corrosive environments or when prolonged exposure to hot water or steam is anticipated, specify Type 316 stainless steel hardware.]
   3. Cover hardware shall be bolted into heavy gauge channel reinforcing welded to the underside of the cover and concealed within the insulation space.

J. Manual Pull Release Cables: Interior and exterior cables with red vinyl grips shall be provided and allow the unit to be opened without disturbing the fusible link.

K. Finishes: Factory finish shall be [select: alkyd based red oxide primed steel OR mill finish aluminum].

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates and openings for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install products in strict accordance with manufacturer’s instructions and approved submittals. Locate unit level, plumb, and in proper alignment with adjacent work:
   1. Test units for proper function and adjust until proper operation is achieved.
   2. Test fusible link and install replacement fusible link after testing.
   3. Repair finishes damaged during installation.
   4. Restore finishes so no evidence remains of corrective work.

3.3 ADJUSTING AND CLEANING

A. Clean exposed surfaces using methods acceptable to the manufacturer that will not damage finish.

END OF SECTION 07 72 36

SECTION 27 51 23 – INTEGRATED ELECTRONIC COMMUNICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section.

1.2 SUMMARY

A The Contractor shall furnish and install all equipment including, but not limited to, outlet boxes, wiring, speakers, and all other necessary equipment to provide a complete operating system as indicated with the contract documents. Provide all necessary wall plates, specialty boxes, etc., not provided by others.

B Valcom IP6K Communication System shall be considered as meeting all specifications and as the base bid.

C The intent of this specification is to maximize communications between the classroom and administrative areas while enhancing school safety and reducing maintenance and operational cost.

D Under this specification, the system shall provide a complete Communication System for the entire school including the outdoor recreational areas.

E The Communication System shall provide distribution of intercom, overhead paging, emergency paging, class change time tones, emergency tones, program material and on-board emergency messaging.

F The Valcom IP6K Communication System shall replace any existing intercom system and shall distribute intercom, overhead paging, emergency paging, class change time tones, emergency tones and program material over the existing speakers in all buildings, including portable buildings, not being remodeled. Provide required IP gateways at the removed equipment location to integrate the existing speakers into the new IP6k Communication System.

G The Valcom IP6K Communication System shall be interfaced with the school's telephone system to ensure full access to the IP6K Communication System speakers. Coordinate all work with the District's IT Department.

H The Valcom IP6K Communication System shall be programmed to meet the School District requirements. The Contractor shall meet with the School District maintenance department and obtain programming criteria prior to programming the system. The system shall be tested in the presence of the School District maintenance department staff prior to completion to ensure compliance with the School District criteria and the Contractor shall make required modifications to the system as required to satisfy the School District's requirements.

1.3 SUBMITTALS

A. Submit layout drawings of the communication system and all components.

B. Submit drawings of control equipment showing all major components and positions in the rack.

C. Provide block diagrams showing components and relative connections.

C. Submit a certificate showing a completion of installation, programming, and service training from the system manufacturer.

D. Submit data sheets on equipment provided.

E. Shop Drawings: Signed and sealed by a qualified professional RCDD.

1 Equipment Details: Detail equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components, and location of each field connection.
2 Station-Arrangement Details
3 Wiring Diagrams: Signal, and control wiring. Include the following:

a Single-line diagram showing interconnection of components.
b Cabling diagram showing cable routing.

G. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved.

1. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

H. Installer Qualifications:

1. The equipment must be purchased and installed by a Valcom Factory Authorized Integrator with full warranty privileges.
2. The design shall be performed by a Valcom Factory Authorized Integrator.
3. The Valcom Factory Authorized Integrator must have installed a minimum of 3 (three) projects of this size and application or shall arrange for onsite factory assistance during system commissioning.
4. The Valcom Factory Authorized Integrator shall possess, or coordinate with entities that possess, technical knowledge of the network to which the IP6K system will connect. Full compliance with Valcom's latest published IP6K network requirements is mandatory.

I. Qualification Data: For Installer and testing agency.

1 The contractor shall be from an established and local company providing solutions to the school market for a minimum of 3 (three) years with Telecom/Data/Sound Experience.
2 The contractor shall hold a platinum level partnership with Valcom with 24 hour phone technical support and a 2 year extended warranty
3 The contractor shall maintain an adequate parts inventory to perform necessary service and upgrades.

1.4 QUALITY ASSURANCE

A Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

1 Maintenance Proximity: Not more than 4 hours' normal travel time from Installer's place of business to Project site.

2 The Contractor shall be an authorized dealer of the supplied equipment with full warranty privileges.

1.4 COORDINATION

A Coordinate layout and installation of ceiling-mounted speaker and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.5 MAINTENANCE

A. The contractor shall provide a 1 (one)-year guarantee of the installed system against defects in material and workmanship. All warranty material shall be provided at no expense to the Owner. Guarantee period shall begin on the date of acceptance by the Owner or Engineers.

1.6 RESPONSIBILITIES

A. Contract documents are detailed only to the extent required to show design intent. It shall be understood and agreed upon by the Contractor that all work described herein shall be complete in every detail.

B. Furnish additional items not mentioned herein to meet requirements as specified without claim for additional payments. Items, may include hardware, rack panels, 66Blocks etc., and other devices that are required for installation.

C. Labor furnished shall be manufacturer trained and experienced in telecommunication and networked systems.

D. All equipment unless otherwise specified, shall be new, free from defects, and the best craftsmanship in its class.

E. Perform initial programming of system and audio level adjustments.

F. Perform final programming of system and audio level adjustments.

D. Provide system documentation including equipment manuals and drawings.

E. Guarantee all equipment and components for their specified period from date of acceptance.

F. Provide information on system requirements to any Contractor responsible for supplying related materials for this system.

SCHEDULE 1 - COMMUNICATION SYSTEM

The Communication System shall provide at least the following functions and features:

Direct dialed, hands-free, two-way communication from all administrative telephones to classroom locations equipped with a talkback speaker.

A. Call button initiated hands-free, two-way communication from all classroom locations equipped with a talkback speaker to an administrative telephone.

B. Microprocessor based PoE system capable of handling unlimited end-points. An end-point is defined as a device with an IP address. The system IP speakers must be SIP compliant.

C. System shall be a VoIP system compatible with 45 ohm 2-way speakers, 25v 2-way speakers, self-amplified one-way speakers and VoIP speakers. The system should also have 1, 2 and 4 zone one-way gateways for common area announcements.

D. System shall interface with any SIP capable VoIP telephone system, analog telephone system, or single line telephone, thus allowing the school(s) to upgrade or replace their telephone system without suffering a requirement to replace, or lose any feature of, their internal communications (intercom) system. Any system that limits system features based upon any selected telephone system, and/or is proprietary to one or only a few telephone systems shall not be acceptable.

E. System shall be capable of converting and loading WAV files used for bells, announcements or music.

F. System shall be capable of initiating emergency notifications by internet browser from anywhere on the network.

G. System shall be capable of increasing volume by event. An event is defined as any WAV file or tone.

H. System shall be capable of downloading a graph (site, building, etc.) and arranging icons on it to play emergency announcements, back to school announcements, message from the Superintendent, etc.; any WAV file.

I. System shall automatically sound a tone over any loudspeaker connected for two-way communication to alert the classroom teacher that this two-way call has been established. This is intended to prevent unauthorized monitoring. The privacy tone must repeat every 15 (fifteen) seconds.

J. System shall be capable of distribution of emergency or general announcement(s) by Administration functions or from any authorized telephone to all areas furnished with a loudspeaker. Emergency announcements shall have the highest system priority.

K. Classroom speakers shall be software assignable to an unlimited number of audio groups.

L. Provide the ability to define and archive unlimited time tone schedules with unlimited events per schedule. Each scheduled event shall be capable of controlling any internal tone, user selected custom WAV files, audio from any auxiliary source or up to 40 relays for building control. Each scheduled audio event shall be distributable to any of the audio groups. The system shall feature the ability to automatically initiate unlimited schedules per day, based upon the day of the week or calendar dates up to one year in advance. The system shall feature the ability to operate 25 or more schedules simultaneously. Schedule administration, modification and creation functions must be available through an Internet browser. Systems that do not allow the school to manage their own schedules with an Internet browser do not offer calendar based scheduling up to one year in advance or require separate page and time groups shall not be acceptable.

M. Provide 1 to 11 digits numbering plan, thus allowing the classroom speaker and the classroom telephone to be the same architectural number.

N. Programmable features shall be stored in non-volatile memory and shall not be lost due to power failures.

O. Classroom initiated intercom calls must be able to be assigned to ring at specific administrative ports. These administrative ports shall have the flexibility to be forwarded to other administrative ports should a call go unanswered or should the assigned administrative port be busy.

P. System functionality must include the capability to manually activate an unlimited number of chained events via browser-based device, pushbuttons, contact closure, or dial up tones from any administrative telephone. These events shall be customizable with respect to volume levels, cadence, priority, type and duration. Browser access must only be accessible by authorized users.

Q. The system must be capable of providing an unlimited number of ports to be connected to the telephone system via SIP or FXS Port integration from the intercom system. These ports shall provide built-in Enhanced Caller Line Identification which will visually announce the name of the teacher or location, the architectural classroom number. Systems that require integration to a specific telephone system or systems in order to offer this feature, or any system feature, shall not be acceptable.

R. The system shall have the ability to control all system relays. Relays shall be controlled through the browser, DTMF controlled, automatically cycle at a programmed time of day, or follow time schedule events. All relays must be software programmable with the flexibility to change as required.

S. The system shall provide at least three simultaneously operating, non-restrictive program distribution channels. The system administration shall be browser based allowing simple and easy changes.

T. The system shall have the ability to store up to 25000 seconds of WAV files directly onto the Application Server and shall not be lost due to power outage.

U. The WAV files shall be capable of being activated via any computer on the LAN/Wan, Telephone and/or Telephone system, and pushbuttons.

V. The WAV files shall be programmable as to what level of priority they can be broadcast. They shall be programmable as to override any class change tones, normal all call, music, and intercom in the event of an emergency.

W. The WAV files shall also have the ability to be broadcast into any and all of the audio groups.

X. The WAV files shall have the ability to be broadcast via a schedule for any day of the week or time of the day. They shall also have the ability to be broadcast for any duration of time and repeat number of plays with the ability to select how long the duration is between each repeated broadcast.

Y. The WAV files shall be able to be broadcast via a pushbutton. When this pushbutton is activated, it shall be programmable to select which WAV file is broadcast, the priority level, where it is broadcast, and how many times it shall play.

Z. The WAV files shall also have the ability to be a part of the class change tones within the system. These files shall be able to replace any tone within the class change schedules as to offer the flexibility of customizable tones and or phrases in this class change mode.

AA. The system shall have the ability to, at a minimum, deliver text messages to LED Signage, Computer Screen-Pops or to Chrome Books.

BB. The system must be capable of providing an option for the Earthquake Early Warning System, Powered by ShakeAlert.

CC. The system must interface to the building Fire Alarm, Card Access and CCTV systems for complete system integration

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A Manufacturers:

1 VALCOM, Inc Roanoke VA USA

2.2 IP6K COMMUNICATION SYSTEM

Shall be a CAP Compliant Applications Server, part # IP6K-1. The server shall provide automated emergency messaging, event scheduling and clock control capability. It allows distribution of WAV formatted audio out to 25 simultaneous groups of speakers. The simple browser-based interface facilitates easily accessible manipulation of custom audio files for use as class change tones or emergency notification alerts. The software features text-to-speech conversion and provides on demand access of pre-loaded audio files via web browser, dial code or contact closure. Schedules may be automated based upon day of the week, calendar date up to one year in advance, or may be manually controlled. The software must be capable of providing the Earthquake Early Warning System, Powered by ShakeAlert.

A. Shall seamlessly integrate to any VoIP/SIP or legacy phone system via SIP, FXO or Loop Start Trunk.

B. Contractor shall provide (1) IP6K-1 at the headend. The IP6K-1 consist of the following:

(1RU) Dell Server/SIP Intercom Controller Gateway #VE6090
(1 RU) 4 Channel Audio Gateway/8 Input-Output Gateway Model # VE4804
(1RU) UPS – Battery Backup Unit (Included with the IP6K-1

C. Contractor shall provide a one or more Networked Page Zone Extenders at the each IDF's (if applicable). The purpose of this Networked Page Zone Extender is to provide streaming audio out to common area speakers (analog speakers). Connect the building's common area speakers to the Networked Page Zone Extender channels are required

IDF - Low level audio connection shall be via Model # VE8001AR (one port)
IDF - Low level audio connection shall be via Model # VE8002BR (two ports)
MDF- Low level audio connection shall be via Model # VE8004BR (four ports)

The Networked Page Zone Extenders shall provide a single 10/100 Ethernet port, audio input/output circuits and N.O. relay contact outputs. The unit shall be SIP compatible. The Networked Page Zone Extender shall provide all circuitry and software to convert network data to zone page audio output. The Networked Page Zone Extender shall also provide all circuitry and software to convert input audio to zone page audio and control information suitable for transmission to other Class Connection IP Solutions products over a data network. The Networked Page Zone Extender shall be powered via an 802.3af PoE Ethernet switch port.

D. The contractor shall repurpose existing speakers, horns and wiring. The system shall seamlessly integrate to any existing 25V amplified system to be used in common areas such as hallways, outside, cafeteria, gymnasium, etc. via a networked zone expander.

E. The contractor shall provide an appropriate number of 25V rack mounted, 6 channel amplifier at the MDF and each IDF (if applicable) used to connect to any existing common area 25V speakers.

The 6 Channel 25V Amplifier shall be via Model # V-6120

2.3 CONDUCTORS AND CABLES

A Conductors: Jacketed, twisted pair and twisted multipair, untinned solid copper (West Penn # AQC 439 or equal). Sizes as recommended by system manufacturer, but not smaller than No. 22 AWG. – Us when cabling a 25/70V speaker.

B Insulation: Thermoplastic, not less than 1/32 inch thick.

C Shielding: For speaker-microphone leads and elsewhere where recommended by manufacturer; No. 34 AWG tinned, soft-copper strands formed into a braid or equivalent foil.

1 Minimum Shielding Coverage on Conductors: 60 percent.

D Plenum Cable: Listed and labeled for plenum use.

E Category 5 or Above UTP (Refer to cable specification for customer standard) – Use when connecting an IP device.

2.4 PROVIDE ALL NECESSARY HARDWARE AND SOFTWARE FOR A COMPLETE AND OPERABLE SYSTEM.

SCHEDULE 1 - SWITCHES

Network equipment such as switches, routers, servers etc., shall be provided by others. The Contractor shall acquire and comply with the latest IP6000 network requirements as provided by Valcom.

PART 2 - EXECUTION

3.1 INSTALLATION

A Wiring Method: Install wiring in raceways except within consoles, desks, and counters. Conceal cables and raceways except in unfinished spaces.

B Wiring Method: Install wiring in raceways except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum-board partitions where cable wiring method may be used. Use plenum cable in environmental air spaces, including plenum ceilings. Conceal cables and raceways except in unfinished spaces.

C Install exposed cables parallel and perpendicular to surfaces or exposed structural members, and follow surface contours. Secure and support cables by straps, staples, or similar fittings designed and installed to avoid damage to cables. Secure cables at intervals not exceeding 30 inches and not more than 6 inches from cabinets, boxes, or fittings.

D Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess. Use lacing bars in cabinets.

E Control-Circuit Wiring: Install number and size of conductors as recommended by system manufacturer for control functions indicated.

F Separation of Wires: Separate speaker-microphone, line-level, speaker-level, and power wiring runs as specified by BICSI TDMM 12 Edition.

G Match input and output impedances and signal levels at signal interfaces. Provide matching networks where required.

H Weatherproof Equipment: For units that are mounted outdoors, in damp locations, or where exposed to weather, install consistent with requirements of weatherproof rating.

3.2 SYSTEM PROGRAMMING

I Programming: Fully brief Owner on available programming options. Record Owner's decisions and set up initial system program. Prepare a written record of decisions, implementation methodology, and final results.

3.3 FIELD QUALITY CONTROL

J Manufacturer's Field Service: A factory representative shall be onsite to assist in system programming and commissioning.

K Perform the following field tests and inspections:

1 Schedule tests with at least seven days' advance notice of test performance.

2 After installing school intercom and program equipment and after electrical circuitry has been energized, test for compliance with requirements.

A Operational Test: Test originating station-to-station, all-call, and page messages at each intercom station. Verify proper routing and volume levels and that system is free of noise and distortion. Test each available message path from each station on system.

L Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

M Verify the server and devices are running the latest software revisions.

3.4 STARTUP SERVICE

N Engage a factory-authorized service representative to perform startup service and initial system programming.

O Verify that electrical wiring installation complies with manufacturer's submittal and installation requirements.

3.5 ADJUSTING

P On-Site Assistance: Engage a factory-authorized service representative to provide on-site assistance in adjusting sound levels and for any initial troubleshooting.

3.6 DEMONSTRATION

Q Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain school intercom and program equipment.

END OF SECTION 27 51 23

SECTION 28 10 00 – ELECTRONIC ACCESS CONTROL SYSTEM PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. A general description, functional requirements, characteristics, and criteria present in the CA4K™ Access Control, Alarm Monitoring & Video Surveillance System. The specification provides all necessary information to produce a complete proposal for a sophisticated, easy to-use, multi-tasking, multi-user Access Control System (ACS) with features that include, but are not limited to, Alarm Monitoring, Photo- ID Badging Management, Visitor Management, CCTV Integrated Management, DVR Integration, NAPCO Alarm and Fire panel Integration and Trilogy Networx wireless lock integration. Continental Access manufactures CA4K™ (Version 1.1.x) Security & Management Software which includes all Computer Hardware and Software, Intelligent Control Panels, Communication Devices, Card Readers/Keypads, Access Cards, Key Tags, Key Fobs, I/O Boards & Power Supplies as specified herein. All material will be listed in Continental Access catalogs.
2. CardAccess shall perform a wide variety of feature-rich functions. These functions are categorized into 'system modules', (integration of products), which include, but are not limited to:
   a. Access Control Management
   b. Alarm monitoring Management
   c. Burglar Alarm and Fire Panel Integration
   d. Photo Imaging/Badging Management
   e. CCTV and Digital/Network Video Recorder (DVR/NVR) Integration
   f. Full Audit Trail Management report
   g. Muster Reporting
   h. Personnel Tracking Management Report
   i. Visitor Management
   j. Advanced Scripting (Activity linking) Interface
   k. Area/Building Lock Down
   l. Threat Level Management
   m. Vehicle Tracking & Reporting
   n. Graphical Dynamic Maps: Import & Viewing & Executable
   o. Automated Data Import and Data Export
   p. Full Time & Attendance
   q. Trilogy Networx Wireless Lock Integration
   r. Elevator Control
   s. IOS/Android Mobile Access App

3. Controller Hardware: Controller Hardware shall be of a distributed architecture nature so that in the event of server failure the local controller will make all decision utilizing both the Facility code and the unique ID and be capable of:
   a. 1 to 16 card readers per panel
   b. 1,000,000 card holders per panel
   c. Power-Over-Ethernet
   d. Card formats ranging from 26 bit to 256 bits
   e. Processing data at 52 MIBS, (million instructions per second)
   f. Download speeds to the controller not to exceed 6 minutes for 100,000 card records utilizing the 200 bit format
   g. IPV IV and IPV VI Ethernet communications. Support AES 128/256 encryption
   h. Time zone offsets
   i.

j. Reporting alarms to a central monitoring station via Ethernet without the assistance of an integrated alarm panel
k. Changing addresses of inputs and outputs for door control
l. Global I/O functions Communications of Ethernet TCP/IP, RS 232, RS-422 or a combination thereof

4. System Requirements:
   a. This Host PC shall contain the ACS software GUI, Data Server, SQL database and the host communications software module. The SQL database shall be able to be located on a remote server, for improved performance. The communications software module shall be able to be located on a remote server/s, for improved performance.
   b. The Host communications software shall be required to be fully compliant with Win 10 Pro and Win Server 2012 R2 , Win Server 2016 and Win Server 2019 operate as a true 32-bit or 64 bit system.
   c. The Host PC shall communicate with the Access Control Panels using Communication protocols such as TCP/IP, RS-422 and RS-232.
   d. The ACS shall be able to support both a Database server and a Hardware Communication server either as one computer or multiple computers.
   e. The ACS shall contain a total of 5 databases, with the separation of configuration, events and communication data.
   f. The Card Access shall be capable of supporting a Primary server and a Secondary server for disaster recovery systems and shall not be limited by distance from Primary to Secondary.
   g. The ACS workstation PC shall contain the software, the GUI, and integration executables only.
   h. The ACS workstation shall have the ability to enroll card data automatically.
   i. Security key or software license will be required on all Host communication server PCs in order for the system to operate. Lack of security key or software license on the Host PC will cause the communication software and the GUI to shut down. The user will be notified of the missing license by means of a popup message.
   j. The Security key shall be available as either a hardware or software key.
   k. Security key will not be required at workstations.
   l. The Security key will determine both hardware and software limitations:
      1) Hardware License Limitations: The key will determine the number of workstations that will be able to connect to the system simultaneously.
      2) Software License Limitations: The key will determine the additional software features that a user can activate. The features will include:
         a) Max # of Hardware Communication Servers
         b) Max # of CCTV DVR/NVR Servers
         c) Time & Attendance
         d) Visitor Management Integration workstations
         e) Max # of Scripting servers
         f) Max # of Napco Integration Servers
         g) API Interface
         h) PIV support

5. Database Partitioning:
   ACS shall support Microsoft SQLExpress 2008 R2, SQLExpress 2012, SQLExpress 2014, SQLExpress 2016, SQLExpress 2017, SQL 2008 R2, SQL 2012, SQL 2014, SQL 2016 and SQL
   2017 database, and shall allow virtually unlimited database partitioning.
   a. Database Partitioning shall support the ability to assign the following to individual partitions:
      1) Cardholders
      2) Controllers

3) Workstations
4) Card Readers
5) I/O points
6) Alarm Panels
7) Access Levels
8) Time Zones
9) Communications Servers
10) Dynamic Maps
11) System Operators

6. Access Control Panels:
   a. The Access Control System (ACS) panels shall support, through firmware updates, full system integration, providing full system integration to standard burglary Alarm and Fire Panels with 32, 96, and 255 Zone Control. This shall allow reporting to Police, Fire Department, and to the ACS.

   b. The following latest panels shall be available:
      1) One Door Intelligent Reader POE Control Panel
      2) Two Door Intelligent Reader Control Panel
      3) Four Door Intelligent Reader Control Panel
      4) Eight Door Intelligent Reader Control Panel
      5) Sixteen Door Intelligent Reader Control Panel
      6) Expansion Modules:
         a) The ACS panels shall provide for full Supervised Alarm Input Expansion Modules (16 Supervised Alarm Inputs).
         b) The ACS panels shall support Relay Control Expansion Module (16 Form C Relay Outputs, and 8 Non- Supervised Inputs).
         c) The ACS I/O Board shall support up to 3 expansion boards, each provides 16 Supervised Inputs and 16 Relay Outputs, for a total of 48 each.
7. Additional Devices:
   a. The ACS Access Panels shall support the following Add-On devices:
      1) Personnel Identification Devices, including, but not limited to:
         a) Prox-Cards
         b) Smart-Cards
         c) Key Fobs,
         d) CHUID Cards
         e) CAC Cards
         f) TWIC Cards
         g) FIPS 201-1 Cards
         h) PIV-I Cards
         i) Barcode Cards
         j) Mag-Stripe Cards
      2) Access Authorization Devices, including, but not limited to:
         a) Keypads,
         b) Prox-Readers,
         c) Smart-Card-Readers and
         d) Biometric Identification devices
8. System Description:
   a. The Access Control Unit (ACU) is a fully programmable, self-contained, door system that offers users flexibility, expandability and simplicity.
   b. The system shall consist of all the hardware necessary to provide access control and alarm monitoring for all controlled entry/exit points within a single facility or multiple facilities.
   c. The system shall be a complete distributed processing system with no reliance on the

host PC for any decision making.

B. Related Sections:
1. Section [28 16 00 - Intrusion Detection].
2. Section [28 23 00 - Video Surveillance].
3. Section [28 15 00 – Door Hardware].

1.2 REFERENCES

A. National Fire Protection Association (NFPA):

70-2011 National Electrical Code The standard for the safe installation of electrical wiring and equipment in the united states.

B. Underwriters Laboratories, Inc. (UL):
294-5th Edition The standard of safety for access control system units

C. ETL/Intertek file number 3124828.

1.3 SUBMITTALS

A. Product Data: Provide complete product data which shall include the following:
1. Manufacturer's data for all material and equipment, including controllers, local processors, computer equipment, access cards and any other equipment provided as part of the ACU.
2. A system description, including analyses and calculations used in sizing equipment required by the ACU. Description to show how the equipment will operate as a system to meet the performance requirements of the ACU. The following information shall be supplied as a minimum:
   a. Central processor configuration and memory size
   b. Description of site equipment and its configuration
   c. Protocol description
   d. Hard disk system size and configuration
   e. Backup/archive system size and configuration
   f. Start-up operations
   g. System expansion capability and method of implementation
   h. System power requirements and UPS sizing
   i. A description of the operating system and application software

B. Shop Drawings: Provide complete shop drawings which shall include the following:
1. Indicate all system device locations on architectural floor plans. No other system(s) shall be included on these plans.
2. Include full schematic wiring information on these drawings for all devices. Wiring information shall include conductor routing, quantities, and connection details at devices.
3. Include a complete access control system one-line, block diagram.
4. Include a statement of the system sequence of operation.

C. Functional Design Manual: The functional design manual shall identify the operational requirements for the system and explain the theory of operation, design philosophy, and specific functions. A description of hardware and software functions, interfaces, and requirements shall be included for all

system operating modes.

D. Hardware Manual: The manual shall describe all equipment furnished including:
   1. General description and specifications
   2. Installation and check out procedures
   3. System layout drawings
   4. Manufacturer's repair parts list indicating sources of supply

E. Software Manual: The software manual shall describe the functions of all software and shall include all other information necessary to enable proper loading, testing, and operation. The manual shall include:
   1. Definition of terms and functions
   2. Use of system and applications software
   3. Initialization, start up, and shut down
   4. Alarm reports
   5. Reports generation
   6. Data base format and data entry requirements

F. Operator's Manual: The operator's manual shall fully explain all procedures and instructions for the operation of the system. The document shall be available on CD in electronic format and include:
   1. Computers and peripherals
   2. System start up and shut down procedures
   3. Use of system, command, and applications software
   4. Recovery and restart procedures
   5. Graphic alarm presentation
   6. Use of report generator and generation of reports
   7. Data entry
   8. Operator commands
   9. Alarm messages and reprinting formats
   10. System access requirements

G. Maintenance Manual: The maintenance manual shall include descriptions of maintenance for all equipment including inspection, periodic preventive maintenance, fault diagnosis, and repair or replacement of defective components.

H. As Built Drawings: The Contractor shall maintain a separate set of drawings, elementary diagrams, and wiring diagrams of the ACU to be used for record drawings. This set shall be accurately kept up to date by the Contractor with all changes and additions to the ACU. In addition to being complete and accurate, this set of drawings shall be kept neat and shall not be used for installation purposes.

1.4 QUALITY ASSURANCE

A. Regulatory Agency Sustainable Approvals
   1. NFPA 70 National Electrical Code
   2. UL 294 Access Control System Units
   3. ETL/Intertek file number 3124828.

B. Qualifications
   1. Manufacturers:
      a. The manufacturers of all hardware and software components employed in ACS shall be established vendors to the access control/security monitoring industry for no less than ten (10) years.
   2. Suppliers:

a. Only the manufacturer's equipment that is explicitly mentioned in this specification is supplied. Substitutes are not allowed.
b. Equivalence: No item shall be substituted without the prior written and approved documentation that assures that the substituted part/parts are exactly the same, technically and aesthetically speaking. The substituted parts must provide the same or significantly improved performance.

3. Installers/Applicators/Erectors:
   a. Dealers:
      1) All bidders must be a Certified Access Control Integrator by the manufacturer.
      2) All technicians and engineers involved in the project must be trained and certified on the ACS software and associated interfaces by the manufacturer prior to the bid.
      3) All bidders must have 5 years installation experience on the ACS product lines.
      4) The Integrators of the ACS products shall have been in the Access Control business for a minimum of 15 years, and have supplied access control systems/components of similar configuration, size and complexity.
      5) All bidders must maintain a technical support group for providing round the clock technical assistance.
   b. Contractors:
      1) The contractor of the access control system will meet the following requirements:
         a) He will have had a minimum of 5 years of experience in installing, commissioning and supporting access control systems of similar size, configuration and complexity.

system components installed, as recommended by manufacturer.

b) The installing contractor shall be responsible for the following:
   i. Determining operational requirements and planning/designing the system.
   ii. Installing and integrating Access Control, Alarm Monitoring, Alarm Systems, DVR/NVR, Time and Attendance, Visitor Management interfaces and related security and door hardware.
   iii. Configuring local access panels and ACS host communications.
   iv. Installing proper communication connections between the host system, access panels, and the related hardware.
   v. testing the security management system communication and operation.
   vi. Training system operators.
   vii. Testing the security management system

c) The subcontractor shall have been regularly engaged in the installation and maintenance of integrated access control systems similar in size and scope to that is outlined herein for a period of no less than five (5) years.

d) The subcontractor shall supply manufacturer's documentation attesting to the fact that his/her firm is a competent factory trained service branch capable of maintaining the system with reasonable service time.

e) The subcontractor shall provide a minimum of three (3) references whose systems are of similar complexity and have been installed and maintained by the subcontractor in the last five (5) years.

f) There shall be a local representative and factory authorized local service organization, which will carry a complete stock of parts and provide maintenance for these systems. Local shall be defined as an area in a 60 mile radius of Bakersfield with a response time of 4 hours.

4. Alternates: least two technical staff members who have been trained and certified by the manufacturer to install and support this system.

a) He will maintain an adequate supply of replacement parts for all

a. Only the manufacturer's equipment that is explicitly mentioned in this specification is supplied. Substitutes are not allowed.
b. Equivalence: No item shall be substituted without the prior written and approved documentation that assures that the substituted part/parts are exactly the same, technically and aesthetically speaking. The substituted parts must provide the same or significantly improved performance.

1.5 DELIVERY, STORAGE & HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.

1.6 WARRANTY

A. The Access Control Panel shall be warranted for at least 12 months from the date of system acceptance.

B. Extended warranty terms at reasonable rates shall be available from the installing dealer.

C. The system integrator shall be the focal point of all service issues or questions (with the manufacturer's full support). The system integrator shall directly support software for the selected system product family.

D. Technical support from the manufacturer to the system integrator will not be reliant on a software maintenance agreement between the system integrator, end user to the manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer List:
1. Continental Access (A Napco Security Group Company) 355 BayView Ave, Amityville, N.Y. 11701;
   Telephone: (631) 842-9400;
   Fax: (631) 842-1961;
   Website: www.cicaccess.com.
2. Alarm Lock (A Napco Security Group Company)
3. Napco (A Napco Security Group Company)
4. Marks USA (A Napco Security Group Company)
5. Salient
6. Pelco
7. Milestone

8. Video Insight
9. Exaq
10. Avigilon
11. Ganz Cortol
12. Que Accounting
13. Stopware
14. Passagepoint
15. Fargo
16. Imageware
17. Code Bench

2.2 SERVER CONFIGURATION

A. Server PC Requirements: Minimum Server PC requirements shall be as specified in the table below:

	Server (1-4 Workstations)	Server (5-19 Workstations)	Server (20-49 Work-stations)
Processor	Intel Dual Core, 2.0GHz (min)	Xeon Quad Core 2.0GHz (min)	2 x Xeon Quad Core 2.0GHz (min)
Ram	8GB+ Min.	16GB+ Min.	16GB+ Min.
Hard Drive	300 GB	500 GB	Raid 5 - 3 drives minimum
USB Ports	4 Min	4 Min	4 Min
Serial Ports	Optional - 1 expandable to 64	Optional - 1 expandable to 128	Optional - 1 expandable to 128
Parallel Ports	Optional - 1	Optional - 1	Optional - 1
Mouse	USB	USB	USB
Monitor	17" SVGA (1600x900)	17" SVGA (1600x900)	17" SVGA (1600x900)
DVDROM	48x/16x	48x/16x	48x/16x
DVDR	24x/8x	24x/8x	24x/8x
Sound	Optional	Optional	Optional
Network Card	1 Gig NIC Ethernet	1 Gig NIC Ethernet	1 Gig NIC Ethernet
Operating System	Win 10 Pro 32/64 bit, Win 2012 R2 Server, Win 2016 Server and Win 2019 Server	Win 10 Pro 32/64 bit, Win 2012 Server, Win 2016 Server and Win 2019 Server	Win 10 Pro 32/64 bit, Win 2012 Server, Win 2016 Server and Win 2019 Server
Database	SQLExpress 2008 R2/2012/2014/2016/2017 or MSSQL Server 2008 R2/2012/2014/2016/2017 for higher performance	MSSQL Server 2008 R2/2012/2014/2016/2017 recommended	MSSQL Server 2008 R2/2012/2014/2016/2017 recommended

Backup	Tape / CD / DVD / Network	Tape / CD / DVD / Network	Tape / CD / DVD / Network
System Size	This is the recommended PC server specification for a system with up to four work- stations. It can be used for a stand-alone system, a work- station or a CA4K™ Server. For high transaction environ- ments some specifications may change.	This is the recommended PC specification for a CA4K™ Server supporting up to twenty four workstations. For high transaction environ- ments some specifications may change.	This is the recommended PC specification for a CA4K™ Server supporting up to forty nine workstations. For high transaction environments some specifications may change. For larger systems please consult with Conti- nental Access.
Notes:	(1) If using SQLExpress, the database size should not exceed 10GB. (2) Disk drive usage is dependent on the number of transactions kept in backup. (3) Additional RAM will improve performance (4) It is best to perform badging 4K and other integration functions on a work- station, not the server.		

2.3 SYSTEM DESCRIPTION

A. The Access Control System (ACS) shall be capable of:
   1. Managing the security operations for a single site or for multiple sites.
   2. It shall consist of all the software and hardware necessary to provide access control and alarm monitoring for all controlled entry/exit points within a single facility or multiple facilities.
   3. The system shall provide full access grant or deny access authorization capabilities without the need for real- time communications with the control panels.
   4. The system will monitor alarm events and display them to the system operator for processing.

B. The system shall be designed such that entry/exit points may be added in increments.

C. The system shall provide full system integration to ACS, CCTV, third party DVR/NVR Digital Video Management, Alarm and Fire panels, Time and Attendance, Visitor Management, Trilogy Networx Wireless Locks utilizing Gen II Gateways and Expanders along with Data Exchange services. The system shall allow reporting to Police, Fire Department, and to the ACS.

2.4 SYSTEM SPECIFICATIONS

A. High resolution graphics:
   1. The system shall support unlimited high resolution graphics with Disk-Limited and user-programmable color dynamic graphic map display capable of showing floor plan, location of alarm device, and alarm instructions.
   2. The mapping software shall be able to run independent of the ACS software.
   3. The independent dynamic mapping software must utilize the same database as the ACS software.
   4. Floor plans shall be created in .JPG, .BMP, .PNG, .emf, .wmf or .ico formats, and can be imported from other systems.
   5. All of the graphic maps will be displayed on the CPU monitor. Systems requiring separate display monitors or PC's to display the floor plans will not be acceptable. The operators must be able to perform the falling functions without use of the ACS software:
   6. Add and delete devices on the dynamic maps
   7. Make custom icons as devices and add to the dynamic maps
   8. Open up live video on the dynamic maps by right clicking and choosing live video
   9. Unlock and lock doors from the dynamic maps
   10. Turn on/off devices from the dynamic maps
   11. Respond to alarms from the dynamic maps
   12. Add and delete dynamic maps according to permissions by operator log on
   13. Utilize a Log On that is identical as the Log On given by the system administrator for the ACS with all permissions that were assigned and all restriction that were assigned.
   14. All events/action shall become part of the ACS transactional history database

B. Information Storage: All programmed information as well as transactional history will be automatically stored onto a local or remote hard disk for later retrieval. The system will warn the operator when the database size approaches maximum capacity. The system shall be capable of using multiple ACS site databases as needed by the system users.

C. Information Archive/ Retrieval: The CPU shall be capable of transferring all programmed data and transactional history to any removable media or logical disk drive. All programmed data can be

restored from disk/CD, Tape Drive etc., in case of system hardware failure. As an option, the system shall be able to offer additional support by means of a redundant mirrored system backup retrieval, for virtually instantaneous switchover in an emergency. There shall be no distance limitation for the secondary server to the primary server.

D. Communication: The system shall be capable of supporting the following communication types:
   1. Serial Port type (RS232/RS422) connections
   2. LAN/WAN (100/1000) Hard-wired & Wireless connections
   3. Fiber Optics
   4. TCP/IP IPV IV and IPV VI protocols

   Note: A Host Server shall be able to employ any combination of the above communication types.

E. COM Port/Serial type (RS232/RS422) Connections:
   1. The PC shall have four or more USB ports for the use of USB to serial converters.
   2. The system (consisting of a Host and 7 Remote Hardware Communication Servers) shall be able to support up to 2048 Com ports, each Hardware Communication Server supporting 256 Ports. In case all of the 256 ports are to be used for serial communication, you need to employ Com Port expansion cards. Each expansion card will be able to provide expansion in increments of 32 Com Ports.
   3. Each com port will be able to support hard wired direct connect connections. An additional 256 ports per Host or Hardware Communication Server can be used for up to 512 total ports.
   4. Each COM port must be able to have password protection as an option.
   5. The system operator will be able to enter a password for each COM port.
   6. When operating in this mode, the ACS door controllers will not accept communications from any host PC, workstation or communications server that does not provide the correct password.
   7. The system operator will be able to individually assign this password to selected panels.
   8. The COM port password will be encrypted both in the system database and in the Access Control Panel.

F. LAN/WAN (100/1000) & Fiber Optics Communications:
   1. The Host PC shall support LAN (local area connection).
   2. The system (consisting of a Host and 7 Remote Hardware Communication Servers) shall be able to support up to 2048 LAN ports, each Hardware Communication Server supporting 256 LAN Ports.
   3. Each port shall support typical Cat 5 LAN Connection or Fiber Optics LAN connections.
   4. Each LAN port shall be able to have password protection.
   5. The system operator will be able to enter a password for each LAN port
   6. When operating in this mode, the ACS door controllers will not accept communications from any host PC, workstation or communications server that does not provide the correct password.
   7. The system operator will be able to individually assign this password to selected panels.
   8. The LAN port password will be encrypted both in the system database and in the Access Control Panel.

G. Printers: The system shall support page printing of reports by any page printer that can be installed, configured and supported by the Microsoft Windows ® operating system. The system shall also support printing of alerts or any events above a user selected priority.

H. Mouse: The ACS shall use USB or Wireless mouse configured under and supported by the Microsoft Windows
   ® operating system.

I. Workstations: The system shall support up to 500 additional active remote workstations. These

stations shall be capable of monitoring alarms, running CCTV Integration, DVR Integration, Alarm and Fire panel integration, Scripting, Video Badging, Time and Attendance and Visitor Management. Video Badging Full integration shall use the same SQL database and hence no multiple entries will be needed. The ACS Management software shall overlook all database administrative tasks, of all system workstations including:

J. Access Control Management
   1. Alarm monitoring Management
   2. Burglar Alarms and Fire Panel system Management Integration
   3. Photo Imaging/Badging Management
   4. CCTV Integration Management
   5. System Administration Management (except archiving)
   6. Personnel Tracking Management Reports
   7. Visitor Management
   8. Conditional Badging Management
   9. Muster System Management ('Who's IN' report)

K. Networking: The system shall provide networking operation via local area networks (LAN) or Wide area networks (WAN), both wired and wireless (802.11g standard), using the standard features of Microsoft Windows
® networking software.

L. Licensing: The ACS shall offer you the following licensing options:
   1. The system shall provide one Server license.
   2. Client/user workstation licensing for workstations shall be available as an option.
   3. Additional licensing for up to 7 additional Hardware Communication Servers shall be available as an option.
   4. The system shall support concurrent usage of all system workstations as per the license limitations. System operators will be able to perform independent functions on each workstation. The system allows access to only one particular table for additions, deletions or editing, one user at a time.

M. Database:
   1. The database shall be Microsoft SQLExpress 2008 R2/2012/2014/2016/2017 (Database Engine) or optionally Microsoft SQL Server 2008 R2/SQL Server 2012/SQL Server 2014/SQL Server 2016/SQL Server 2017.
   2. It shall be scalable. Systems initially installed using Microsoft SQLExpress 2008 R2, shall be field upgradeable to Microsoft SQL Server 2012/SQL Server 2014/SQL 2016/SQL 2017.
   3. The database will fully integrate with the Government PKI database for validation of a card and automatically remove access privileges when the card holder information is moved to the Government Revocation list.

N. Access Control Panel: The Access Control Panel system shall be scalable and operate efficiently over a wide range of facility sizes and applications. Systems utilizing a remote module at the door that reports back to the controller will not be accepted. The Access Control Panels shall be capable of:
   1. Entry/exit points will be able to be added without the need to replace any system hardware or controllers.
   2. Controllers may be selected and added to provide the maximum flexibility and cost effectiveness.
   3. Distributed, intelligent, fully independent controllers will be able to be used to provide fully distributed decision and authorization capabilities.
   4. In the event the host PC cannot communicate with any/all controllers, no degradation in security

shall occur.

5. Reading multiple cards formats simultaneously with no degradation of “time to unlock”.
6. Multiple reader formats/readers shall be read at a single controller simultaneously.
7. Reading bit structures from 26 bit to 256 bits.
8. Storing up to 1,000,000 card holder records.
9. Reading the FIPS-201-1, PIV, PIV-I, TWIC and CAC card formats.
10. Shall be capable of Time Zone Offsets for those panels deployed in different time zones.
11. Unlock times not to exceed .5 seconds after a valid card read.
12. Download speeds to be at 921 kbps allowing for 40,000 cards to be downloaded in less than two minutes.

2.5 SOFTWARE CAPACITIES

A. System software and language development software exist, and are industry accepted, allowing the customer to choose the Language desired by the user. There can be full customization of the following:
   1. Software GUI Screens containing multi-tab selections.
   2. Icons .
   3. Custom Icons to launch third party applications
   4. Communication messages, and Reports.
   5. The Operating system shall be 32 or 64 bit multi-user / multi-tasking capable of operating in a non- proprietary CPU.
   6. The application software shall be written in a standard, industry accepted language. All System functions shall be accessible via Microsoft Windows ® compliant menu-accessed screens. Systems requiring command string control or complex syntax will not be acceptable. Systems shall not be dependent upon external input, other than keyboard.

B. Each system shall be capable of supporting:
   1. Over 2000 Serial/LAN Communication Ports and over 4000 Ports Total.
   2. Over 32,000 Readers.
   3. Unlimited Cardholder database (SQL Version-limited only to Hard drive capacity).
   4. 500 Workstations.
   5. 255 Time Schedules each w/least 10 start/stop intervals (Per Panel).
   6. 5 Holiday types with 100 user-definable holidays each (Per Panel).
   7. Unlimited System operators.
   8. 30,000 access levels per panel.
   9. Over 256,000 supervised inputs.
   10. Over 256,000 relay outputs.
   11. Over 16 thousand global link (output) programs.
   12. Up to 10 facility codes per Access Control Panel or 100,000 system facility codes per panel with Facility Code/Badge Concatenation.
   13. Unlimited operator passwords with definable privilege levels.
   14. Unlimited .wav files for alerts
   15. Unlimited color dynamic graphic maps.
   16. Unlimited RS-232 interface ASCII commands to a CCTV system, which provides automatic, alarm activated camera switching, and Live Camera image Capture.
   17. Unlimited number of floors for Elevator Control.
   18. Cardholder activation/expiration date and time down to the hour.
   19. Unlimited number of CCTV DVR Servers.
   20. Unlimited number of CI Scripting(linking) Servers.
   21. Unlimited number of Napco Alarm Servers.

22. Unlimited number of Time Zone Offsets.

2.6 SYSTEM SECURITY

A. Password: The system software shall be capable of identifying unlimited temporary or permanent operators. Passwords may be up to 20 alphanumeric characters, and will be case sensitive requiring at least one upper case character and at least one number.
   1. Password Security: Permanent passwords will be able to be provided only by the operators. The administrator may only provide a temporary one-use initial password, which must be changed by the operators, when they log on. Operators will be allowed to change their passwords any time. Operator password invalidation will be required in cases of suspected operator security breach (which can occur when the operator is not on site or is otherwise unable to logon) in order to enforce immediate change of password. When an administrator adds a new operator, the concerned operator's password may not be left blank and must be set to a temporary value that can be used only once. When a temporary password has been provided by the administrator, the New Password dialog will be displayed after the temporary password has been entered.
   2. An operator record will be required to have a unique name, to allow the use of same passwords by different operators. If duplicate passwords are not allowed, security can be compromised. For example, a 'password already in use' message will reveal one of the existing passwords, which is of course a security violation. No secret information is revealed by saying, 'Operator name already in use, please enter a different name'.
   3. The system administrator will have the capability to require an operator to change his/her password. The system administrator may invalidate the operator's password. The operator will then be required to provide a new password during his next logon.
   4. System Operators will have the ability to change any workstation settings, from whichever station they are working on.
   5. The system administrator may assign an operator to a group. As a result, the operator will be able to view/ change and create items that are assigned to the particular group only.
   6. The system will record in the Audit Trail database, the time at which an operator logs into/out of the system, as well as any changes that were made by the user during login.

B. System Operators:
   1. Privilege levels: Each operator will be able to be assigned any combination of up to 100 user programmed privilege levels. Operator Control will be limited by the following access rights:
      a. Disable
      b. View Only
      c. Create Only
      d. Create and Edit
      e. Edit only

C. Personnel Database Security: The system administrator will be able to restrict each operator's privileges to View, Create, Edit Only or Create/Edit each field in the Personnel database.

D. Audit Trail of Database Changes:
   1. The system shall record changes to the database, including the date, time, operator name and description of the record changed.
   2. The audit trail shall track event messages record additions, deletions and revisions. The record will contain a date/time stamp for the change, the logged on operator's name, table name, action identifying the change, and a description based on the 'Name' field of the record such as, user name, operator name, panel name, reader/door name and workstation where the change was

made.

3. The system shall allow for browsing of Audit Trail. The dialog box will contain a database grid component that will display the records of the Audit Trail Table.
4. The system shall NOT allow the Audit Trail table to be edited.

2.7 SOFTWARE SPECIFICATIONS

A. The system shall integrate with various facility management functions such as:
   1. Burglar and Fire Alarm Panel
   2. Visitor Management
   3. HR interfaces
   4. Government PKI databases
   5. Time and Attendance
   6. Asset Tracking
   7. CCTV DVR recording devices so that, all available functions may be controlled from any ACS workstation connected to the network
   8. IOS/Android Mobile App

B. The system shall be capable of handling large multi-site corporations across Local (LAN) and Wide Area Networks (WAN) while utilizing AES 128/256 bit encryption.

C. The system software shall be true 32/64 bit software.

D. The system shall support both Microsoft SQL Express 2008 R2/2012/2014/2016/2017 and Microsoft SQL 2008 R2, SQL 2012, SQL 2014,SQL 2016 and SQL 2017. Microsoft SQL Express is the system default.

E. The system shall support multiple languages offering the following privileges.

F. The system shall support multiple credentials per badgeholder.

G. The system operator will be able to select the desired language from a pull down list of available languages.

H. The system shall be able to remember individual operator settings and automatically switch to the appropriate language for the logged on operator.

I. The system shall support use of different languages at each workstation.

J. The system shall be capable of switching between languages without the need to re-boot the system.

K. Communications: In addition to the normal hardwired configurations, the system shall allow selection of all modes of polling, (LAN/WAN, Hardwire, Wireless network, and Dial up) if needed from one single host server, allowing for a combination of polling modes. The System shall allow full flexibility of controller polling from the Host server, and also shall allow an additional Remote Hardware Communication Server (Network LAN/WAN) for remote polling. The system shall support the following alternative communications modes:
   1. Network:
      a. All communications shall be capable of AES 128/256 bit encryption
      b. The system shall have the capability to communicate with system controllers from the Host PC on the network via a Local (LAN) or Wide Area Network (WAN). Multiple communications servers may be run concurrently within the system utilizing AES 128/256

bit encryption.

c. Controllers communicating over a network via LAN/WAN will be able to be password protected.

d. Controllers shall have the capability of having two Ethernet connections. One being primary and one being secondary for redundant communications paths.

L. The system shall be compliant with European Privacy Standard (GDPR).

M. The system shall support the auto deletion of un-used badges.

N. The system shall support LDAP Single Sign-On.

O. The system shall support an IOS and Android Mobile App with capability to unlock/lock doors, perform lockdowns, activate threat levels, manage Personnel, manage Scheduled changes, display a badge Holders In list, perform manual door and relay controls and view Status.

2.8 SYSTEM SOFTWARE FEATURES

A. Anti-Pass back:

1. The system shall support the following modes of anti-passback:
   a. Global System Wide Anti-Passback: The user may enter at any IN reader and/or leave using any OUT reader in the system. Up to 250 + Anti-Passback areas shall be supported.
   b. Hard Anti-Pass back: The cardholder will not be able to use his/her card consecutively at either an In or an Out reader. Doing so will generate an event message and the system will deny access to the cardholder. The cardholder must be In before swiping Out, and vice-versa.
   c. Soft Anti-passback: Will allow the cardholder to access an (In) or (Out) door consecutively, but the system will generate an error message.
   d. Duration Use (timed) Anti-Passback: The system shall have the capability to restrict the use of an In or an Out reader for a particular card-holder, for a certain duration of time. When applied to an APB type reader, this duration will determine the amount of time (minutes) that a badge that is in APB violation, will be rejected. If a badge is rejected due to APB violation, the use of this badge in the same direction-type reader will continue to be rejected until the duration use time expires. After the expiration, the badge holder will be permitted passage at the reader.
   e. Nested Anti-Passback: The system shall support multiple zones of anti-passback within the same building I.E. Independent zones of anti-passback where one in read from one zone does not affect another zones setting.
   f. APB Reset: The system shall be capable of a global reset of all cardholders in the system. This can be done by schedule, or manually.
   g. Nested Anti-Passback: The system shall be capable of nested anti-passback.

B. Dedicated Access:
   1. The system administrator will be able to assign one or more readers to Badgeholders individually.
   2. The personnel database supports the assignment of unique groups of doors and time schedules to each badge holder.

C. Database Partitioning:
   1. The system shall support partitioning of database. System administrators will have the capability to restrict operators from viewing, adding, editing or deleting data, or system configurations.
   2. The system shall support the assignment of multiple operators to the same database partition.
   3. Database Partitioning should allow the administrator to assign each Operator Privilege to the followings folder tabs:
      a. Forms Control: This tab shall provide access to all system database menus and menu items dependent on operator privileges. The menus and their items at minimum are:
         1) System
            a) Language
            b) System Settings
            c) Achieve/ Restore
            d) View History
            e) Audit Trail
         2) Control
            a) Doors
            b) Relays
            c) Links
            d) Activity Links
            e) Napco Panels
            f) Schedule Changes
         3) Access
            a) Personnel
            b) Badge Holders IN (Muster)
            c) Lockdown Areas
            d) Access Groups
            e) Find Usage
         4) Administration
            a) Badge Formats
            b) Facility Codes
            c) Schedules
            d) Holidays
            e) Operators
            f) Threat Level Management
            g) Photo ID
         5) Operators
            a) Operators Privilege
            b) Operators Response
            c) Operator Instructions,
            d) Operator Instruction Links
            e) Maps
         6) Configuration
            a) Panels
            b) Readers
            c) Inputs
            d) Relays
            e) Links

f) Activity Links
g) Com Server and Ports
h) Shunt Groups
i) DVR server
j) Napco Server
k) Scripting
l) Central Station Reporting

7) View
   a) Stations
   b) Status
   c) Pending Alerts
   d) Events
8) Help
   a) CA4K™ Help
   b) Documents
   c) About CA4K™
9) Alert Signal Menu
   a) Silence
10) Control Menu
   a) Control Devices
11) Status Menu
   a) Remove Entry
12) Remove Station Menu
   a) Remove Off- Line Workstation
13) Personnel Fields Control:
   a) Batch Modify
   b) Access Time
   c) Access Group 1-16
   d) Access Group Expire Dates
   e) Access group template
   f) APB In
   g) APB Out
   h) APB Exempt
   i) APB Set Next
   j) APB Settings
   k) Activation Date and Time
   l) Badge Number
   m) Badge Photo Type
   n) Capture Signature
   o) Company ID
   p) Department
   q) Duration Use
   r) Embossed
   s) Enabled
   t) Escorted
   u) Expiration Date
   v) Facility Code
   w) First Name
   x) Group
   y) Hire Date
   z) Initial Download
   aa) Last

Access bb)
Last
Name cc)
License
dd) Location
ee) Phone
ff) Phone Extension
gg) Photo Modify
hh) Photo Import
ii) Photo Preview
jj) Photo Print
kk) Photo
Export ll) Clear
Photo
mm) Clear Signature
nn) Pin (Keypad Pin Number)
oo) Print Photo Copies
pp) Re-Issue
qq) Remarks & Note Field
rr) Shunt Group
ss) Shunt by
Reader tt)
Shunt Inactive
uu) Shunt
Shunting
vv) SSN (Social Security)
ww) Stay On Panel
xx) Supervisor
yy) Tracked
zz) Badge Use Limit
aaa) User Field 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 thru 48
bbb) Vehicle Tag
ccc) Dedicated Access Group Name
ddd) Dedicated Access
eee) Dedicated Access Group Assignment
fff) Vehicle

14) Database Partitions: This tab should allow partitioning of all system database Partition groups below but not limited to:
   a) Personnel Partition Group
   b) Panels/Door Controllers Partition Group
   c) Readers Partition Group
   d) Time schedules
   e) Alarm Inputs Partition Group
   f) Relay Outputs Partition Group
   g) Links (If Than) Macros type Partition Group
   h) Access levels Partition Group
   i) Time Schedules Partition Group
   j) DVR's/CCTV
   k) Napco panels
   l) Shunt Groups

D. Vehicle Tracking:

1. The system shall support tracking the use of a vehicle by a particular operator.
2. The system administrator will be able to link a particular vehicle to a particular vehicle operator.

E. Event Printing: The system shall support printing of alerts or any events above a user selected priority.

F. Printer Types: The system shall be capable of supporting three types of printers.
1. Report Printers: Reports requested by the operators will be sent to these printers. These printers may reside anywhere on the network.
2. Event Printers: Individual events will be routed to any of the event printers in real time.
3. Dye-sublimation Video Badging type of printer: These can be single/double sided printers. The system software shall support many different printer driver manufactures, and will be compatible with any of the following Continental Access printer models:

G. Scheduled Reports:
1. The system shall be capable of running unattended scheduled reports, automatically. Operator interven- tion shall not be required.
2. The system shall support the creation of report templates. These templates will be saved by the system for repeated retrieval and use by the system operators.

H. Badge Validator (Enable/Disable):
1. The system operator will be able to program a reader as a 'Badge Validator reader. Badges presented to this reader are automatically enabled or disabled on consecutive card swipes.

I. Auto Acknowledge Priority Set Point:
1. The system operator will be able to set a priority level between 1 and 99 as an automatic acknowledge point.
2. All alerts that have been assigned a priority lower than the set point will be automatically acknowledged by the system.
3. The system operator will be able to easily modify this set point as well as, enable or disable it.

J. Partition Groups:
1. The system administrator will be able to perform manual control based on Partition groupings of Personnel, Panels/Controllers, Readers, Inputs, Relays and Links.
2. The system administrator may assign one or all of these items to named Partition groups. The system operator will be able to select any/all of these items by selecting the name of the desired Partition group, and perform system functions in a 'batch mode' on all of them.
3. The system administrator may partition the system using Partition Groups.

K. Access Group Templates:
1. The system administrator will be allowed to select any existing access group and use that group as a template for creating a new similar access group.

L. Default Relay and Input Assignments:
1. The system shall provide default settings for relay and input assignments. This default programming will be populated each time a reader is programmed.
2. The system shall allow the operator may choose to modify these default settings as required.

M. Import:
1. The system shall support importing of personnel data from other databases.
2. The system shall be capable of recognizing any flat file that contains ASCII data.
3. The operator will be able to select the field separation character.
4. The system shall support the import of Badgeholders from an Active Directory database.

N. Export:
1. The system shall support exporting of all system events. The operator will have the option of selectively exporting any/all event record types.

O. Auto Import/Export:
1. The system shall support automatic import/ export of data to and from the ACS database. The system operator may set up specific files to 'import (from)' or 'export (to)'. These files may be on a local drive or network drive.

P. Elevator Control:
1. The system shall be capable of controlling access to building elevators by making use of Access Groups with no special controller being used.
2. The system shall support Hardware and Software Elevator Controls.

Q. Archive and Restore of Data:
1. Data Archive:
   a. The system shall allow archiving of the data required to configure the system. The operator will be able to choose to archive all configuration data or, selectively back up this data by category.
   b. The operator will be able to archive events as well. The entire Events data will be able to be archived or, only select event types can be backed up based on a period of time.
   c. The system shall offer the option of storing the archived events/configuration data in the local database or, in a database present on a remote site.
   d. The operator shall be capable of setting up archive database backups by a schedule for automatic backups.

2. Data Restore:
   a. The system shall allow restoration of all previously archived data. The operator will be able to restore all configuration data or, restore only select data by category.
   b. The system shall allow the administrator to restore data from any location where an archive was previously done, and will still be available to the system via network connection.

R. Scheduled Changes:
1. The system shall be capable of scheduling time changes to Readers, Inputs, Relays and Links, automatically. The system will be able to execute these scheduled changes without the need for operator intervention.
2. The system also shall provide the operator the flexibility to control the scheduled change by a single device or a 'Group' of devices.
3. The system operator may program these changes for the current year or any year in the future that the operating system can support.

S. Badge Holders IN (Muster List):
1. The system shall be capable of providing a list of all badge holders currently logged as IN the building.
2. The list shall include the Name, Location and Time of the badge holders' last IN transactions.
3. The default readers for this list shall be all readers. The operator will have the privilege of selecting any reader in the system for the list, provided, the reader has been programmed to report 'In' and 'Out' events.
4. The operator shall be able to print a report of this list directly from the Badgeholders IN screen to any printer on the system or it can be generated automatically in response to an event or

input.

5. The operator shall be able to email or text a Badgeholders-In list.

T. Find Usage:
   1. The system shall enable the administrator.
      a. To determine the time schedules and access groups that will be contained within a particular Access Control Panel.
      b. To determine the exact counts of badges, access groups and time schedules that will be contained within a particular Access Control Panel.
      c. To determine the presence of any Time Schedules or Access Groups that will no longer be used by the system.

U. Badge Formats:
   1. The system shall accommodate various badge data formats, simultaneously, by allowing the system operator to enter into the system, the information about the data contained within a particular badge.
   2. The system shall support multiple badge formats, simultaneously.
   3. The Badge Format function shall support American Banking Association (ABA), FIPS 201-1, PIV, PIV I, CHUID TWIC and Wiegand data formats.
   4. The system software shall have the capacity to download a minimum of ten (10) user defined badge formats to each panel. These formats will allow for the use of several card technologies, simultaneously. Alternately, the system shall support 100,000 system facility codes per panel with Facility Code/Badge Concatenation.

V. Alarm Monitoring Management and Alert Processing:
   1. The system shall support 99 levels of alert priority. The system administrator will be able to assign these priorities uniquely to any alert or event in the system.
   2. The administrator may partition the events by user. Only events from the panels and readers in the operators' partition will be viewable.
   3. Each priority will be uniquely identified by color that is hard-coded in the software.
   4. The alert display screen will be divided into two sections.
      a. Those alerts requiring intervention by the system operator will be placed in the 'Pending Alerts Grid'. These events will remain in the Pending Alerts grid until such time the operator makes a determination, or the system Auto-Acknowledge function determines that the event should be automatically acknowledged by the system. When an event is auto-acknowledged, the system will append to the event record the date and time the event was auto-acknowledged, the operator that was logged on, and an indicator that the event was auto-acknowledged.
      b. Alerts not requiring operator intervention will be placed directly in the 'Events Grid'. The Events grid allows the operator to view the current and past events.
   5. The system administrator will be able to force the operators to enter a response for each event the operator processes. The administrator may predefine response messages which the operator may choose from, or the operator can enter his/her own response.
   6. The Events grid will contain button controls for sorting and viewing of events. The buttons will be:
      a. Recent: This button will display the most recent / latest events. (This can be set per user).
      b. Browse Mode: Once the user has logged in, the system shall automatically put the Events grid in Browse. This mode will 'freeze' the event screen for browsing.
      c. Previous/Next: When sorting on a header there will be two buttons (PREVIOUS) and (NEXT). The Previous button will display the previous day's transactions. The Next button will advance you to the next day's events.
      d. Photo/Map: If the Photo/Maps option is enabled, the system should automatically display each user's photo and/or map.

7. Each alert record will provide the following information:
   a. Class, Description, Location, Date, Priority, and Operator that acknowledged the alert and the time it was acknowledged either through the ACS software or the ACS stand alone map software directly on the Map.
8. Alarm Description: Each alarm point may be defined with a plain text description of up to 40 characters.
9. Alarm Enabling: Alarm points will be enabled during user-definable time schedules and they can be manually silenced from any workstation.
10. Additional Alarms: The system shall also generate alarms for the following:
    a. Enclosure tampering
    b. Access Control Panel communication loss/restore
    c. Alarm tampering (supervised)
    d. Alarms shall be capable of utilizing events generated by the ACS software.
11. Alarm supervision: When using supervised alarm points, the system shall monitor for “OPEN”, SHORT”, and “GROUND FAULT” in addition to NORMAL/ABNORMAL conditions.
12. ASCII Output-CCTV Remote Control
    a. Alarm points will have the capability to output an ASCII text command for CCTV switched interface.
    b. This command/output will be user-definable and transmitted on alarm points going into abnormal state, returning to a normal state, or both, and for specified reader events as well.
13. Maps/Floor Plan Assignments
    a. The system operator will be able to choose to assign a floor plan to each alert/ event. This floor plan will help in showing the exact location of the event. The system shall be capable of displaying these floor plans automatically or manually by the operator.
    b. If the event is a badge event, in addition to the floor plan, the system will be able to automatically or manually display an image of the badge holder both from the database and live from the CCTV interface.
    c. The system operator will be able to choose to disable the floor plans function in case it is not being used.
    d. The maps shall be capable of running without the ACS software running.
    e. The system operator shall be able to assign icons to devices such as:
       1) doors
       2) card readers
       3) Cameras
       4) Alarm points to include perimeter protection systems
       5) Controllers
       6) Automatic gates
       7) Any device that is controlled by the ACS
    f. The system operator shall be able to, from the map software
       1) Acknowledge alarms
       2) unlock doors
       3) pull up live video from any camera
       4) open automatic gates
14. The system operator will be able to acknowledge pending alerts one at a time or automatically acknowledge all pending alerts.
15. The system operator will have the advantage of filtering events to display only the category of interest.
16. Event display modes:
    a. Tracking Mode will allow the operator to view events activity displayed on the screen as they occur.
    b. Browse Mode will prevent the incoming events from scrolling on the screen. The

highlighted event the operator wishes to dwell on will remain stationary on the Events grid. All events may be sorted alphanumerically.

17. Manual Control will be available for every event, which appears in the Event or Pending Alerts Grid display that relates to a door, relay or link.
18. The operator will be able to quickly sort event records by clicking on the column header above the record field he wishes to sort by.

W. Web Browser interface
1. The web browser shall be able to be used remotely and allow for all programming functions offered by the ACS software.

X. Scripting
1. The ACS software shall have a scripting GUI that allows for:
   a. automatic lock down of all doors
   b. send e-mail messages on events or alarms
   c. attach events to linking alarms
   d. attach alarms to linking actions
   e. automatically arm and disarm the Intrusion Detection System
   f. disable any or all card readers
   g. Choose an individual card or input to automatically perform and event when the card is presented to a reader/s or the input goes active in a normal or abnormal state.

Y. Continental FIPS 201, PIV-I,TWIC, FRAC & NIST 800-116 Credential Validation with the CoreStreet Approach
1. Continental Access System shall be capable of PIV and PIV-I enabling to the CA4K™ software as to validate the card with the Government PKI database and the TWIC Hot List database. This function shall be done at the database on every cardholder within the system at the time of enrollment with checks, no longer than 18 hours, of the revocation list.
   a. The checks that shall be accomplished are:
      1) Path discovery – The path from the PIV certificate to an embedded trust anchor.
      2) Path signature verification – establishing that every certificate in the path is genuine and not counterfeit.
      3) Data object signature verification – establishing that every signed data object on the card was signed by a trusted issuer (e.g. certificates, fingerprint template, facial image template) to ensure they are genuine and not counterfeits.
      4) Cross checking data object identifiers – all signed data objects on the PIV card have an identifying number (FASC-N) unique to that card. Checking that each data object contains the same FASC-N (or CHUID) ensures they all belong to the same credential.
      5) Various PKI conformity and freshness checking (key usage, expiration dates, etc.)
      6) PIN check –to ensure the card holder is bound to the credential to mitigate the threat of lost or “shared” cards.
      7) Private Key challenge – to ensure the certificate is bound to the token to which it was issued and has not been copied or cloned.
      8) Biometric check – to ensure the card holder is the same person that was issued the PIV card. This mitigates the threat of “shared” cards and disclosure of the card’s PIN.
      9) Periodic checking of the revocation status of the PIV Authentication certificate.
      10) Periodic revalidating the full path – to ensure all of the certificates in Access Control database remain valid and have not been revoke.
2. Validation during enrollment shall include all of these checks to ensure at the highest level possible that all enrollees are in fact who they claim to be. This would typically be done as a

function at or in conjunc- tion with the PACS head-end.

3. Validation at the time of access shall involve a subset of these checks depending upon the assurance level required and authentication mechanism chosen for the specific access point being addressed.

Z. Hardware Definitions:

1. Menu configurations: The System software shall allow for the configuration and programming of the Access Control Panel through the use of a simple graphical user interface (GUI).
2. Access Control Panel Memory Allocation: The allocation of memory for cardholder data, event storage, time schedules and access groups within each Access Control Panel will be user-definable from the 'Configuration' menu.
3. Auto-Baud: The system shall allow for advanced baud rate 'syncing' capability with all Access Control Panel's on the system.
4. Auto Panel Type detection:
   a. The system will be capable of determining the type of panel (Access Control Panel) that is connected to a given COM port.
   b. The system shall automatically populate this information in the database.
   c. The system shall limit the number of readers to be programmed based on the panel type.
5. Interactivity:
   a. The system software shall allow, through the optional use of interactivity, less frequently used cardholder records to be automatically stored at the host CPU rather than the Access Control Panel in order to optimize Access Control Panel memory space.
   b. The system operator will be able to configure an Access Control Panel to operate in Interactive mode. When operating in this mode, if an invalid badge is presented to the reader, the panel will query the database to determine if the badge holder is valid in the host database. If so, the data will be sent to the Access Control Panel and an access grant/ deny decision will be made by the Access Control Panel.
6. Database Updates: The system software will be able to automatically download/upload information to the Access Control Panels while the Access Control Panels are in communication with the host CPU. A data download will be able to be initiated manually also.
7. Workstations: The system software shall be capable of reporting selectable data by type and by time schedule to any combination of the system workstations simultaneously.
8. Serial Ports: All serial ports will be able to be configured from an easy- to follow menu. Serial ports will be user friendly and selectable Cable users, allowing Baud Rate select, and password for each Serial port. Systems requiring in depth knowledge of the operating system or CMOS setup for port configuration are not acceptable.
9. LAN Connections: All LAN Connections will be able to be made from an easy to follow menu.

AA. Time Schedules:

1. Setup: The system software shall have the capacity for 255 user-definable time schedules per panel. Each time schedule will allow for a maximum of 10 individual time intervals.
2. Assignment: The time schedules will be able to be assigned to:
   a. Cardholders
   b. Inputs
   c. Outputs
   d. Doors
   e. Link Programs
   f. Activity Link Programs
   g. Schedule Changes: Readers, Inputs, Relays & Links
   h. Access Groups

BB. Holidays: The system software shall support a minimum of 5 sets of 100 holidays per panel. Holidays are considered as the eighth day of the week, and have different user-definable parameters from the normal designations for that particular day. A holiday will be capable of starting at any time/hour during a 24-hour day. Systems requiring holiday start time of midnight are not acceptable.

CC. Door Definitions:

1. Door Descriptions: Each door shall have a user-definable description of up to 40 characters.
2. Anti-Passback: The Anti-Passback feature shall have the capability of doing nested anti-passback. Each door may be assigned any one of the Anti-pass back states mentioned below:
   a. IN
   b. OUT
   c. NEUTRAL
3. Reader Modes: In addition to the normal mode, each reader will be able to be programmed to respond in the following modes:
   a. ESCORT: Visitors or non-supervisory personnel may only gain access after presenting a valid card, followed by an authorizing cardholder presenting his/her card.
   b. TWO-PERSON: Two valid card reads will be required for access.
   c. DURATION-USE: A user-definable time period may be set to reject successive card reads by the same cardholder.
4. Access Modes: Each door may be programmed to switch automatically between the following modes of operation, based on a user defined time schedule:
   a. CARD ONLY
   b. CARD + PIN
   c. FREE ACCESS
   d. COMMON 4 DIGIT KEYPAD ENTRY
   e. CARD OR CARD # THRU KEYPAD
5. Duress: If a reader is operating in “CARD + PIN” mode, the duress feature will allow an alternate code to be entered into the keypad for access. The system will then generate an alert that may be linked to control relays for the notification of the duress alarm.
6. Door Alarms: Each door may be programmed to generate FORCED DOOR and DOOR OPEN TOO LONG alarms. These alarms will be able to be allowed to have a time delay as required.
7. Door Alarm Annunciation: In addition to generating an alarm message, the following conditions may activate an output for annunciation:
   a. FORCED DOOR
   b. DURESS
   c. DOOR OPEN TOO LONG (DOOR AJAR)
   d. VOID CARD
   e. DENIED CARD
   f. ANTIPASSBACK
   g. INPUT DOOR ALARM
   h. TAMPER
8. Card Data: The system software shall allow for card numbers up to 19 digits.
9. Facility Codes: The system software shall allow for up to 10 facility codes per-panel to be used in the system simultaneously. All 10-facility codes can be downloaded to the Access Control Panels to function in a stand-alone mode, with or without the PC. Alternately, 100,000 system facility codes per panel with Facility Code/Badge Concatenation shall be supported. Systems supporting only one (1) facility code will not be acceptable.

DD. Cardholder Database:

1. The cardholder database will contain all information required to control the cardholders’ access to the facilities.
2. The system administrator will be able to restrict a system operator’s privileges to disable, view-

only, create- only, and create/edit.

3. Cardholder Records: Cardholder records will consist of a minimum of the following:
   a. Card Number: The actual badge number assigned to the badge holder.
   b. First and Last Name
   c. Issue level: This indicates the number of times a particular badge number has been issued to a badge holder.
   d. Up to (16) Access Groups: Each badge record will be able to be assigned up to sixteen access groups.
   e. User-Definable PIN Code: A badge holder will be able to select his/her own PIN code. The PIN code must have a minimum of 1 digit and a maximum of 9 digits
   f. Facility Code: The system shall be capable of accommodating various facility codes within the system. A badge holder will be able to be assigned one of the ten available facility codes.
   g. Anti-Passback Location and Status: This field shows the badge holder's current anti-passback status, Exempt from APB, In or Out, and the last In/ Out door they were allowed to enter or exit.
   h. Activation Date and Time: The system administrator will be able to enter a date and time in this field to enable the concerned badge automatically.
   i. Expiration Date Time: The system administrator will be able to enter a date and time in this field to disable the concerned badge automatically.
   j. Badge Use Limit: The system administrator will be able to limit the number of times a badge holder can use his/her badge. In order to do this, the administrator needs to enter a number from 1 to 999 into the Badge Use Limit field.
   k. Photo: The system shall permit importing of existing photos or capturing new photos of the personnel, into the cardholder database. The administrator will be able to configure the system such that, presentation of a badge will display the concerned badgeholder's image, in the personnel record.
   l. Track Status: When this field is checked, the system will display an event message regardless of any other system setting(s).
   m. Last Valid Access: This field will display the last reader, location, date & time at which the particular badge was last used.
   n. 48 User Definable and Searchable Text/Data Fields: The system shall include a minimum of 48 user fields divided into 4 tabs in the cardholder database. These fields can be employed for searching personnel records.
   o. Duration Use: When this field is checked, the badge holder will not be able to gain entry through an APB reader for the specified duration use time. The duration use time will be variable and will be able to be set by the system operator.
   p. Escort: When this field is checked, any badge holder flagged as Escort required, can gain access at the concerned reader, only when accompanied by a non-escort badge holder. The badge holder being 'escorted' will have to present his/her badge prior to the escorting badge holder.
   q. No transaction will be generated until both badges are presented at that reader. A time limit will apply between the two badge swipes.
   r. Extended 'Access Time' (for ADA Compliance): When checked, the badge holder shall be allowed an extended amount of time to gain access through the door. The system operator will be able to fix any length of time up to 255 seconds.
   s. Anti-Passback Override: The system shall allow the system operator to exempt individual badge holders from the anti-passback rules.
4. Batch Modify: The system software shall allow groups of cards to be created/modified by using a card number range.

5. Searching: The system shall allow the operator to quickly find cardholder records by clicking on field titles and entering the criteria being looked for directly into the data field.
6. Alarm Shunting: The system shall facilitate shunting of alarms by allowing certain badge holders to shunt an input/ group of inputs automatically, on presentation of the concerned badge, at a reader.
7. Extended Shunt: If a shunt card is presented at an alarm shunt reader, the value of the Shunt Timeout will be used to determine how long, in minutes & seconds, the door may be opened before a "Door Open Too Long" alert is sent to the host PC.

EE. Reports:

1. Report Types: User-definable data reports will include, but are not limited to, the following information:
   a. Cardholder data
   b. Events
   c. Alert responses
   d. Access Groups
   e. Links
   f. Activity Links
   g. Facility Codes
   h. Holidays
   i. Hardware
   j. Time & Attendance
   k. Operators
   l. Time Schedules
   m. Operators
   n. Badgeholders In (Muster List)
   o. System Settings
   p. Audit Trail
   q. System Health
2. Transaction Reports: Transaction reports will be available for the following:
   a. Card transactions
   b. Alarm transactions
   c. Event transactions
   d. Operator activity
3. Search Criteria: The database shall be structured such that the operator can determine the search parameters based on variables available on the individual report menu. Systems requiring the user to type complicated search strings will not be acceptable.
4. Hardware Report: The system shall have the capacity to generate one comprehensive report that shows the exact configuration of all installed and programmed hardware.
5. Export Report Capability: The system shall support the export of custom reports to Excel, HTML and/or Text file data types.
6. Badgeholders IN (Muster) Report: The system shall support the Badgeholders IN report to be run automatically with the use of an Input.

FF. Help Screens:

1. Online help: The system software shall have online help available at any point requiring operator input. The help screen shall be accessible by using the standard Microsoft Windows help system. These help screens shall contain context sensitive information that will allow the operator to enter correct data without consulting the manual.

GG. System Status:

1. Real time status: The operator shall be able to monitor via graphical screens, the status of the

following in real time:

a. Panels
b. Doors
c. Inputs
d. Outputs
e. Lockdown status
f. Workstations on/off line
g. Wireless locks
h. Napco Panels

HH. Graphical Floor Maps:

1. Graphics File Format: The floor plans will be configured in a .JPG, .BMP, .PNG, .DWG & .ico formats to allow for the importation of existing drawings.
2. Icons: The system shall allow the operator to assign doors, inputs, relays, links and Access Control Panels to these floor plans to indicate the exact location of the event.
3. Operation: Upon activation of a selected input or door alarm, the system shall be able to automatically view the associated floor plan with the alarmed icon blinking on the monitor.
4. Acknowledging Alarms: System operators must be able to acknowledge alarms on the map
5. CCTV: Any camera represented on the map will be able to be viewed by simply right clicking the mouse and choosing view camera.

II. NAPCO Burglar Alarm and Fire Integration:

1. The NAPCO panels that will be supported are the GEM P3200, P9600, X255 and the GEMC 128, 9600 and 255. The integration will support receiving event information from the NAPCO panels, as well as arming and disarming of NAPCO panels from the CA4K™ system. Arming and disarming of NAPCO panels may be by means of reader(s) in the CA4K™ system, as well as manually through an interface similar to the current manual control interfaces in the CA4K™ GUI. It allows unlimited number of cardholders to be programmed for arming and disarming.
2. General Description: The integration will include CA4K™ GUI (Display Screen) to display NAPCO alert types. All events generated will have to be configured to display pending status, priority and/or response required. All these changes must be made through the CA4K™ configuration screens and stored in the same database as the CA4K™ system.
3. Hardware and Communications
   a. There must be one physical serial port for each NAPCO panel to be connected via serial communications or, the NAPCO panel must be capable of interfacing over an existing network via a Napco RCM Interface module. All network communication will be encrypted.
   b. All settings changes will be logged in the current ACS Audit Trail table. New audit trail types will denote changes in the NAPCO integration. These changes will be available in the audit trail display as well as in reports. This includes arming and disarming of NAPCO panels, and configuration changes.
   c. Visual indication of the alarm area armed/disarmed status will be available at the ACS reader.
4. Communication Software Module
   a. Will receive events from the NAPCO panels.
   b. Will perform arming and disarming functions on the NAPCO panels.
   c. The system shall handle permissions on the NAPCO panels.
   d. Will have the ability to select any Napco event to trigger a CA4K™ event and/or activate DVR recording through CA4K™ .
   e. Will have the ability for the user to partition Napco panels by privilege level.
5. Configuration Screens:
   a. The configuration screen will allow the user to set up the link between the NAPCO panels

and the CA4K™ system. The configuration screens will be available through the CA4K™ GUI in a manner similar to the existing configuration screens in the CA4K™ GUI.

6. Arming and Disarming (Manual Control):
   a. The operator will be able to Arm/Disarm any Napco panel area from the CA4K™ Manual Control menu.

JJ. CCTV Remote Control:

1. Generic Control: The system shall support any CCTV switching system that accepts RS232 ASCII commands through a serial connection.
2. Configuration: The system software shall allow the transmission of at least one 80 character ASCII text string, onto a CCTV control device, via an RS232 port on the workstation.
3. Assignment: Each input and door within the system has the option of transmitting a unique user defined control string of up to 80 characters, onto a CCTV control device.

KK. Full DVR/NVR (Digital Video Recorder) System Integration:

1. CCTV Digital Video Management System Hardware shall be a fully configured, turn- key system available from Continental Access.
2. The Digital video management system must be fully integrated into the CA4K™ system, allowing full viewing and playback from any of the selected CA4K™ workstations. The digital video management system shall be able to perform all viewing, playback and video storage functions simultaneously.
3. The system shall allow video to be displayed on the same CA4K™ monitor, and configuration can be performed with standard mouse and keyboard. The Digital video management shall be able to be configured using an interface application in CA4K™ and shall allow recording of video either continuously or only during alarm events, or only while activity is present. Each camera will be able to record in different modes and on different schedules.
4. The system shall allow for time synchronization between the DVR Server and CA4K™ Workstation PC's.
5. The Continental IView shall support IP address based cameras.
6. The system shall allow remote connections over LAN/WAN between all of the CA4K™ /CCTV DVR workstations, allowing full viewing and control of any of the Digital Video Recording servers.
7. The Digital video management system shall provide RS-485 or RS-422 communications for controlling compatible PTZ/dome devices from various manufactures. These devices will be controlled through the local or remote user interface in support of the system.
8. The system shall allow local and remote retrieval of video. User-defined parameters will allow searches by camera and based on the following:
   a. Time
   b. Date
   c. Alarm
   d. Motion
   e. Scene loss
9. Logic like such as Duress, Force Door, Void Badge, Valid Badge, Badge tracking, or Bypass shall be available. The interface shall permit full video storage management, hardware control, alarm configuration, and export of video and individual frames.
10. The system shall provide more than one Integral DVR model to be fully integrated with the CA4K™ Security System, such as Pelco Digital Sentry and Salient Complete-View that shall allow full system Integration with CA4K™ .
11. The system shall provide integration to Multiple DVR Manufacturers for capturing and compressing video for safe storage and easy access from one single recording box.
12. The system Master Control/IView shall be a user-friendly software that will allow you to easily monitor and record video from multiple cameras.

13. The DVR RemoteView Functions will be possible with the help of the fully integrated DVR RemoteView window, running along with the CA4K™ GUI.
14. The system shall display a minimum of four video windows for viewing remote cameras.
15. The system shall have a toolbar with options to select different Pelco/Salient DVR servers, Search, Setup, Alarms and Schedule. No matter which manufacture of DVR is used, the Video window shall have the same 'look and feel' and shall contain at minimum, additional tabs for Search, Setup, Alarm and Schedule.

LL. Photo Import/Tracking:

1. The Photo Import & Tracking shall be a standard feature that is used in conjunction with the ACS software. The ACS does not require the operator to enter data more than once.
2. Events at the reader will display in real time and show a "split screen" of the stored cardholder image next to the "captured" image in case DVR interfaces are being used.
3. The system shall be capable of importing images of the cardholders and will store them in the database. These images will be able to be recalled and displayed by the operator.
4. The system operator may choose to disable the imaging function if it is not being used by the system.

MM. First In/Last Out rule:

1. The Free Access schedule shall not energize until an authorized user with First In permissions shall enter an Access Control Door.
2. The Free Access schedule shall be able to be overridden when an authorized user with Last Out permis- sions presents a valid ID at an out reader.

NN. Door Lockdown:

1. The system operator shall have the ability to lockdown a door/facility with a drop down, user defined window of a series of doors. This action shall override the Free Access Time schedule and will not return to a Free Access Time schedule until the operator manual removes the lockdown command from the drop down menu.

OO. Visitor Control:

1. The system shall allow the administrator to create temporary badge records for use by visitors.
2. The visitor function shall provide for an activation date and time, at which time the visitor badge will become enabled and an expiration date and time at which time the badge will become disabled.

PP. Badging 4K Video Badging:

1. The optional Badging 4K package for CA4K™ shall enable the users to easily capture cardholder images, add custom text and images, create custom card layouts and print ID cards or credentials with magnetic stripes, bar codes and smart chips.
2. Cardholder images will be able to either be captured remotely with a handheld digital camera and imported into the PC or directly captured via an internal frame grabber and video camera.
3. The following is a list of features that shall be supported:
    a. Drag-and-Drop WYSIWYG Badge Template Editor
    b. Desktop Automated Camera Capture
    c. Context Sensitive On-Line Help
    d. User Defined Badge Templates
    e. Printing:
        1) Shall support any Windows-compatible printer
        2) Will print both sides of a layout (duplex printing)
        3) Will support CMYK
        4) Landscape and portrait printing
    f. Image Capture:

1) Direct camera drivers for Canon & Twain based webcams
2) Advanced Face-finding feature will automatically locate a face within an image then centers, crops and stores it.
3) Will support importing from file, AVI, TWAIN & WinTab
4) Will point and click configuration of image capture devices
5) Plug-in functionality according to plug-in driver capabilities
6) Chroma key support

g. Image Support:
1) Will support most industry standard image file formats
2) Will auto size static images to match size of object to physically Correct color and crop during image acquisition
3) Special effects
4) Red-eye removal
5) Image enhancement
6) Print images with watermarks

4. Additional Printing Support:
a. Multiple alignment choices and duplex printing on cut-out sheets
b. Point and click configuration of card printers and internal encoders
c. Magnetic stripes can be encoded at print time
d. Will easily copy, cut and paste elements between multiple design windows
e. Duplex printing with user-definable printing modes
f. Will select background color from standard and custom palettes
g. Vertical text option
h. Will draw lines, rectangles, round rectangles & ellipses
i. Will create dynamic text objects including database fields and expressions
j. Will create drop shadows
k. Will apply pre-defined ghost effect to static and dynamic images
l. User-definable fade or transparency levels with static and dynamic images
m. Will remove background pixels from static and dynamic images (close cropping)
n. Will add bar codes with user-definable properties and values
o. Unlimited user-definable image types
p. Will add static images with aspect ratio control
q. Full True Type and ATM font support
r. Will support all popular bar code types
s. Will support Symbol® PDF417

5. E-mail, SMS and Pager Notification:
a. The system shall allow the administrator to select alarm and/or badge activity event to be sent to a user via e-mail, SMS (text) or pager/cell-phone.
b. The system shall allow the user a simple interface for email account setup.

6. Input and Activity Linking:
a. The system shall allow for ‘Activity Links’ that provide the capability to control relays based on an event.
b. Shall allow the CA4K™ to be a direct replacement for the Sensormatic AC500 system.
c. Shall allow triggering of activity link in case any of the following events occur:
1) AC Power Fail/Restore
2) Input Abnormal/Normal
3) Input Supervisory Open/Short/Fault
4) Relay On/Off
5) Link Activate/Deactivate
6) Forced Door
7) Door Closed

8) Door Bypass
9) Door Free Access Start/End
10) Door Open Too Long
11) Door Key Code Entry
12) Manual Door Unlock/Lock
13) Manual Door Enable/Disable
14) Low/High Watermark
15) Valid Badge
16) Valid Badge Enabled
17) Valid Badge Disabled
18) Duress Access
19) Denied Void Badge
20) Denied Facility Match
21) Denied Time Of Day
22) Denied Issue Level
23) Denied Unauthorized
24) Denied PIN Violation
25) Denied APB IN/OUT
26) Denied Escort Match
27) Denied Reissue
28) Denied Vehicle Tag Match
29) Violate Exit Override
30) Violate Entry Override
31) Violate Time Of Day Override
32) Denied Interactivity Timeout
33) Activity Link ON/OFF

7. Category Counters: The Activity Link operation shall also include 16 category counters which allow the cardholder to trip a single or multiple activity links.
8. Watermarks: The watermark feature shall allow the system to 'count' the amount of cardholders/vehicles in a particular area. The user shall have the ability to set 'high' and 'low' marks for the system to increment and decrement the card/vehicle count. This can be used to disable a reader and disallow any further activity into the area until the watermark drops below the preset mark.
9. Local and Global Activity linking: The system shall support both local (within the same Access Control Panel) as well as global (spanning multiple Access Control Panels) Activity linking for maximum system flexibility.

QQ. Alarm Event Limit:

1. This feature shall allow the user to limit the number of repeat alarm events sent from a panel within a given period of time.
   a. The user shall have the ability to add a time delay on an alarm to lessen the number of alarms that will be sent to the Pending Alerts grid for an input that remains 'Abnormal'.
   b. This time delay setting shall be configurable and shall be in minutes.
   c.

RR. Variable Door Open/Shunt Time:

1. This feature shall allow the user to unlock a door, either through Manual control or a card read, for a period as short as one second or up to one hour.
   a. The system shall bypass the door input for the same time as the unlock time.
   b. The system shall allow for time increments in seconds up to 59 and then in minutes only up to 60.
   c. The system shall allow for the same manual control over relays.

SS. Application Programming Interface:
1. The system shall provide for an Application Programming Interface for third party integration.
2. The API shall be constructed as a standard Windows Dynamic Link Library (DLL) and will provide various functionalities in the form of function calls. The API shall consist of 180 or more functions.

TT. Right-to-Left Language Support:
1. The system shall support Languages requiring a display from right-to-left including, but not limited to, Arabic and Hebrew.

UU. Access Control Panels: Continental Access Control Panels used by CA4K™ are modular in design. The access control panels (or panels for short) are also referred to as controllers. Two door, four door, eight door and sixteen door panel versions are available.
1. General Features:
   a. PC Board: The Access Control Panel shall be a microprocessor controlled solid-state electronic device and will include a real time clock/calendar on board. The Access Control Panel shall be compliant with UL294, or an equal. A subset of the ACS database sufficient enough to support access and alarm functions for its designated readers and points will be able to be stored at the Access Control Panel. In the event of communication loss, the Access Control Panel will continue to function without any degradation in operation, and will provide storage for at least 1000 and utmost 210,000 transactions. These stored events will be uploaded to the CPU automatically upon the restoration of communications.
   b. Direct Communication: The Access Control Panel shall communicate via an RS232 or RS422 link directly to the ACS CPU. No additional interface equipment will be required. The Access Control Panel shall be capable of being configured in either repeat mode (serial) or in multi-drop mode. When in repeat mode, the distance between control panels shall be up to 4000 feet, communicating at 57,600 baud, without the use of line drivers.
   c. Electrical Noise Suppression: The controller shall have “Built-In” electrical noise suppression devices to protect the on-board microprocessor from relay-generated transients.
   d. Electrical Surge Protection: The controller shall have “Built-In” electronic surge protection devices to protect controller circuitry to which external connections are made.
   e. Battery Backup: The Access Control Panel shall include, as a standard, at least 4 hours of battery backup. The Access Control Panel also shall include internal battery backup to maintain controller database, program, time and date during a power loss.
   f. Diagnostic LED’s: The Access Control Panel shall have an LED display to indicate power, processor heartbeat, and the transmission and receipt of programmed data.
   g. Biometric Readers/Card Readers/Keypads: The Access Control Panel shall support entry/exit points that allow for a keypad to be used in conjunction with the reader, and the keypad accepts user- definable PIN codes. Systems requiring additional ports for the addition of a keypad are not acceptable. The Access Control Panel shall be able to support multiple card technologies (such as Proximity, Smart Readers, Smart Cards, Biometric-Fingerprint, Iris Scan, Hand Geometry, Face Recognition, Magnetic Stripe, Wiegand, etc.) concurrently without the need for additional software or hardware.
   h. Inputs: Without the need for any additional hardware, each Access Control Panel will be able to monitor supervised alarm inputs. By means of software download, the Access Control Panel shall allow the user to decide whether the alarms must function as supervised or non-supervised inputs.
   i. Outputs: Without the need for any additional hardware, each Access Control Panel will be able to control user-definable Form C relay outputs.
2. Hardware Options:

a. Alarm Expander Board: Additional inputs will be able to be made available by means of expansion boards mounted in the Access Control Panel enclosure. Each expansion board has a minimum of 16 supervised inputs. The Superterm, Turbo Superterm, Super Two, Accelaterm and Accelerator Access Control Panels shall be allowed to have a maximum of three expansion boards.
b. Relay Expander Board: Additional outputs will be able to be made available by means of expansion boards mounted either in the Access Control Panel enclosure, or in the additional enclosures. Each expansion board shall have a minimum of 16 Form C relay outputs and 8 inputs. The Superterm, Turbo Superterm, Super Two, Accelaterm and Accelerator Access Control Panels shall be allowed to have a maximum of three expansion boards.
c. Memory Expansion: An additional memory board (20Mb) shall be available, allowing the Accelaterm and Accelerator expansion to (1,000,000) cards.

3. Enclosure: The Access Control Panel enclosure shall have a hinged cover with key lock. A control panel input point will monitor an enclosure tamper switch.
4. Software Features:
   a. Facility codes: The Access Control Panel shall recognize up to ten different Facility Codes. These facility codes will be able to be defined and then assigned on a per cardholder basis or 100,000 system facility codes per panel with Facility Code/Badge Concatenation shall be selectable.
   b. Card Formats: The Access Control Panel shall be capable of storing up to 10 custom card formats. The Access Control Panel will be able to read the format of most Magnetic Stripe, Bar Code, Proximity or Wiegand Effect encoded cards and will allow an operator to specify parity, start sentinels, stop sentinels, field separators, facility code bits, issue level bits, and card number bits.
   c. Global Linking: The Access Control Panel will be able to store up to 64 unique linking programs. A link program will automatically trigger relay output(s) in response to alarm input(s). Inputs may be simple time schedule definitions or any one of up to five alarm inputs. In response, a maximum of five relays may be turned on/off, activated/deactivated, or relays may track the alarm input(s), for a length of time as defined by the user.
   d. Card Number Length: The Access Control Panel shall be capable of reading card numbers up to 19 digits.
   e. Time Schedules: The Access Control Panel shall have the capacity to store 255 time schedules per panel, with each time schedule comprising of up to 10 time intervals. (The Access Control Panel thus will have the capacity to accommodate a total of 2550 time intervals). Each interval of time can consist of a range of days; seven days of the week, plus a Holiday Type Schedule. The Access Control Panel shall automatically manage time schedules based upon its internal clock.
   f. Holidays: The Access Control Panel shall allow for the definition of 5 sets of 100 Holiday Schedules per panel, or exceptions to normal scheduling. Holidays will be able to be defined according to day of year and time of day. All holidays will be automatically incorporated into Time Schedule definitions.
   g. Holiday Types: The Access Control Panel shall allow for up to 5 Holiday Calendars. Each Holiday Calendar shall consist of up to 100 Holidays per panel.
   h. Access Modes: Each card reader/keypad shall have the ability to operate independently in up to five different modes: Card only, Common Code only, Card plus PIN, Free Access & Card or Card # through keypad. These modes of operation will be able to be programmed from the ACS host computer and can automatically change according to time schedule assignment.
   i. Anti-pass back: The Access Control Panel shall support anti-pass back operation in which, the cardholders are required to follow a proper in/out sequence.
5. Controllers:

a. Continental Access manufactures different kinds of Access Control Panels in 1, 2, 4, 8 and 16 door configurations.

6. General Features:
   a. PC Board: The aforementioned Access Control Panels shall be microprocessor controlled solid-state electronic devices and shall include a real time clock/calendar on board. They shall be compliant with UL294 or equal. A subset of the ACS database sufficient to support access and alarm functions for their designated readers and points will be able to be stored at the Access Control Panel. In the event of communication loss, the Access Control Panels will continue to function without any degradation in operation, and will provide storage for a minimum of 20,000 cardholders and at least 1000 transactions.
   b. Network Communication: The aforementioned Access Control Panels shall support the use of network communication devices to provide communication over LAN and WAN systems.
   c. Direct Communication: The Access Control Panels shall communicate via an RS-232 or RS-422 link directly to the ACS CPU. No additional interface equipment will be required. The Access Control Panels shall be capable of being configured in either repeat mode (serial) or in multi-drop mode. When in repeat mode, the distance between the control panels may not exceed 4000 feet. The control panels shall need to be communicating at 57,600 baud, without the use of line drivers.
   d. Battery Backup: As a standard, the Access Control Panels shall include at least 4 hours of battery backup (7AH). They shall also include internal battery backup to maintain controller database, program, time and date during a power loss.
   e. Diagnostic LED's: The Access Control Panels shall have an LED display to indicate power, and transmission/receipt of programmed data.
7. Hardware Features and Options:
   a. Card Readers: At least 16 supported
   b. Keypads: Allowed for PIN Code entry by users
   c. Inputs: At least 24 supervised alarm inputs can be monitored without the need for any additional hardware
   d. Outputs: Without the need for any additional hardware, at least 17 user definable form C relay outputs can be controlled
   e. Alarm Expander Board: Up to 3 expander boards allowed, each can have a minimum of 16 supervised inputs
   f. Relay Expander Board: Up to 3 expander boards allowed, each can have a minimum of 16 Form C inputs Up to 3 expander boards allowed, each can have a minimum of 16 Form C relay outputs and 8 inputs
   g. Memory Expansion Additional Memory module shall be available, allowing expansion up to 1,000,000 cards

X. PRODUCT SUBSTITUTIONS
1. Substitutions: No substitutions permitted.

PART 3 EXECUTION

3.01 INSTALLATION

A. General: The contractor shall install all system components and appurtenances in accordance with Continental Access' instructions, and shall furnish all necessary interconnections, services, and adjustments required for a complete and operable system as specified and shown. Control signal, communications, and data transmission line grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation. Provide mounting hardware as required.

B. Installation: All low voltage wiring outside the control console, cabinets, boxes, and similar enclosures, shall be plenum rated where required by code. Cable shall not be pulled into conduits or placed in raceways, compartments, outlet boxes, junction boxes, or similar fittings with other building wiring.

C. Device Wiring and Communication Circuit Surge Protection: All inputs shall be protected against surges induced on device wiring. Outputs shall be protected against surges induced on control and device wiring installed outdoors, and as shown. All communications equipment shall be protected against surges induced on any communications circuit. All cables and conductors, except fiber optics, which serve as communications circuits from security console to field equipment, and between field equipment, shall have surge protection circuits installed at each end.

3.02 FIELD QUALITY CONTROL

A. Site Tests and Inspections:
   1. General
      a. The contractor shall perform pre-delivery testing, site testing, and adjustment of the completed ACS. The contractor shall provide all personnel, equipment, instrumentation, and supplies necessary to perform all testing. Written notification of planned testing shall be given to the owner at least 14 days prior to the test and in no case shall notice be given until after the contractor has received written approval of the specific test procedures. Test procedures shall explain in detail, step-by-step actions and expected results demonstrating compliance with the requirements of the specification. Test reports shall be used to document the results of the tests. Reports shall be delivered to the owner within seven (7) days after completion of each test.
   2. Performance Verification Test:
      a. The contractor shall demonstrate that the completed ACS complies with the contract requirements. Using approved test procedures, all physical and functional requirements of the project shall be demonstrated and shown.

3.03 CLOSEOUT ACTIVITIES

A. Training:
   1. General: The contractor shall conduct training courses for personnel designated by the owner. Training shall cover the maintenance and operation of the ACS. The training shall be oriented to the specific system being installed under this contract including central processor. Training manuals shall be delivered for each trainee with two additional copies delivered for archiving at the project site. The manuals shall include an agenda, defined objectives for each lesson, and a detailed description of the subject matter for each lesson. The contractor shall furnish audiovisual equipment and other training materials and supplies as necessary. Where the contractor presents portions of the course by audiovisual material, copies of the audiovisual material shall be delivered to the owner on the same media as that used during the training session. Up to [
   ] hours of training shall be provided for in the base contract.

3.04 WARRANTY, MAINTENANCE, AND SERVICE

A. Warranty:

1. The ACS shall be warranted by the contractor for one (1) year from the date of final system acceptance.

B. Maintenance and Service:
1. The contractor shall provide all services required and equipment necessary to maintain the entire ACS in an operational state as specified for a period of one (1) year after formal written acceptance of the system, and shall provide all necessary material required for performing scheduled adjustments or other nonscheduled work.
2. Description of Work:
a. The adjustment and repair of ACS includes computer equipment, software updates, signal transmission equipment, access control equipment, facility interfaces, and support equipment. Responsibility shall be limited to contractor installed equipment. Provide the manufacturer's required adjustments and other work as necessary.

C. Personnel:
1. Service personnel shall be qualified to accomplish all work promptly and satisfactorily. The owner shall be advised in writing of the name of the designated service representative and of any change in personnel.

D. Inspections:
1. The contractor shall perform two inspections at 6-month intervals or more often if required by the manufacturers. This work shall be performed during regular working hours, Monday through Friday, excluding Federal holidays. These inspections shall include:
a. Visual checks and operational tests of the central processor, local processors, monitors, keyboards, system printers, peripheral equipment, ACS equipment, power supplies, and electrical and mechanical controls.
b. Clean system equipment, including interior and exterior surfaces.
c. Perform diagnostics on all equipment.
d. Check and calibrate each ACS device.
e. Run system software and correct diagnosed problems.
f. Resolve previous outstanding problems.

E. Emergency Service:
1. The owner will initiate service calls when the ACS is not functioning properly. Qualified personnel shall be available to provide service to the complete ACS. The owner shall be furnished with the telephone number where the contractor's service supervisor can be reached at all times. Service personnel shall be at the site within four 4 hours after receiving a request for service. The ACS shall be restored to proper operating condition after one 1 calendar day.

END OF SECTION 28 10 00

<u>DISCLAIMER</u>: Specification requires the sole professional judgment and expertise of the qualified Specifier and Design Professional to adapt the information to the specific needs for the Building Owner and the Project, to coordinate with their Construction Document Process, and to meet all the applicable building codes, regulations and laws. CONTINENTAL ACCESS (A NAPCO SECURITY GROUP COMPANY) EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE OF THIS PRODUCT FOR THE PROJECT.

SECTION 28 23 00 - IP SECURITY CAMERA SYSTEM

CONDITIONS OF THE CONTRACT AND DIVISION 1, as applicable, apply to this Section.

PART1-GENERAL

1.1 DESCRIPTION OF WORK

A. Provide all required materials to expand the existing IP based digital video surveillance system. Contractor shall include cameras, cabling, digital image storage, integration and accessibility with Owner's Local/Wide Area Network (LAN/WAN), Internet accessibility thru remote view application software and simultaneous user access capability as required. Provide fully terminated unshielded twisted pair (UTP) cable, UTP terminations, racks, raceways, conduit, and other incidental and miscellaneous premises wiring system hardware as required for a complete and useable system. The installation shall comply with applicable codes and standards in effect at the job site and as indicated in the Specifications and Drawings. Reference technical cabling specifications for cabling requirements. **This scope of work shall be carried in an Allowance.**

Allowance shall be in the amount of $75,000.00

B. Provide all electronic hardware and coordinate with the building's LAN/WAN. The contractor shall coordinate with other system vendors, where appropriate, to facilitate equipment installation, scheduling, protection of equipment and access to the project site in order to provide the Owner a substantially complete project in a timely manner.

C. Contractor must be a current integrator of solution in the nearest, major metropolitan marketplace and be able to include information on current support staff to be able to service this client.

D. Contractor is responsible for coordinating all electrical work required on this project for connection of servers, cameras, conduit, and power supplies. Contractor shall provide a complete turnkey solution to the owner and be responsible for the complete installation of a security camera system at each campus.

E. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE THE LICENSING AND REGISTRATION FOR ALL EQUIPMENT INSTALLED ON THIS PROJECT.

1.2 QUALITY ASSURANCE

A. Installer Qualifications:
1. The Video Surveillance System Installer shall be licensed and shall meet all applicable regulations. The Contractor shall be a firm normally employed in the low voltage and video cabling industry.
2. The contractor shall be certified by the manufacturing company in all aspects of design, installation and testing of the products described herein. Each contractor shall furnish with their submittal a letter from the manufacture indicating they are a dealer in good standing.
3. The contractor must be certified by the manufacturer of the products, adhere to the engineering, installation and testing procedures and utilize the authorized

manufacturer components and distribution channels.

4. The contractor shall be experienced in all aspects of this work and shall be required to demonstrate direct experience on recent systems of similar type and size. The contractor shall own and maintain tools and equipment necessary for successful installation and testing of video surveillance distribution systems and have personnel who are adequately trained in the use of such tools and equipment.
5. A resume of qualifications shall be submitted with the Contractor's proposal indicating the following:
   a. A list of five recently completed projects using the product proposed of similar type and size with contact names and telephone numbers for each.
   b. A list of test equipment proposed for use in verifying the installed integrity of metallic cable systems on this project.
   c. A technical resume of experience for the contractor's Project Manager and on-site installation supervisor who shall be assigned to this project.
   d. A list of technical product training attended by the contractor's personnel that shall install the video surveillance system shall be submitted.
   e. Any subcontractor who shall assist the video surveillance contractor in performance of this work shall have the same training and certification as the video surveillance contractor.

B. The Owner's representative reserves the right to reject all or a portion of the work performed, either on technical or aesthetic grounds.

1.3 REGULATORY REQUIREMENTS

A. Standards: All work shall be performed in accordance with the latest revisions of the following standards and codes:
   1. Local Building Code
   2. Local Electrical Code
   3. NEC National Electrical Code

B. Other references:

1.	TINEIA-568-A - Standard	Commercial Building Telecommunications Wiring
2.	EINTIA-569 -	Commercial Building Standard for Telecommunications Pathways and Spaces.
3.	TINEIA-606 -	The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
4.	TINEIA-607 - Requirements	Commercial Building Grounding and Bonding for Telecommunications
5.	TINEIA TSB 67 -	Transmission Performance Specification for Field Testing of Unshielded Twisted-Pair Cabling Systems. Generic Cabling Standard
6. ISO/IEC 11801 -		Generic Cabling Standards for Customer Premises

C. Governing Codes and Conflicts: If the requirements of these specifications or the Project Drawings exceed those of the governing codes, regulations, and manufacturer installation requirements, then the requirements of these specifications and the drawings shall govern. However, nothing in the drawings or specifications shall be construed to permit work not conforming to all governing codes, regulations, and manufacturer installation requirements.

1.4 SUBMITTALS

A. The video surveillance system installer shall furnish all CCTV system submittals in a single consolidated submittal

B. Shop Drawings: Submit the following items, for Owner review and approval:
1. Samples: Complete manufacturer's product literature and samples (if requested) for all pre-approved substitutions to the recommended products made during the course of the Project.
2. Permits: The Contractor shall obtain all required permits and provide copies to the Owner/Architect/Engineer
3. Product Literature: Complete manufacturer's product literature for all electronics, cable, cable supports, cable labels, outlet devices, and other products to be used in the installation. In addition, whenever substitutions for recommended products are made, samples (when requested by the Owner/Architect/Engineer) and the manufacturer's supporting documentation demonstrating compatibility with other related products shall be included.
4. Testing: Proposed Contractor test result forms, a list of instrumentation to be used for systems testing.
5. A complete point-to-point floor plan diagram indicating camera locations and all required cabling to connect systems.

C. Project Completion: As a condition for project acceptance, the Contractor shall submit the following for review and approval:
1. Inspection and Test Reports: During the course of the Project, the Contractor shall maintain an adequate inspection system to ensure that the materials supplied and the work performed, conform to contract requirements. The Contractor shall provide written documentation that indicates that materials acceptance testing was conducted as specified. The Contractor shall also provide documentation, which indicates that all cable termination testing was completed and that all irregularities were corrected prior to job completion.
2. Operating and Maintenance Instructions for all devices within the system. These instructions shall reflect any changes made during the course of construction, and shall be provided to the Owner, for their use, in a three-ring binder labeled with the project name and description. (4 copies)
3. All training sessions with district staff and training media shall be complete.
4. As-built Drawings shall include cable pathways, camera locations with correct labeling and MDF/IDF locations. The as-built drawings shall be prepared using AutoCad V. 13 or later. Provide the Owner with electronic versions of the as-builts on 2 qty. 8MB thumb drives.

PART 2-SYSTEM DESCRIPTION

2.1 OVERVIEW:

A. Work to include installation of IP addressable video surveillance and provide the capability of connection to access monitoring control systems within the facility. Connection to the data network system is required. Coverage is to be interior as well as designated exterior areas indicated on the plans.

2.2 VIDEO SURVEILLANCE SYSTEM

A. The Building Surveillance System will be used to monitor selected interior and exterior areas at all times.

B. The system is used to visually monitor designated areas as indicated on the plans.

C. The following functional capabilities are considered essential for this Surveillance system.

i. Switch any assigned camera in the system to any monitor in the system.

ii. Provide partitioning of cameras and priority access

iii. Cameras equipped with environmental housings.

iv. Provide fused low voltage power for control of heater and blower (if required).

v. Adjust and balance cameras via software from network accessed workstations.

vi. Minimum camera adjustments available:

- Iris
- Shutter
- Zoom
- Focus
- Gain
- Hue
- Backlight Compression
- Color Saturation
- Brightness
- Aperture
- Contrast

D. Enter and edit video information on-line and save them for future use.

E. View via multiple monitors at once.

F. Define the sequence for viewing camera(s) on each monitor.

G. Bypass cameras in the system during sequencing to a monitor.

H. Provide the capability to program alarms and associated incoming alarms with related outputs.

I. Bypass alarms in the system, either by position or time deactivation.

J. Provide time/date and alphanumeric camera titling.

K. Provide real time system status in the master controller.

L. Provide IP addresses coordinated with the districts telecommunications department.

M. Connect to the access control system to recall of presets.

N. Record alarmed and monitored camera viewing areas.

0. Cameras must be able to be set for motion detection modes.

P. Camera data cabling is already installed as part of base construction project and is not required for this project. Contractor is still required to install low voltage power supplies and low voltage power to enclosures as required for exterior cameras and housings.

2.3 DEVELOPMENT OF GRAPHICAL USER INTERFACE (GUI) AND SOFTWARE CONTROL:

A. Control and configuration must offer integration of components and operation into one complete system. Cameras and software components within the system must be from the same manufacturer unless otherwise noted.

PART 3 -PRODUCTS

3.1 GENERAL

A. The Contractor is responsible for providing all incidental and/or miscellaneous hardware not explicitly specified below as required for a complete and operational system.

B. Materials shall be as listed or shall be approved equivalent products of other manufacturers meeting the intent and quality level of the specifications. All approved equivalent products shall be published by addendum ten days prior to proposal for Architect/Engineer review.

C. All equipment and materials used shall be standard components, regularly manufactured, regularly utilized in the manufacturer's system.

D. All systems and components shall have been thoroughly tested and proven in actual use.

E. All systems and components shall be provided with the availability of a toll free 24-hour technical support phone number from the manufacturer. The phone number shall allow for immediate technical assistance for either the dealer/installer or the end user at no charge.

F. All systems and components shall be provided with an explicit manufacturer warranty.

3.2 CAMERAS

A. Mounting
   1. All interior cameras shall be wall mounted unless otherwise noted.
   2. All exterior cameras shall be wall mounted unless otherwise noted.
   3. All exterior penetrations shall be provided with necessary weatherproofing to avoid moisture penetration.

3.4 ACCEPTABLE PRODUCT:

A. Approved product:
   1. Provide all requisite back boxes, mounting brackets, pendant kits, bracket wall accessories for camera types.
      a. TYPE 1 – Interior/Exterior 8MP Fixed lens single sensor camera: 63 total
      b. TYPE 2 – Interior/Exterior 16MP bi-directional and 180° camera: 9 total
      c. TYPE 3 - Interior/ Exterior 12MP 360° camera: 3 total
      d. Provide all required power supplies, power DAs, Camera switches,

Cabling, and connectors as needed.

e. Provide any Camera, VMS and Server license needed for a 5-year period for any equipment that is part of this project.

B. The contractor will be responsible for coordinating with District technology department on acquiring any network configuration information such as IP numbers that will be required to connect servers to the district network.

3.8 Server:

A. The contractor shall provide and install the needed network-based server for the number of cameras at a minimum of 30 days of recording time.

B. Provide a one (1) year software upgrade plan for cameras and base server.

3.9 Video Management System:

A. The contractor shall provide the needed VMS to work with the included server and cameras.

B. The contractor shall provide any needed license for cameras or servers in this specification.

C. Provide a one (1) year software upgrade plan for cameras and base server.

D. The VMS should include the following.

- Live View: Custom layouts, Split screens up to 64 cameras, Auxiliary screen displays, Corridor mode, Sequence displays, and Audio.
- Playback: Synchronous/asynchronous playback, Instant playback, Recording search by time/event, and play recordings.
- PTZ Control: Preset configuration, Preset patrol configuration, Recorded patrol configuration, Auto guard configuration.
- Alarm: Service alarm (event alarm), Device alarm (online/offline, etc.), Alarm triggering (live view, etc.), Real-time/history alarms.
- E-Map: Hot spots, Camera, and Alarm mapping.

PART 4 - EXECUTION

4.1 INSTALLATION

A. Cable Pathway:
1. In suspended ceiling and raised floor areas where duct, cable trays or conduit are not available, the Contractor shall bundle, in bundles of 25 cables or less, with cable ties snug, but not deforming the cable geometry. Cable bundles shall be supported via "J" hooks attached to the existing building structure and framework at a maximum of five (5) foot intervals. Plenum rated cable ties shall be used in all appropriate areas. The Contractor shall adhere to the manufacturer's requirements for bending radius and pulling tension of all cables.
2. Cables shall not be attached to lift out ceiling grid supports or laid directly on the ceiling grid.
3. Cables shall not be attached to or supported by fire sprinkler heads or delivery systems or any environmental sensor located in the ceiling air space.

B. Fire Wall Penetrations: The Contractor shall avoid penetration of fire rated walls and floors wherever possible. Contractor shall also seal all floor, ceiling and wall penetrations in fire or smoke barriers and in the wiring closet.

C. Wall Penetrations: Where penetrations are necessary, they shall be sleeved with metallic conduit and resealed with an Underwriter Laboratories (UL) approved sealant.

D. Install new conduit on portable pipe supports - (low profile type), as manufactured by Portable Pipe Hangers or Advanced Support Products. Provide roof protection pads under each support. Coordinate location and routing with design engineer prior to rough-in or installation of system.

E. Do not install wall mounted cameras into metal fascia. Ensure they are mounted into brick, and sealed top and sides (not bottom)

4.2 EQUIPMENT RACK CONFIGURATION

Cable Placement: Cable installation in the wiring closet must conform to the Project Drawings. All cabling shall be routed so as to avoid interference with any other service or system, operation, or maintenance location. Avoid crossing areas horizontally just above or below any riser conduit. Lay and dress cables to allow other cables to enter the conduit/riser without difficulty at a later time by maintaining a working distance from these openings.

Cable shall be routed as closely as possible to the ceiling, floor or corners to ensure that adequate wall or backboard space is available for current and future equipment. All cable runs within the wiring closet shall be horizontal or vertical within the constraints of minimum cable bending radii. Minimum bend radius shall be observed. Cables shall not be tie- wrapped to electrical conduit or other equipment.

All incoming cables shall be routed on the cable tray and neatly dressed down to the patch panels.

4.3 WIRING INSTALLATION

A. General:

1. Cabling between wiring closet and camera locations shall be made as individual home runs. No intermediate splices may be installed or utilized between the wiring closet and the camera location.
2. All cable must be handled with care during installation so as not to change performance specifications.

B. Exposed Cable: All cabling shall be installed inside walls or ceiling spaces whenever possible. Exposed cable shall only be run where indicated on the Drawings. Additional exposed cable runs shall require Owner approval, and shall only be allowed when no other options exist. Cabling shall be installed concealed at all times, except in unfinished mechanical rooms or wiring closets where cable shall be installed exposed and located to avoid conflicts with pass-through cabling, etc. Tie wraps shall be used to provide a neat appearance. Provide "D" rings or the appropriate cable guides to dress the cable.

C. Placement: All cabling and associated hardware shall be placed so as to make efficient use of available space. All cabling and associated hardware shall be placed so as not to impair the Owner's efficient use of their full capacity.

Cable Routes: All cabling placed in ceiling areas must be in conduit, cable tray, or J-Hooks. Cable supports shall be permanently anchored to building structure or substrates. Provide attachment hardware and anchors designed for the structure to which attached and that are suitably sized to carry the weight of the cables to be supported. Attaching cable to pipes or other mechanical items is not permitted. Use J-Hooks for up to 15 cables (Caddy CAT 21 or CAT 32 hooks with appropriate brackets). All runs of sixteen (16) or more cables, provide cable individually supported support loops on 5' on center maximum centers to hang cable. Cable shall be routed so as to provide a minimum of 18" spacing from light fixtures, sources of heat, power feeder conduits and EMI sources. Cabling shall not be attached to ceiling grid support wires. Cable runs shall be parallel or perpendicular to building structure. Multiple cables to be banded together every 6 feet.

4.4 DOCUMENTATION

A. Labels: The Contractor shall label all outlets using permanent machine engraved labels approved by the Owner. Label patch panels in the wiring closet to match those on corresponding camera locations. The font shall be at least one-eighth inch (1/8") in height, block. All labels shall correspond to as-builts and to final test reports.

E. Contractor shall ensure complete typed labeling of all cameras with numbers that correspond to locations on video server. Labeling system shall correspond to the Owner's labeling system. Verify with Owner. Provide tags (black letters on white labels, plastic

coated) on all cables and outlets.

C. All cables shall be labeled at both ends with a machine label and all terminations shall be stenciled with a typed label for quick circuit identification. Labeling shall conform to TIA/EIA standard 606 and include interconnect cable identification numbers.

D. A floor plan, clearly labeled with all numbered camera locations, shall be included in the

as-built plans.

4.5 CABLE TESTING - BY MANUFACTURER'S REQUIREMENTS

A. Notification: The Owner/Architect/Engineer shall be notified one week prior to any testing so that the testing may be witnessed.

B. Final Acceptance: Before requesting a final acceptance, the Contractor shall perform a series of end-to-end installation performance tests. The Contractor shall submit for approval a proposal describing the test procedures, test result forms and time table for all copper and fiber optic cabling.

C. Procedures: Trained personnel shall perform all testing. Acceptance of the test procedures discussed below is predicated on the Contractor's use of the recommended products and adherence to the inspection requirements and practices set forth. Acceptance of the completed installation shall be evaluated in the context of each of these factors.

D. Errors: When errors are found, the source of each error shall be determined, corrected and the cable retested. All defective components shall be replaced and retested. Retest results must be entered on the test results form. All corrections shall be made prior to final acceptance test.

4.6 INSPECTION

A. Conformance to the installation practices covered above are to be verified when completed. In some cases, the Owner/Architect/Engineer may observe before acceptance.

4.7 WARRANTY

A Guarantee and warrant all equipment provided for a period of 3 years following date of substantial completion, or a period equal to the stated guaranty/warranty offered by the product manufacturer, whichever is the longest in duration.

B. All such warranties shall include all parts (Cameras, encoders, power supplies, housings, etc.).

C. Labor and all other costs as necessary to maintain the equipment in operating condition as intended by the product manufacturer after a period of 1 year shall be negotiated with the owner upon project completion.

END OF SECTION 28 23 00

SECTION 28 46 00 - FIRE DETECTION AND ALARM

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section Includes:
1. Provide new addressable fire alarm system for new multi-story residential building and tie into existing campus fire alarm system.
2. Except for the specific work described above, the existing fire detection and alarm system is functional and compliant and is to remain.
3. Testing: The completed system shall be tested in accordance with NFPA Standard 72-7- 1.
4. Fire alarm wiring shown in drawings shall be installed in raceway.
5. Instruction for Owner Representatives. Training shall consist of a minimum or two 2-hour sessions.
6. Coordination with Section 26 05 33: Raceway and Boxes for Electrical Systems.
7. Furnishing of special back boxes where required for installation of fire alarm devices.
8. Qualifications: Contractor shall receive written approval and verified test results which shall be submitted to the owner for system from manufacturers recognized representative prior to completion and acceptance.
9. Initiating devices shall be separately addressed for individual identification at control panel.
10. As-Built Drawings: A complete set of reproducible “as-built” drawings showing installed wiring, color coding, wire tag notations exact locations of all installed equipment, specific interconnections between all equipment and internal wiring of the equipment shall be delivered to the owner upon completion of the system.
11. Maintenance Instructions: Three (3) submittals of maintenance instructions shall be provided and shall be complete, easy to read, understandable and shall provide the following information:
    a. Instructions for replacing any of the new components of the system, including internal parts.
    b. Instructions for periodic cleaning and adjustments of new equipment with a schedule of these functions.
    c. A complete list of new equipment and components with information as to the address and telephone number of both the manufacturer and local supplier of each item.
    d. User operating instructions shall be prominently displayed on a separate sheet located next to the control unit in accordance with UL Standard 864. The contractor shall warrant new equipment and wiring free from inherent mechanical and electrical defects for two years from the date of final acceptance.

1.3 SUBMITTALS

A. Comply with applicable provisions of Section 26 05 00: Common Work Results for Electrical.

B. Submit the manufacturer's cut sheets and the CSFM Listing Sheets for these items:
1. Addressable fire alarm control panel
2. Fire alarm annunciator
3. Notification circuit power booster extender panel.
4. Smoke detector (Photoelectric)
5. Strobe only notification device
6. Horn/ Strobe notification device
7. Horn only notification device
8. Weatherproof horn notification device
9. Manual pull station
10. Addressable input monitor module

C. Operating and Maintenance Instruction Manual tailored to the new work of this project, including:
1. Operational description.
2. Coded cabling plan.
3. Two wire circuit diagrams.
4. Wiring destination schedule.
5. Schematic component diagrams and PC board layouts.
6. Maintenance and alignment procedures.
7. Voltage drop and battery calculations.

1.4 SYSTEM DESCRIPTION

A. Provide new equipment that is listed by Underwriters Laboratories and the California State Fire Marshal, designed to meet the functional requirements of NFPA 72.

B. Provide the following products:
1. Addressable fire alarm control panel
2. Fire alarm annunciator
3. Notification circuit power booster extender panel.
4. Smoke detector (Photoelectric)
5. Strobe only notification device
6. Horn/ Strobe notification device
7. Horn only notification device
8. Weatherproof horn notification device
9. Manual pull station
10. Addressable input monitor module

1.5 SYSTEM OPERATION

A. System to be the active interrogate/respond type alarm system, 24 volt DC noncoded, positive, non-interfering, successive operation, in which all devices are constantly sending status signals to the main fire control command center from remote data transmitter panels approximately every one second. A change in status to be reported twice to determine that it is a valid signal and be automatically and permanently recorded.

B. Wiring, equipment and devices for alarm initiation, annunciation, and audible signaling to be continuously supervised for opens, shorts or grounds (trouble). Each alarm initiating device circuit to be provided with illuminated and audible annunciation of both trouble and alarm

conditions. Non-illumination indicates a normal condition.

C. Any alarm or trouble condition shall sound an audible signal at the fire command center and the remote annunciator. Signal shall be silenced by a momentary contact switch which shall transfer the signal to a visual indicator. Subsequent trouble conditions shall cause the signal to resound and in turn may be silenced. Upon restoration to normal, the trouble signal silencing indicator shall extinguish automatically.

D. Activation of any automatic or manual alarm initiating device within the common areas shall cause the following to occur:
   1. Sound an audible alarm and illuminate the visual indicator for zone and type of alarm at the fire command center, the remote annunciator and fire alarm control panel.
   2. Sound, at building of origin, the audible alarm signal over the system audible devices and activate the visual signal devices.

E. Activation of any automatic alarm initiating device within a dwelling unit shall cause the following to occur:
   1. Sound an audible alarm and illuminate the visual indicator for zone and type of alarm at the fire command center, the remote annunciator and fire alarm control panel.
   2. Activate all alarm notification devices within the dwelling unit where the alarm signal was detected.
   3. Activation of a smoke detector in a dwelling unit shall not activate alarm notification appliances outside of the dwelling unit.

F. Detection shall be addressable and reporting of fire conditions to be accomplished by the following basic methods:
   1. Manual stations.
   2. Smoke detectors.
   3. Waterflow switches.

G. Fire alarm system inputs to be further subdivided as follows, for a more defined indication of the location and nature of the fire or trouble condition:
   1. Manual station by device and location.
   2. Smoke detector by device and location.
   3. Waterflow or pressure switch by device and location.
   4. Sprinkler valve position indication by device and location.

H. Alarm condition shall override trouble indication. Trouble indication shall reappear after alarm reset.

I. Selective manual testing of any device point or zone in the system to determine normal, trouble or alarm status.

J. Operation: All components shall be interconnected in accordance with the manufacturer's instructions to provide a complete and operable system as described.

1.6 WARRANTY

A. For a period of two years from date of final acceptance, the system shall be under full guarantee for materials and labor at no cost to the Owner. The system shall be under a service contract with a technician authorized by the manufacturer. Replacement parts and labor shall be readily available during normal business hours while the service contract is in effect. A complete system inspection and test shall be performed at five months and again at eleven months after final acceptance. Tests shall include all smoke detector sensitivity

settings.

B. Conform to applicable provisions of the General Requirements.

C. Service technicians and replacement components for the system shall be available locally from a service representative of the manufacturer who is able to provide evidence of technical training and authorization by the manufacturer.

D. All component failures shall be remedied to the satisfaction of the Owner.

E. A continuing service contract shall be offered at time of bid to commence at the expiration of warranty included with the system.

PART 2 PRODUCT

2.1 MATERIALS

A. Provide Notifier fire alarm components, UL listed for power-limited application.

B. Refer to addendum 06, sheet FA0.01, Device Scheule for Notifier device model numbers.

PART 3 EXECUTION

3.1 COORDINATION

A. Refer to the electrical drawings and specifications to determine quantities and location of devices and required scope of work and coordinate work with electrical installers. Submit conduit and pathing requirements to electrical installer.

3.2 GENERAL

A. Comply with all applicable paragraphs in Section 26 05 00: Common Work Results for Electrical, apply as though repeated herein

B. Install system(s) in accordance with manufacturer's instructions.

C. Include services of certified technicians to supervise installation, provide adjustments, provide final connections, system testing and system training to Owner Representative

3.3 GROUNDING

A. All equipment to be grounded by means of green ground wire to "U" contact of duplex receptacles and bonded to ground provided under Section 26 05 26: Grounding and Bonding of Electrical Systems.

3.4 INSPECTION

A. Systems to meet all the requirements of the California Fire Code and shall be approved before installation and prior to final acceptance.

3.5 LOCATION

A. Before installation, verify exact location of control equipment and outlets. The Owner

reserves the right to relocate system components within a radius of 10' at no increase in cost before rough-in work is started for the respective component.

3.6 WIRING

A. Furnish conductors, equipment, terminal strips, etc., and labor to install a complete and operable system. Cable conductors shall be color coded and numbered for identification at all terminals. Green shall be for grounding conductor only. Use red insulation and or red jacketing on fire alarm cable.

3.7 TESTING

A. After all equipment specified herein for each system has been installed and is in operating condition, conduct performance tests to determine if the installation and components comply with these specifications. Furnish competent personnel, all test material and approved test instruments and conduct the tests under supervision of factory personnel, in the presence of the Engineer, the building and fire inspecting agencies:
   1. The contractor's job foreman, in the presence of a representative of the manufacturer, a representative of the owner, and the fire department shall operate every installed device to verify proper operation and correct annunciation at the control panel.
   2. At least on half of all tests shall be performed on battery standby power.
   3. Where application of heat would destroy any detector, it may be manually activated.
   4. The signaling line circuits and notification appliance circuits shall be opened in at least two (2) locations to verify the presence of supervision.
   5. When the testing has been completed to the satisfaction of the contractor representative IOR, representatives of the manufacturer and owner, a notarized letter co-signed by each attesting to the satisfactory completion of said testing shall be forwarded to the owner and the authority having jurisdiction.
   6. The contractor shall leave the fire alarm system in proper working order, and, without additional expense to the owner, shall replace any defective materials or equipment provided by him under this contract within two years from the date of final acceptance by the awarding authority.
   7. The local responding fire department must be notified prior to the final test in accordance with local requirements and when requested, participate in system testing and evaluation.

3.8 REPORT

A. Prepare written report of final test results, signed by witnessing parties. Submit to the Engineer in triplicate for final approval.

END OF SECTION 28 46 00

SECTION 28 46 00 - FIRE DETECTION AND ALARM

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of this Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section Includes:
1. Provide new addressable fire alarm system for new multi-story residential building and tie into existing campus fire alarm system.
2. Except for the specific work described above, the existing fire detection and alarm system is functional and compliant and is to remain.
3. Testing: The completed system shall be tested in accordance with NFPA Standard 72-7- 1.
4. Fire alarm wiring shown in drawings shall be installed in raceway.
5. Instruction for Owner Representatives. Training shall consist of a minimum or two 2-hour sessions.
6. Coordination with Section 26 05 33: Raceway and Boxes for Electrical Systems.
7. Furnishing of special back boxes where required for installation of fire alarm devices.
8. Qualifications: Contractor shall receive written approval and verified test results which shall be submitted to the owner for system from manufacturers recognized representative prior to completion and acceptance.
9. Initiating devices shall be separately addressed for individual identification at control panel.
10. As-Built Drawings: A complete set of reproducible “as-built” drawings showing installed wiring, color coding, wire tag notations exact locations of all installed equipment, specific interconnections between all equipment and internal wiring of the equipment shall be delivered to the owner upon completion of the system.
11. Maintenance Instructions: Three (3) submittals of maintenance instructions shall be provided and shall be complete, easy to read, understandable and shall provide the following information:
    a. Instructions for replacing any of the new components of the system, including internal parts.
    b. Instructions for periodic cleaning and adjustments of new equipment with a schedule of these functions.
    c. A complete list of new equipment and components with information as to the address and telephone number of both the manufacturer and local supplier of each item.
    d. User operating instructions shall be prominently displayed on a separate sheet located next to the control unit in accordance with UL Standard 864. The contractor shall warrant new equipment and wiring free from inherent mechanical and electrical defects for two years from the date of final acceptance.

1.3 SUBMITTALS

A. Comply with applicable provisions of Section 26 05 00: Common Work Results for Electrical.

B. Submit the manufacturer's cut sheets and the CSFM Listing Sheets for these items:
1. Addressable fire alarm control panel
2. Fire alarm annunciator
3. Notification circuit power booster extender panel.
4. Smoke detector (Photoelectric)
5. Strobe only notification device
6. Horn/ Strobe notification device
7. Horn only notification device
8. Weatherproof horn notification device
9. Manual pull station
10. Addressable input monitor module

C. Operating and Maintenance Instruction Manual tailored to the new work of this project, including:
1. Operational description.
2. Coded cabling plan.
3. Two wire circuit diagrams.
4. Wiring destination schedule.
5. Schematic component diagrams and PC board layouts.
6. Maintenance and alignment procedures.
7. Voltage drop and battery calculations.

1.4 SYSTEM DESCRIPTION

A. Provide new equipment that is listed by Underwriters Laboratories and the California State Fire Marshal, designed to meet the functional requirements of NFPA 72.

B. Provide the following products:
1. Addressable fire alarm control panel
2. Fire alarm annunciator
3. Notification circuit power booster extender panel.
4. Smoke detector (Photoelectric)
5. Strobe only notification device
6. Horn/ Strobe notification device
7. Horn only notification device
8. Weatherproof horn notification device
9. Manual pull station
10. Addressable input monitor module

1.5 SYSTEM OPERATION

A. System to be the active interrogate/respond type alarm system, 24 volt DC noncoded, positive, non-interfering, successive operation, in which all devices are constantly sending status signals to the main fire control command center from remote data transmitter panels approximately every one second. A change in status to be reported twice to determine that it is a valid signal and be automatically and permanently recorded.

B. Wiring, equipment and devices for alarm initiation, annunciation, and audible signaling to be continuously supervised for opens, shorts or grounds (trouble). Each alarm initiating device circuit to be provided with illuminated and audible annunciation of both trouble and alarm

conditions. Non-illumination indicates a normal condition.

C. Any alarm or trouble condition shall sound an audible signal at the fire command center and the remote annunciator. Signal shall be silenced by a momentary contact switch which shall transfer the signal to a visual indicator. Subsequent trouble conditions shall cause the signal to resound and in turn may be silenced. Upon restoration to normal, the trouble signal silencing indicator shall extinguish automatically.

D. Activation of any automatic or manual alarm initiating device within the common areas shall cause the following to occur:
   1. Sound an audible alarm and illuminate the visual indicator for zone and type of alarm at the fire command center, the remote annunciator and fire alarm control panel.
   2. Sound, at building of origin, the audible alarm signal over the system audible devices and activate the visual signal devices.

E. Activation of any automatic alarm initiating device within a dwelling unit shall cause the following to occur:
   1. Sound an audible alarm and illuminate the visual indicator for zone and type of alarm at the fire command center, the remote annunciator and fire alarm control panel.
   2. Activate all alarm notification devices within the dwelling unit where the alarm signal was detected.
   3. Activation of a smoke detector in a dwelling unit shall not activate alarm notification appliances outside of the dwelling unit.

F. Detection shall be addressable and reporting of fire conditions to be accomplished by the following basic methods:
   1. Manual stations.
   2. Smoke detectors.
   3. Waterflow switches.

G. Fire alarm system inputs to be further subdivided as follows, for a more defined indication of the location and nature of the fire or trouble condition:
   1. Manual station by device and location.
   2. Smoke detector by device and location.
   3. Waterflow or pressure switch by device and location.
   4. Sprinkler valve position indication by device and location.

H. Alarm condition shall override trouble indication. Trouble indication shall reappear after alarm reset.

I. Selective manual testing of any device point or zone in the system to determine normal, trouble or alarm status.

J. Operation: All components shall be interconnected in accordance with the manufacturer's instructions to provide a complete and operable system as described.

1.6 WARRANTY

A. For a period of two years from date of final acceptance, the system shall be under full guarantee for materials and labor at no cost to the Owner. The system shall be under a service contract with a technician authorized by the manufacturer. Replacement parts and labor shall be readily available during normal business hours while the service contract is in effect. A complete system inspection and test shall be performed at five months and again at eleven months after final acceptance. Tests shall include all smoke detector sensitivity

settings.

B. Conform to applicable provisions of the General Requirements.

C. Service technicians and replacement components for the system shall be available locally from a service representative of the manufacturer who is able to provide evidence of technical training and authorization by the manufacturer.

D. All component failures shall be remedied to the satisfaction of the Owner.

E. A continuing service contract shall be offered at time of bid to commence at the expiration of warranty included with the system.

PART 2 PRODUCT

2.1 MATERIALS

A. Provide Notifier fire alarm components, UL listed for power-limited application.

B. Refer to addendum 06, sheet FA0.01, Device Scheule for Notifier device model numbers.

PART 3 EXECUTION

3.1 COORDINATION

A. Refer to the electrical drawings and specifications to determine quantities and location of devices and required scope of work and coordinate work with electrical installers. Submit conduit and pathing requirements to electrical installer.

3.2 GENERAL

A. Comply with all applicable paragraphs in Section 26 05 00: Common Work Results for Electrical, apply as though repeated herein

B. Install system(s) in accordance with manufacturer's instructions.

C. Include services of certified technicians to supervise installation, provide adjustments, provide final connections, system testing and system training to Owner Representative

3.3 GROUNDING

A. All equipment to be grounded by means of green ground wire to "U" contact of duplex receptacles and bonded to ground provided under Section 26 05 26: Grounding and Bonding of Electrical Systems.

3.4 INSPECTION

A. Systems to meet all the requirements of the California Fire Code and shall be approved before installation and prior to final acceptance.

3.5 LOCATION

A. Before installation, verify exact location of control equipment and outlets. The Owner

reserves the right to relocate system components within a radius of 10' at no increase in cost before rough-in work is started for the respective component.

3.6 WIRING

A. Furnish conductors, equipment, terminal strips, etc., and labor to install a complete and operable system. Cable conductors shall be color coded and numbered for identification at all terminals. Green shall be for grounding conductor only. Use red insulation and or red jacketing on fire alarm cable.

3.7 TESTING

A. After all equipment specified herein for each system has been installed and is in operating condition, conduct performance tests to determine if the installation and components comply with these specifications. Furnish competent personnel, all test material and approved test instruments and conduct the tests under supervision of factory personnel, in the presence of the Engineer, the building and fire inspecting agencies:
   1. The contractor's job foreman, in the presence of a representative of the manufacturer, a representative of the owner, and the fire department shall operate every installed device to verify proper operation and correct annunciation at the control panel.
   2. At least on half of all tests shall be performed on battery standby power.
   3. Where application of heat would destroy any detector, it may be manually activated.
   4. The signaling line circuits and notification appliance circuits shall be opened in at least two (2) locations to verify the presence of supervision.
   5. When the testing has been completed to the satisfaction of the contractor representative IOR, representatives of the manufacturer and owner, a notarized letter co-signed by each attesting to the satisfactory completion of said testing shall be forwarded to the owner and the authority having jurisdiction.
   6. The contractor shall leave the fire alarm system in proper working order, and, without additional expense to the owner, shall replace any defective materials or equipment provided by him under this contract within two years from the date of final acceptance by the awarding authority.
   7. The local responding fire department must be notified prior to the final test in accordance with local requirements and when requested, participate in system testing and evaluation.

3.8 REPORT

A. Prepare written report of final test results, signed by witnessing parties. Submit to the Engineer in triplicate for final approval.

END OF SECTION 28 46 00

SECTION 262653 - ELECTRIC VEHICLE CHARGING EQUIPMENT - LEVEL 2

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes EV charging equipment that provides Level 2 EV charging.

1.3 DEFINITIONS

A. EV: Electric vehicle.

B. EV Cable: The off-board cable containing the conductor(s) to connect the EV power controller to the EV that provides both power and communications during energy transfer.

C. EV Capable: Parking spaces that include nearby termination of raceway (conduit) to a power source with sufficient electrical panel capacity designed for simultaneous charging of electric vehicles in all planned EV parking spaces. Electrical wiring need not be pulled through raceway (conduit) until charging station is installed.

D. EV Charger or EV Charging Equipment: See "EVSE".

E. EV Connector: A conductive device that, when electrically coupled to an EV inlet, establishes an electrical connection to the EV for the purpose of power transfer and information exchange. This device is part of the EV coupler.

F. EV Coupler: A mating EV inlet and connector set.

G. EV Inlet: The device in the vehicle into which the EV connector is inserted, and a conductive connection is made for the transfer of power and communication. This device is part of the EV coupler.

H. EV Make Ready: Parking spaces that include nearby termination of raceway (conduit) and electrical wiring pulled to a power source with sufficient electrical panel capacity for simultaneous charging of electric vehicles in all EV parking spaces.

I. EVSE: Electric Vehicle Supply Equipment. It includes the EV charging equipment and conductors, including the ungrounded, grounded, and equipment grounding conductors and EV cables, attachment plugs, and all other fittings, devices, power outlets, or apparatus installed specifically for transferring energy between the premise wiring and the EV.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for EV charging equipment.
2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

B. Sustainable Design Submittals:

1. Plan showing location and number of EV charging units, and distance from building.
2. Plan showing "reasonable accessibility" to EV charging units.
3. Plan showing location and number of EV charging units, charging levels and connectors, and ability of EV charging units to participate in a demand-response or time-of-use pricing program, as well as a power load management system that allows for an increased number of charging stations than would otherwise be feasible without power load management.

C. Shop Drawings: For EV charging equipment.

1. Include plans, elevations, sections, and mounting details.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Detail fabrication and assembly of mounting assemblies for EV charging equipment.
4. Include diagrams for power, signal, and control wiring.
5. Include verification of wireless communications service at each location of EV charging equipment.

D. Product Schedule: For EV charging equipment, Chargepoint CT4000 or equal.

1.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Area plans and details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Structural members to which equipment will be attached.
2. Electrical service.
3. Communications service**,** including wireless communications equipment.
4. Items penetrating finished floor.

B. Qualification Data: For factory-authorized service representative.

C. Seismic Qualification Certificates: For CT4000**,** accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Field quality-control reports.

E. Sample Warranty: For manufacturer's warranty.

1.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For EV charging equipment to include in operation and maintenance manuals.

B. Software and Firmware Operational Documentation:

1. Online training and help documentation.
2. Station activation sticker.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

C. Comply with UL 2231-1. UL 2231-2, UL 2594, and NEC Article 625.

D. Comply with SAE J1772.

E. Comply with FCC Part 15 Class A.

1.9 FIELD CONDITIONS

A. Wireless Survey: Complete wireless survey to determine if wireless provider signals meet or exceed manufacturer's recommended minimum values.

B. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Not exceeding minus 22 to plus 122 deg F (minus 30 to plus 50 deg C).
2. Altitude: Not exceeding 6600 feet (2000 m).

C. Rate Equipment for non-operation under the following conditions:

1. Ambient Temperature: Not exceeding minus 40 to plus 140 deg F (minus 40 to plus 60 deg C).
2. Altitude: Not exceeding 6600 feet (2000 m).

D. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Owner no fewer than five days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Owner's written permission.

1.10 WARRANTY

A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace components of EV charging units that fail(s) in materials or workmanship within specified warranty period.

1. Standard Warranty Period: One year from date of Substantial Completion.
2. Extended Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Product: Provide ChargePoint CT4000 family of electric vehicle charging stations for commercial applications; and ChargePoint CPF25 family of electric vehicle charging stations for dedicated Fleet charging and multifamily resident personal charging applications.

B. Source Limitations: Obtain EV charging equipment from single manufacturer.

2.2 EV CHARGING EQUIPMENT DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

B. Comply with NFPA 70.

C. ADA compliant.

D. Metering: +/- 2 percent from 2 percent to full scale of output (30 A).

E. EV Charging Equipment Mounting: Bollard mount

F. Enclosures:

1. Rated for environmental conditions at installed location.
   a. Indoor Locations: NEMA 250, Type 3R.
   b. Outdoor Locations: NEMA 250, Type 3R.

c. Aluminum and UV-resistant plastic.
d. Paint and Anodized.
e. Charging components protected by security screws.
f. Charging connectors in locking holsters.
g. Meter, modem, and CPU, tamper resistant.

G. EV Cable and Connectors:

1. SAE J1772 connector.
2. Provide required amount of connectors with locking holster per manufacturer's installation instruction.
3. 23-foot (7.5-m) cable with cable management system.

H. Status Indicators:

1. LEDs to indicate power, vehicle charging, charging complete, system status, faults, and service, as well as authorization.

I. Display Screen:

1. VGA-resolution, daylight-viewable LCD screen with UV protection. Daylight readable and fingerprint resistant.
2. Displays power, charging, charging complete, remote control, system status, faults, payment and pricing details, and service.

J. Networking:

1. WAN Communications: Cellular GSM/GPRS and CDMA.
2. LAN Communications: 2.4 GHz Wi-Fi 802.11b/g/n.
3. Capable of remote configuration, diagnostics and reporting.
4. Capable of remote software updates (future proof).

K. Payment System:

1. RFID (ISO 15693, ISO 14443), NFC, Contactless credit card reader.
2. PCI (Payment Card Industry) compliant.
3. Capable of remote control and authorization including mobile phone application or toll free phone number.

L. Charging Network: Compatible with the **ChargePoint** EV charging network.

1. Multiple units shall independently connect to charging network.
2. Multiple units shall have one unit designated as a master unit that is configured as a gateway unit between the EV charging equipment and the charging network.
3. Individual units shall be capable of indicating station status and availability providing or connecting user to customer support and remote control.

2.3 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

B. Surge Withstand: 6 kV at 3000 A.

C. Integral GFCI.

D. Auto-GFCI fault retry.

E. Input Power:

1. 40 A (single) or Two 40 A (dual), 208/240-V ac, 60 Hz, single phase per charger.
2. Dual circuits do not need to be interlocked.

F. EV Charging Levels:

1. Single vehicle: AC Level 2 at up to 7.2 kW (CT4000) or up to 7.7 kW (CPF25) per vehicle.
2. Dual vehicles, AC Level 2 at up to 7.2 kW (CT4000) or up to 7.7 kW (CPF25) per vehicle.
3. Multiple vehicles simultaneously charging at a site using Automatic Power Load Management may be charged up to 7.2 kW (CT4000) or up to 7.7 kw (CPF25) per vehicle.

2.4 GENERAL FINISH REQUIREMENTS

A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for EV charging equipment electrical conduit to verify actual locations of conduit connections before equipment installation.

C. Examine walls, floors, and pavement for suitable conditions where EV charging equipment will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with NECA 1 and NECA 413.

B. Concrete Base Mounting:

1. Install EV charging equipment on 6-inch (150-mm) nominal-thickness concrete base. Base should be 24-inch (600 mm) diameter or square (minimum 12-inch (300 mm) from the center located conduit stub-up). Comply with requirements for concrete base specified in Section 033000 "Cast-in-Place Concrete".

    a. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
    b. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
    c. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
    d. Install anchor bolts to elevations required for proper attachment to supported equipment.
    e. Secure EV charging equipment to concrete base according to manufacturer's written instructions.

2. Install EV charging equipment on 24-inch (600-mm) nominal-diameter and 24-inch (600-mm) concrete base.

    a. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
    b. Install anchor bolts to elevations required for proper attachment to supported equipment.
    c. Secure EV charging equipment to concrete base according to manufacturer's written instructions.

C. Wall Mounting (where it applies, see Electrical drawings):

1. Install EV charging equipment so that its receptacles or holders are not less than 18 inches (450 mm) and not more than 4 feet (1.2 m) above finished floor.
2. Mount EV charging equipment to steel slotted supports [5/8 inch (16 mm)] [1-1/4 inches (32 mm)] in depth. Orient steel slotted supports vertically.
3. Ensure that EV charging equipment is plumb and rigid without distortion of box.
4. Secure EV charging equipment according to manufacturer's written instructions.

D. Bollard Mounting (where it applies, see Electrical drawings):

1. Allow a minimum of 24 inches (600 mm) of clearance around EV charging equipment.
2. EV charging equipment receptacles or holders shall be not less than 24 inches (600 mm) and not more than 4 feet (1.2 m) above finished grade.
3. Mount EV charging equipment plumb and rigid without distortion of enclosure.
4. Secure EV charging equipment according to manufacturer's written instructions.

E. Comply with mounting and anchoring requirements that meets Seismic requirements and as per manufacturer’s installation instructions.

F. Wiring Method: Install cables in raceways and cable trays. Conceal raceway and cables except in unfinished spaces.

1. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
2. Comply with requirements for underground raceways and enclosures specified in Section 260543 "Underground Ducts and Raceways for Electrical Systems."

G. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.

H. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.

I. Circuit Breakers and Panelboards: Comply with Section 262000 "Low Voltage Electrical Distribution".

J. Secure covers to enclosure.

3.3 CONNECTIONS

A. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Comply with grounding requirements in Section 260526 "Grounding and Bonding for Electrical Systems."

C. Comply with requirements for installation of conduit in Section 260533 "Raceways and Boxes for Electrical Systems." Drawings indicate general arrangement of conduit, fittings, and specialties.

D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections with the assistance of a factory-authorized service representative.

C. Tests and Inspections:

1. For each unit of EV charging equipment, perform the following tests and inspections:

a. Unit self-test.

b. Operation test with load bank.
c. Operation test with EV.
d. Network communications test.

D. EV charging equipment will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.6 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.

3.7 ONGOING MANAGEMENT SERVICES

A. Engage a station manufacturer that offers a service to manage the administration and policies of the electric vehicle charging stations on an ongoing basis.

3.8 SOFTWARE SERVICE AGREEMENT

A. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for the duration of an active ChargePoint Network Service Plan.

B. Upgrade Service: At Substantial Completion, remotely update software to latest version. Install and program software upgrades that become available while an active ChargePoint Network Service Plan is maintained. Upgrading software shall include operating system and new or revised licenses for using software.

3.9 DEMONSTRATION

A. Utilize ChargePoint Station Management Services and ChargePoint Assure Services, or Train Owner's maintenance personnel to adjust, operate, and maintain EV charging equipment.

END OF SECTION 262653

SECTION 33 05 13 MANHOLES AND STRUCTURES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Modular precast concrete manhole sections with tongue-and-groove joints covers, anchorage, and accessories.

B. Related Section:
1. Section 03 30 00: Cast-in-Place Concrete.

C. Reference Standards:
1. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
2. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals.

1.3 SUBMITTALS

A. See Section 01 33 00: Submittal Procedures.

B. Product Data: Provide manhole covers, component construction, features, configuration, and dimensions.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

PART 2 PRODUCTS

2.1 MATERIALS

A. Manhole Sections: Reinforced precast concrete in accordance with ASTM C478, with resilient connectors complying with ASTM C923.

2.2 CONFIGURATION

A. Shaft Construction: Concentric with eccentric cone top section; lipped male/female dry joints; sleeved to receive pipe sections.

B. Clear Inside Dimensions: As indicated.

C. Design Depth: As indicated.

D. Clear Lid Opening: As indicated.

E. Pipe Entry: Provide openings as indicated.

F. Steps: As indicated.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify items provided by other sections of Work are properly sized and located.

B. Verify that built-in items are in proper location, and ready for roughing into Work.

C. Verify excavation for manholes is correct.

3.2 PREPARATION

A. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.

3.3 MANHOLES

A. Place concrete base pad, trowel top surface level.

B. Place manhole sections plumb and level, trim to correct elevations, anchor to base pad.

C. Cut and fit for pipe.

D. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour as required.

E. Coordinate with other sections of work to provide correct size, shape, and location.

END OF SECTION 33 05 13

SECTION 33 10 00 WATER UTILITIES

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes Pipe, fittings, hardware, appurtenances for domestic water mains, service lines, and typical fire suppression.

B. Related Sections:
1. Section 03 30 00: Cast-in-Place Concrete.
2. Division 31: Site work.

C. Reference Standards:
1. ASTM D2239 - Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Controlled Outside Diameter.
2. ASTM D2466 – Poly (VinylChloride) (PVC) Plastic Pipe (SDR-PR).
3. AWWA B300 - Standard for Hypochlorites.
4. AWWA B301 - Standard for Liquid Chlorine.
5. AWWA C651 - Standards for Disinfecting Water Mains.

D. Measurement and Payment:
1. Water Main: Work includes all labor, materials, and equipment necessary to install main water lines, valves, and appurtenant connections from existing water facilities to new locations as described and depicted in the plan sets.
2. Service Lines: Work includes all labor, materials, and equipment necessary to install water service facilities including connection to new mains, installation of meters and pressure regulating valves, pipeline, hose bibs, control valves, and stub-outs for future connection to buildings. Measurement and payment for water services shall be per service as per the bid schedule.
3. Fire Hydrants: New fire hydrants shall be installed at locations shown on the project plans. Work shall include installation, labor, connections, valves, and materials necessary for installation per the project plans.

1.3 SUBMITTALS

A. Product and manufacturer data.

B. Test Reports: Indicate results compared to specified requirements.

C. Project Record Documents:
1. Disinfection report:
   a. Type and form of disinfectant used.
   b. Date and time of disinfectant injection start and time of completion.
   c. Test locations.
   d. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
   e. Date and time of flushing start and completion.
   f. Disinfectant residual after flushing in ppm for each outlet tested.

D. Bacteriological report:
   1. Date issued, project name, and testing laboratory name, address, and telephone number.
   2. Time and date of water sample collection.
   3. Name of person collecting samples.
   4. Test locations.
   5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
   6. Coliform bacteria test results for each outlet tested.
   7. Certification that water conforms, or fails to conform, to bacterial standards of EPA.
   8. Copies of all reports shall be supplied to the Engineer within 48 hours of test completion.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with AWWA C651.

B. Submit name of EPA certified laboratory.

C. Submit bacteriologist's signature and authority associated with testing.

PART 2 PRODUCTS

2.1 WATER PIPE

A. Polyethylene Pipe: ASTM D2239, IPS size, for 200 PSI pressure rating.

B. Joints: Non-Flare Compression equal to Ford Pack Joints.

C. PVC Pressure Pipe, Schedule 40: ASTM D1785, IPS size, for 200 PSI pressure rating.

D. Fittings: PVC, Schedule 40, ASTM D2466.

2.2 CURB STOPS - UP TO 2 INCHES

A. Manufacturer: McDonald Model 6104 - 33 (substitutions permitted).

B. Brass body, TFE coated brass ball supported by two Buna-N-Seats, IPS ends, 300 PSI rating.

2.3 SADDLES

A. Manufacturers:
   1. Ford Model S70 and S90.
   2. James Jones Co., Model J995 and J996.
   3. Substitutions: Will be permitted.

2.4 CORPORATION STOPS

A. Manufacturers:
   1. Ford FB1101.
   2. James Jones Co., Model J1936.
   3. Substitutions: Will be permitted.

2.5 COPPERSETTERS

A. Manufacturers:
   1. Ford Model VH72.
   2. Substitutions: Will be permitted.

2.6 CURB BOXES

A. Manufacturer: McDonald, Minneapolis Pattern - with foot piece, 5½-inch (substitutions permitted).

2.7 WATER METERS

A. Manufacturer: Sensus SR-EB11 (substitutions permitted per approval).

2.8 WATER BOXES

A. Christy Model B9 Box with B9G Lid marked “WATER” (substitutions permitted).

2.9 DISINFECTION CHEMICALS

A. Chemicals: AWWA B300, Hypochlorite, and AWWA B301, Liquid Chlorine.

2.10 GATE VAVES

A. Manufacturers: American Darling, Mueller, Clow, or Waterous, or equal.

B. Meet or exceed either AWWA C509 or C515, resilient seated gate valves 2-inch through 12-inch NPS, ductile iron body, trim, non-rising stem with square nut, single wedge, mechanical joint, flanged, or slip-on ends as specified in drawings, control rod, and extension box.

2.11 FIRE HYDRANT ASSEMBLY

A. Manufacturer: Clow- Medallion Dry-Barrel (substitutions permitted per approval).

B. Color: Color selection required by owner.

2.12 BACKFLOW ASSEMBLY

A. Manufacturer: Fabco LF856 double detector check (substitutions permitted per approval).

PART 3 EXECUTION

3.1 INSTALLATION - WATER SERVICE LINE

A. Coordinate with the public utility for connection of new water facilities to existing water distribution system.

B. Excavate pipe trench according to Section 31 23 00: Excavation and Fill. Hand trim trench where necessary.

C. Establish elevations of buried piping for minimum of 36 inches of cover.

D. Connect the service line to the house plumbing with fittings or adapters manufactured for the conditions encountered to provide a strong, durable, watertight connection. Provide a gate valve and hose bib with vacuum breaker.

E. Set water meter and box in accordance with the drawings and the requirements of the public utility.

F. Backfill and compact according to Section 31 23 00.

3.2 DISINFECTION AND BACTERIOLOGICAL TESTING

A. Examination:
1. Verify that piping system has been cleaned, inspected, and pressure tested.
2. Perform scheduling and disinfecting activity with start-up, testing, adjusting, and demonstration procedures, including coordination with related systems.

B. Execution:
1. Provide and attach required equipment to perform the work of this Section.
2. Inject treatment disinfectant into piping system.
3. Maintain disinfectant in system for 24 hours.
4. Flush, circulate, and clean until required cleanliness is achieved; use domestic water.

C. Pressure Test for Water Main:
1. Notify Inspector forty-eight (48) hours prior to pressure testing.
2. Provide required equipment to perform pressure test. Pressure gages used in testing shall be graduated in no more than 5 PSI increments.
3. Pressure test PVC pipe 2-inches or greater in diameter for 2 hours based on the test section working pressure at the lowest point of elevation.

AVERAGE WORKING PRESSURE OF TEST SECTION	TEST PRESSURE
Less than 65 psi	100 psi
65 to 95 psi	140 psi
Greater than 95 psi	195 psi

4. Leakage rates are total leakage allowed for a two-hour test per 50 pipe joints as follows:

Pipe Size	100 psi	140 psi	195 psi
2 inch	0.27 gal	0.32 gal	0.38 gal
4 inch	0.54 gal	0.64 gal	0.75 gal
6 inch	0.81 gal	0.96 gal	1.13 gal
8 inch	1.08 gal	1.28 gal	1.51 gal

5. Repair leaks and retest if leakage is above acceptable rates.
6. Leakage rates shall be adjusted proportionally for pipeline lengths greater than or less than 50 pipe joints.
7. The number of pipe joints being tested shall be calculated as the length of pipeline being tested divided by the standard pipe length used on the job, with no allowances for joints caused by the use of couplings or for joints at fittings.

END OF SECTION 33 10 00

SECTION 33 13 00 DISINFECTION AND BACTERIOLOGICAL TESTING OF WATER MAIN SYSTEM

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Disinfection of water mains.
2. Testing and reporting results.

B. Related Sections:
1. Section 31 23 00: Excavation and Fill.

C. Reference Standards:
1. AWWA B300 - Standard for Hypochlorites.
2. AWWA B301 - Standard for Liquid Chlorine.
3. AWWA C651 - Standards for Disinfecting Water Mains.
4. AWWA C652: Standards for Disinfection of Water-Storage Facilities.

D. Measurement:
1. Payment for disinfection and bacteriological testing of water system shall be incidental to the installation of water main and services.

1.3 SUBMITTALS

A. Test Reports: Indicate results compared to specified requirements.

B. Project Record Documents:
1. Disinfection report:
   a. Type and form of disinfectant used.
   b. Date and time of disinfectant injection start and time of completion.
   c. Test locations.
   d. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
   e. Date and time of flushing start and completion.
   f. Disinfectant residual after flushing in ppm for each outlet tested.
2. Bacteriological report:
   a. Date issued, project name, and testing laboratory name, address, and telephone number.
   b. Time and date of water sample collection.
   c. Name of person collecting samples.
   d. Test locations.
   e. Initial and 24 hour disinfectant residuals in ppm for each outlet tested.
   f. Coliform bacteria test results for each outlet tested.
   g. Certification that water conforms, or fails to conform, to bacterial standards of EPA.
   h. Copies of all reports shall be supplied to the Engineer within 48 hours of test completion.

1.4 QUALITY ASSURANCE

A. Perform work in accordance with AWWA C651.

B. Submit name of EPA certified laboratory.

C. Submit bacteriologist's signature and authority associated with testing.

PART 2 PRODUCTS

2.1 DISINFECTION CHEMICALS

A. Chemicals: AWWA B300, Hypochlorite, and AWWA B301, Liquid Chlorine.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that piping system has been cleaned, inspected, and pressure tested.

B. Perform scheduling and disinfecting activity with start-up, testing, adjusting, and demonstration procedures, including coordination with related systems.

3.2 EXECUTION

A. Provide and attach required equipment to perform the work of this Section.

B. Inject treatment disinfectant into piping system.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate, and clean until required cleanliness is achieved; use domestic water.

3.3 PRESSURE TEST FOR WATER MAIN

A. Notify Inspector 48 hours prior to pressure testing.

B. Provide required equipment to perform pressure test. Pressure gages used in testing shall be graduated in with no more than 5 PSI increments.

C. Pressure test PVC pipe 2-inches or greater in diameter for 2 hours based on the test section working pressure at the lowest point of elevation.

AVERAGE WORKING PRESSURE OF TEST SECTION	TEST PRESSURE
Less than 65 psi	100 psi
65 to 95 psi	140 psi
Greater than 95 psi	195 psi

D. Leakage rates are total leakage allowed for a two hour test per 50 pipe joints as follows:

Pipe Size	100 psi	140 psi	195 psi
2 inch	0.27 gal	0.32 gal	0.38 gal
4 inch	0.54 gal	0.64 gal	0.75 gal
6 inch	0.81 gal	0.96 gal	1.13 gal

E. Repair leaks and re-test if leakage is above acceptable rates.

F. Leakage rates shall be adjusted proportionally for pipeline lengths greater than or less than 50 pipe joints.

G. The number of pipe joints being tested shall be calculated as the length of pipeline being tested divided by the standard pipe length used on the job, with no allowances for joints caused by the use of couplings or for joints at fittings.

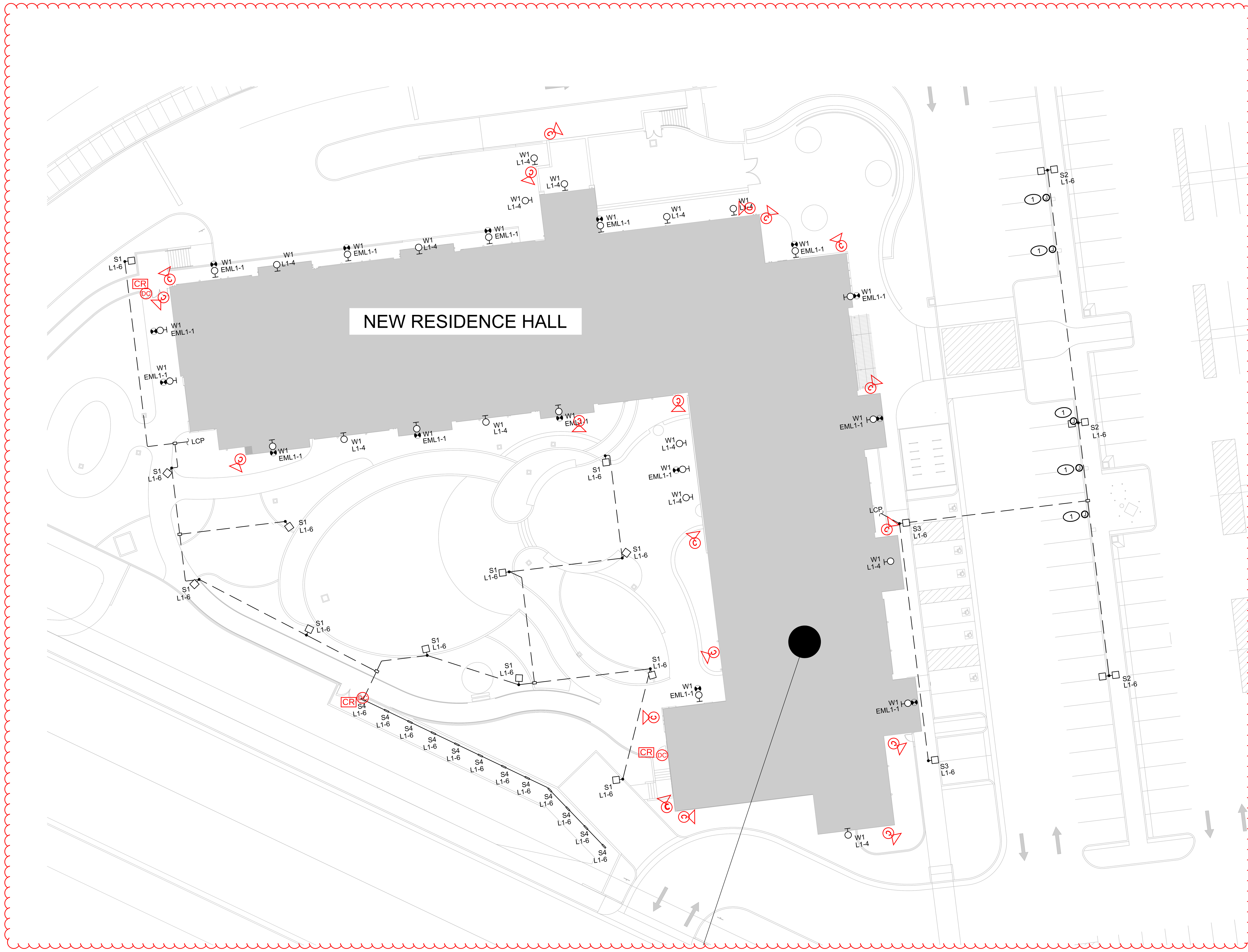
END OF SECTION 33 13 00

GENERAL NOTES

1. SEE DETAIL 04/EX.02 FOR POLE MOUNTING DETAIL

KEYNOTES

(1) PROVIDE 'CHARGEPOINT' EV CHARGING STATION - REFER TO SINGLE LINE DIAGRAM ON SHEET E6.01 FOR FEEDER SIZE AND POWER SOURCE.



ELECTRICAL ENLARGED SITE PLAN

SCALE: 1" = 20'-0"

ADDENDUM 07 - ADDED TECHNOLOGY SCOPE.

PROVIDE EXTERIOR WALL MOUNTED CAMERAS AT LOCATIONS AS SHOWN. PROVIDE CONDUIT TO CORRIDOR AND INFUSTRUCTURE BACK TO NEAREST IDF/MDF ROOM.

PROVIDE EXTERIOR CARD READERS AND DOOR CONTACTS AT GATES AS SHOWN. PROVIDE CONDUIT AND INFUSTRUCTURE BACK TO NEAREST IDF/MDF ROOM.

LEGEND:

- EXTERIOR CAMERA — (C)
- EXTERIOR CARD READER — CR
- EXTERIOR DOOR CONTACT — DC

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STATE OF CALIFORNIA

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PROJECT NUMBER
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DATE 03/22/2024

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ELECTRICAL ENLARGED SITE PLAN

E0.03

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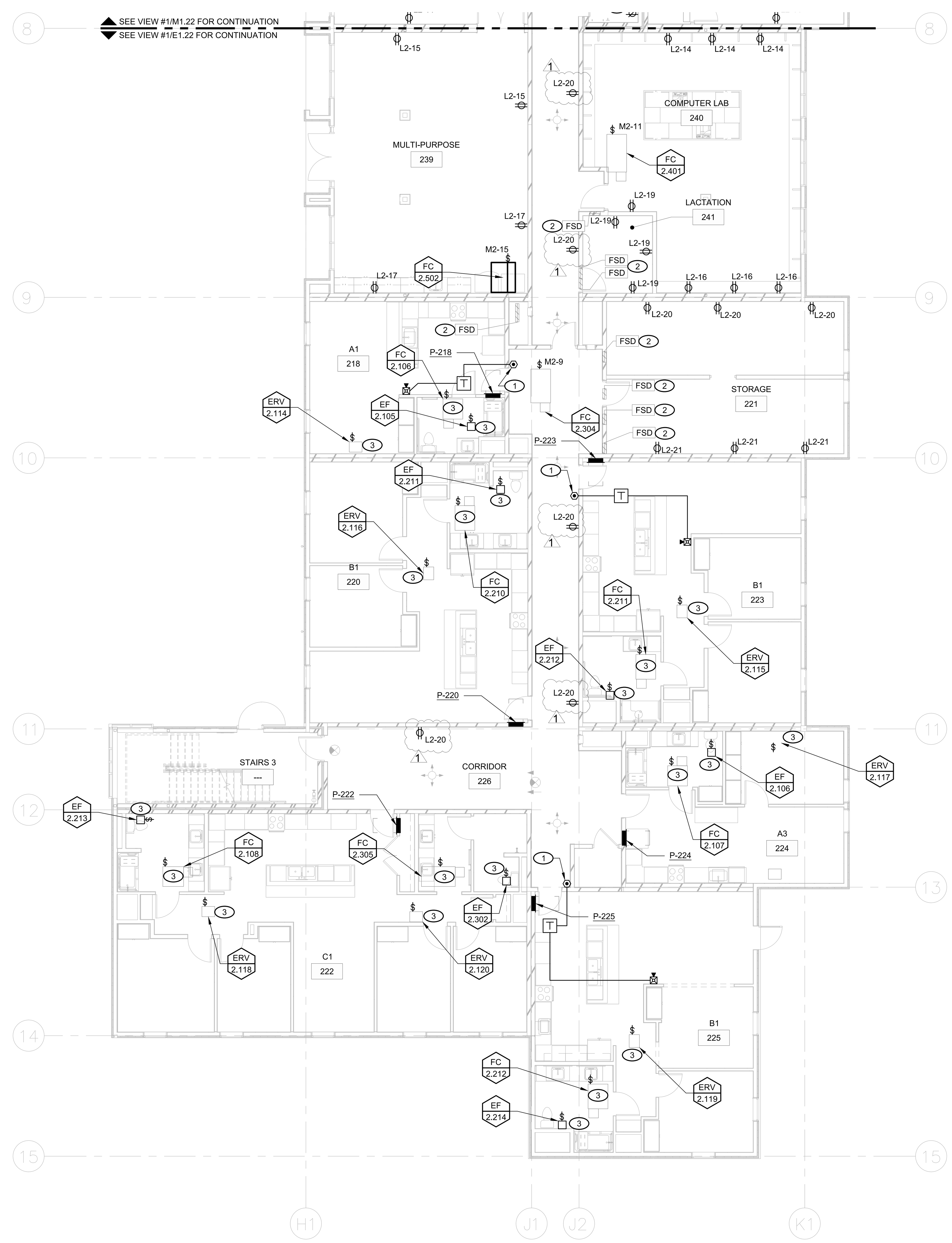

1 ELECTRICAL ENLARGED POWER PLAN - LEVEL 02 - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. POWER CIRCUITS CONSIST OF (2) #12 AWG AND (1) #12 AWG GND IN 3/4" CONDUIT TO INDICATED CIRCUITS UNLESS OTHERWISE NOTED.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. MAINTAIN CODE REQUIRED 36" CLEARANCE IN FRONT OF ELECTRICAL PANEL.

KEYNOTES

(1) PROVIDE ROOM ANNUNCIATION SYSTEM AS SHOWN. MOUNT TRANSFORMER ABOVE ACCESSIBLE CEILING AND POWER FROM 120V CIRCUIT IN UNIT ELECTRICAL PANEL. SEE DETAIL 03 ON SHEET EX.03 FOR MORE INFORMATION.

(2) PROVIDE 120V POWER TO FIRE/SMOKE DAMPER. USE CIRCUIT 'L2-20'.

(3) FOR POWER SUPPLY CIRCUITS FOR DWELLING UNIT'S MECHANICAL, SEE PANEL SCHEDULES FOR TYPICAL DWELLING UNIT, SHEET 'E6.03'.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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ENGINEER

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STATE OF CALIFORNIA

CLIENT
KCCD - BAKERSFIELD

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DATE 03/22/2024

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1	ADDENDUM 07	04/15/24

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ELECTRICAL ENLARGED POWER PLAN - LEVEL 02 - SOUTH

E1.22

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S2103400AR E1.21-1.22 ELECTRICAL ENLARGED POWER PLAN - LEVEL 02 - NORTH & SOUTH.DWG

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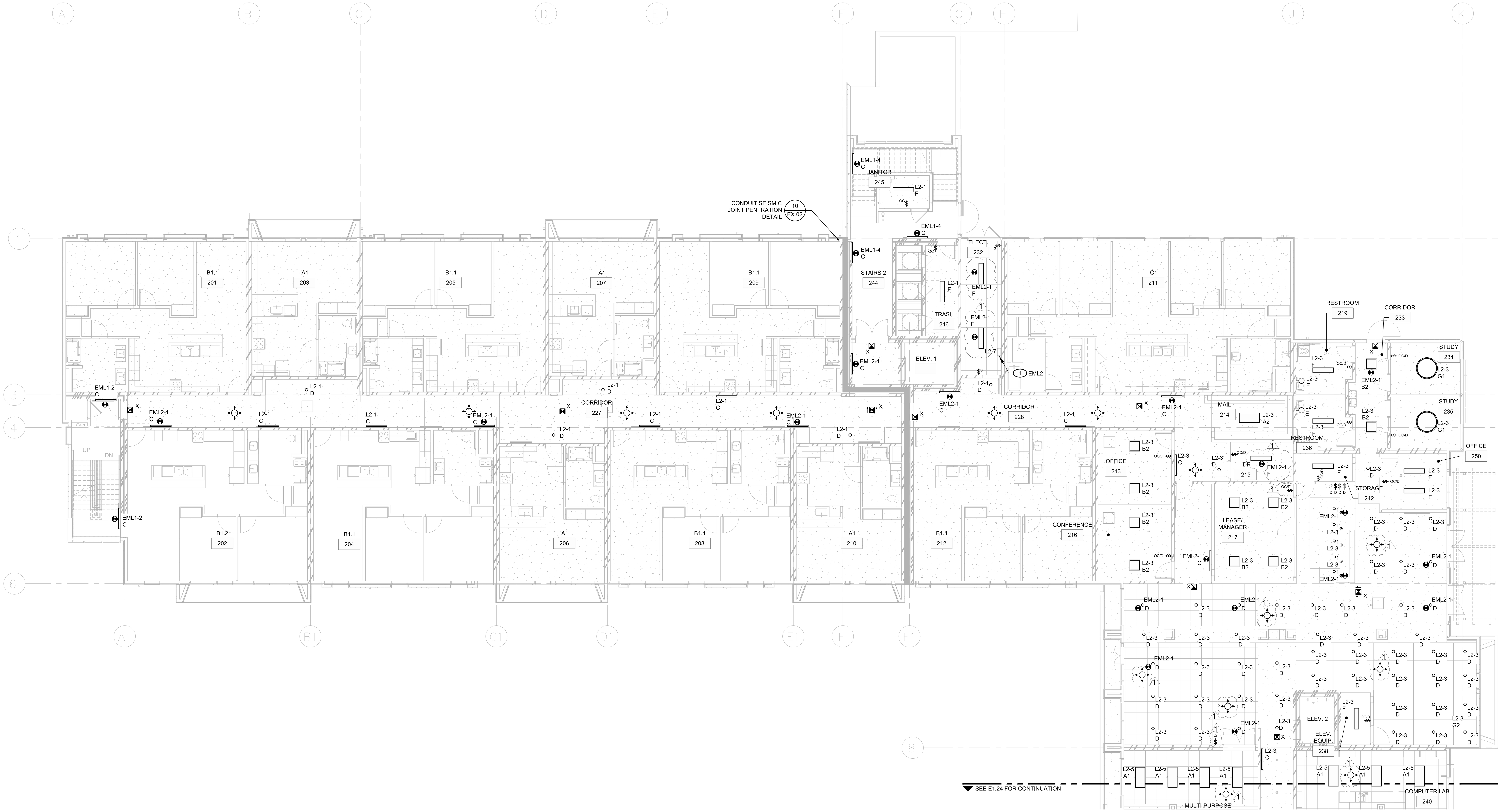

ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 02 - NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. PROVIDE A COMPLETE AND OPERATIONAL LIGHTING CONTROL SYSTEM WHICH COMPLIES WITH THE REQUIREMENTS OF 2019 TITLE 24, INCLUDING BUT NOT LIMITED TO POWER PACKS, LOW VOLTAGE WIRING, ETC.
3. CONNECT EXIT SIGNS TO UNSWITCHED LEG OF NEAREST INVERTER LIGHTING POWER CIRCUIT.
4. POWER FOR EMERGENCY EGRESS LIGHTING WILL BE PROVIDED BY AN INVERTER ON EACH FLOOR. FIXTURES BACKED BY THE INVERTER ARE INDICATED WITH THE FOLLOWING SYMBOL: ⧓.
5. SEE DETAIL 01, 02, AND 05/EX.02 FOR LIGHT FIXTURE MOUNTING DETAILS.
6. SEE DETAILS 01 AND 02/EX.03 FOR LIGHTING CONTROL DIAGRAMS.

KEYNOTES

(1) EMERGENCY LIGHTING INVERTER - MYERS, #120-E-1.5-S-BA2001.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 02 - NORTH

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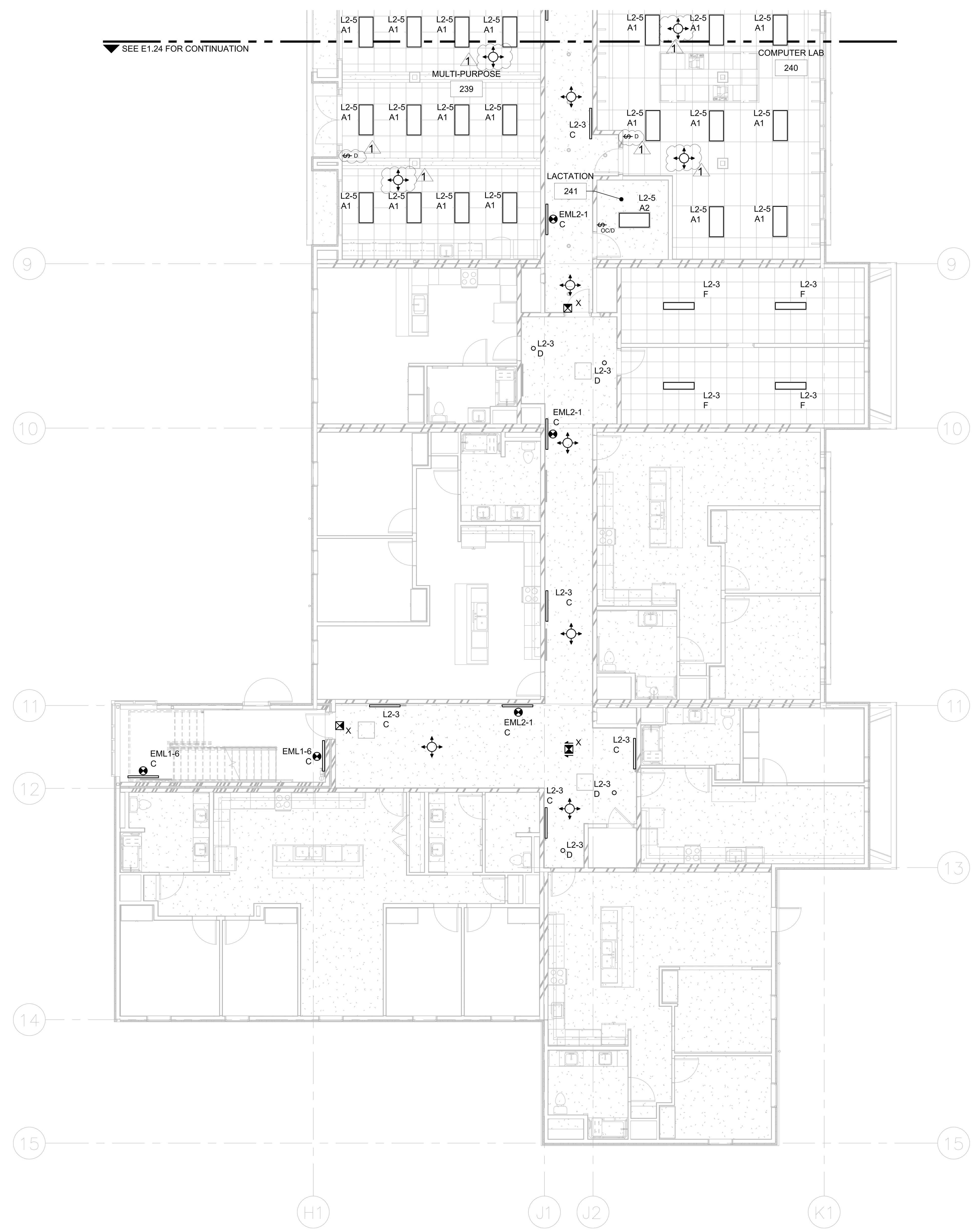

ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 02 - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. PROVIDE A COMPLETE AND OPERATIONAL LIGHTING CONTROL SYSTEM WHICH COMPLIES WITH THE REQUIREMENTS OF 2019 TITLE 24, INCLUDING BUT NOT LIMITED TO POWER PACKS, LOW VOLTAGE WIRING, ETC.
3. CONNECT EXIT SIGNS TO UNSWITCHED LEG OF NEAREST INVERTER LIGHTING POWER CIRCUIT.
4. POWER FOR EMERGENCY EGRESS LIGHTING WILL BE PROVIDED BY AN INVERTER ON EACH FLOOR. FIXTURES BACKED BY THE INVERTER ARE INDICATED WITH THE FOLLOWING SYMBOL: ⊗.
5. SEE DETAIL 01, 02, AND 05/EX.02 FOR LIGHT FIXTURE MOUNTING DETAILS.
6. SEE DETAILS 01 AND 02/EX.03 FOR LIGHTING CONTROL DIAGRAMS.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 02 - SOUTH

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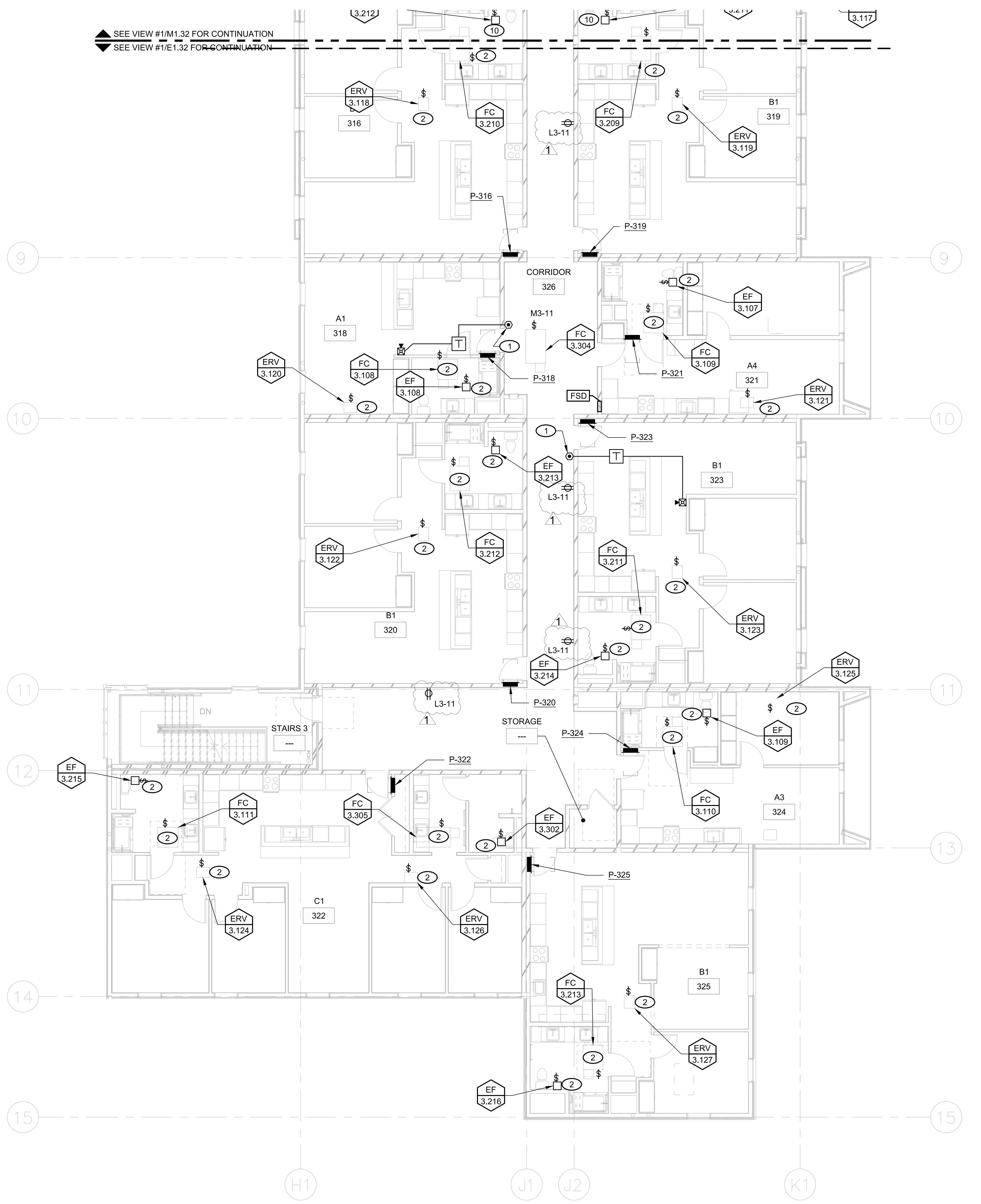

1 ELECTRICAL ENLARGED POWER PLAN - LEVEL 03 - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. POWER CIRCUITS CONSIST OF (2) #12 AWG AND (1) #12 AWG GND IN 3/4" CONDUIT TO INDICATED CIRCUITS UNLESS OTHERWISE NOTED.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. MAINTAIN CODE REQUIRED 36" CLEARANCE IN FRONT OF ELECTRICAL PANEL.

KEYNOTES

(1) PROVIDE ROOM ANNUNCIATION SYSTEM AS SHOWN. MOUNT TRANSFORMER ABOVE ACCESSIBLE CEILING AND POWER FROM 120V CIRCUIT IN UNIT ELECTRICAL PANEL. SEE DETAIL 03 ON SHEET EX.03 FOR MORE INFORMATION.

(2) FOR POWER SUPPLY CIRCUITS FOR DWELLING UNIT'S MECHANICAL, SEE PANEL SCHEDULES FOR TYPICAL DWELLING UNIT, SHEET 'E6.03'.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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ELECTRICAL ENLARGED POWER PLAN - LEVEL 03 - SOUTH

E1.32

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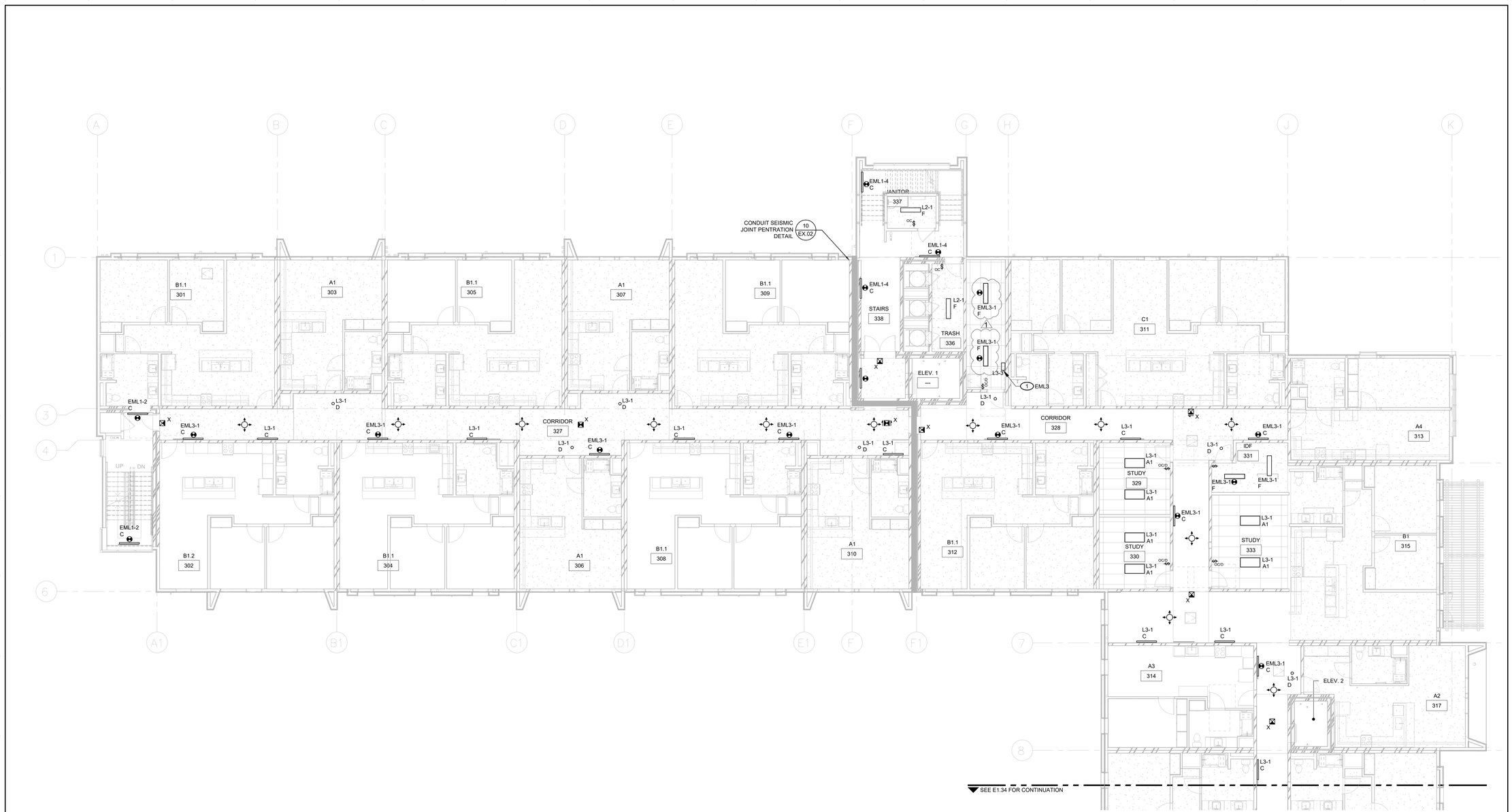

ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 03 - NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. PROVIDE A COMPLETE AND OPERATIONAL LIGHTING CONTROL SYSTEM WHICH COMPLIES WITH THE REQUIREMENTS OF 2019 TITLE 24, INCLUDING BUT NOT LIMITED TO POWER PACKS, LOW VOLTAGE WIRING, ETC.
3. CONNECT EXIT SIGNS TO UNSWITCHED LEG OF NEAREST INVERTER LIGHTING POWER CIRCUIT.
4. POWER FOR EMERGENCY EGRESS LIGHTING WILL BE PROVIDED BY AN INVERTER ON EACH FLOOR. FIXTURES BACKED BY THE INVERTER ARE INDICATED WITH THE FOLLOWING SYMBOL: 🕶.
5. SEE DETAIL 01, 02, AND 05/EX.02 FOR LIGHT FIXTURE MOUNTING DETAILS.
6. SEE DETAILS 01 AND 02/EX.03 FOR LIGHTING CONTROL DIAGRAMS.

KEYNOTES

(1) EMERGENCY LIGHTING INVERTER - MYERS, #120-E-1.5-S-BA2001.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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ELECTRICAL
STATE OF CALIFORNIA

ARCHITECT
LICENSED ARCHITECT
TODD HAMILTON JONES
C-31939
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ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 03 - NORTH

E1.33

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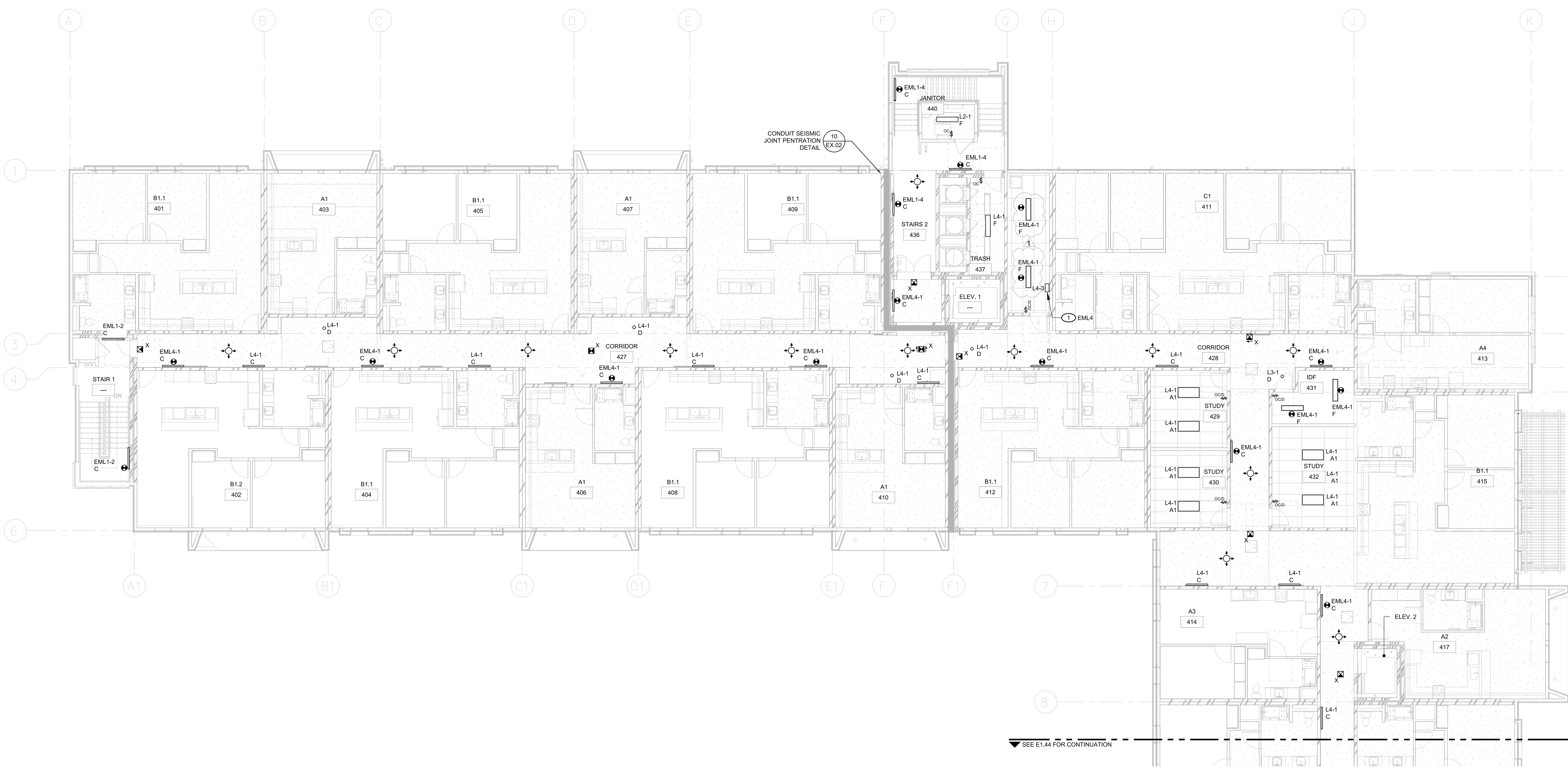

ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 04 - NORTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. THE TYPICAL UNIT TYPE (A1, A2, A3, ETC.) CAN BE FOUND ABOVE THE ROOM NUMBER (101, 102, ETC.). USE THIS TYPE DESIGNATION AND REFER TO SHEETS E4.01 THROUGH E4.03 TO FIND FIXTURES AND DEVICES INSIDE THE UNIT.
2. PROVIDE A COMPLETE AND OPERATIONAL LIGHTING CONTROL SYSTEM WHICH COMPLIES WITH THE REQUIREMENTS OF 2019 TITLE 24, INCLUDING BUT NOT LIMITED TO POWER PACKS, LOW VOLTAGE WIRING, ETC.
3. CONNECT EXIT SIGNS TO UNSWITCHED LEG OF NEAREST INVERTER LIGHTING POWER CIRCUIT.
4. POWER FOR EMERGENCY EGRESS LIGHTING WILL BE PROVIDED BY AN INVERTER ON EACH FLOOR. FIXTURES BACKED BY THE INVERTER ARE INDICATED WITH THE FOLLOWING SYMBOL: ⊗.
5. SEE DETAIL 01, 02, AND 05/EX.02 FOR LIGHT FIXTURE MOUNTING DETAILS.
6. SEE DETAILS 01 AND 02/EX.03 FOR LIGHTING CONTROL DIAGRAMS.

KEYNOTES

(1) EMERGENCY LIGHTING INVERTER - MYERS, #120-E-1.5-S-BA2001.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

S2103400AR E1.43-1.44 ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 04 - NORTH & SOUTH.DWG

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KCCD - BAKERSFIELD

PROJECT NUMBER
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1	ADDENDUM 07	04/15/24

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ELECTRICAL ENLARGED LIGHTING PLAN - LEVEL 04 - NORTH

E1.43

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FIXTURE SCHEDULE

TYPE	DESCRIPTION	MFG'R	MODEL	LAMP	WATTS	VOLTS	MOUNTING	TEMP. COLOR	NOTES
A1	2X4 FLAT PANEL RECESSED TROFFER	LITHONIA	EPANL-2X4-4000LM-80CRI-30K-MIN1-MVOLT-NLTAIR2	LED	38	120	RECESSED	3000K	
A2	2X4 FLAT PANEL SURFACE MOUNT	LITHONIA	EPANL-2X4-4000LM-80CRI-30K-MIN1-MVOLT-NLTAIR2	LED	38	120	SURFACE	3000K	WITH SURFACE MOUNT KIT (#: 2X4SMKSH)
B2	2X2 FLAT PANEL SURFACE MOUNT	LITHONIA	EPANL-2X2-4000LM-80CRI-30K-MIN1-MVOLT-NLTAIR2	LED	37	120	SURFACE	3000K	WITH SURFACE MOUNT KIT (#: 2X2SMKSH)
C	DIRECT/INDIRECT LINEAR WALL LED	MARK ARCHITECTURAL LIGHTING	S2LWID-4FT-80CRI-30K-400LMF-I600LMF	LED	31.6	120	WALL	3000K	LIGHT OUTPUT CAN BE SELECTED FOR DIRECT AND INDIRECT SEPARATELY. FIXTURE WATTAGE SHOWN IN THIS TABLE IS THE WATTAGE FOR DIRECT AND INDIRECT ADDED TOGETHER (TOTAL WATTS FOR THE ENTIRE FIXTURE).
D	6-INCH RECESSED DOWNLIGHT	LITHONIA	LDN6-35K-15-L06-AR-LSS-MVOLT-NPS80EZ	LED	18	120	RECESSED	3000K	FIXTURE IS DAMP LOCATION RATED
E	LED OVER-VANITY FIXTURE	SPI LIGHTING	SIW12169-3FT-L20W-120-277V-3000K-DF_MA01-REC	LED	20	120	WALL	3000K	3 FOOT LENGTH, MOUNTED HORIZONTALLY CENTERED OVER MIRROR
F	4-FOOT LINEAR LED STRIP LIGHT	LITHONIA	CSS-L48-ALO3-MVOLT-SWW3-80CRI-rPP20D	LED	43.9	120	SURFACE	3500K	
G1	DECORATIVE ROUND PENDANT 36"	SPI LIGHTING	AIP11847-L54W-120-277V-3000K-H05-FB01-MIA-MB01	LED	54	120	PENDANT	3000K	WEIGHT = 20 LBS. SELECT PAINT FINISH PER OWNER
P1	DECORATIVE PENDANT	ACON	12302-P DM 8 20W 40K ST24 WH SL 010	LED	20	120	PENDANT	4000K	
S1	OUTDOOR POLE MOUNTED PEDESTRIAN LED - INTEGRAL OCCUPANCY SENSOR	LITHONIA	DSX0-LED-P2-40K-VLS-MVOLT-SPA-DDBXD-SSS-4C-14FT-DM19AS-DDBXD	LED	68	120	POLE	4000K	MOUNTED TO 14FT POLE
S2	OUTDOOR POLE MOUNTED PARKING LED - INTEGRAL OCCUPANCY SENSOR	LITHONIA	DSX1-P1-40K-T5W-MVOLT-SPA-SSS-18FT-DM28AS	LED	54	120	POLE	4000K	LED TWIN AREA LUMINAIRE ON 25 T SQUARE STRAIGHT STEEL POLE. MTD 2FT BASE
S3	OUTDOOR POLE MOUNTED LED	LITHONIA	DSX1-LED-P4-40K-T3M-MVOLT-SPA-SSS-25FT-DM19AS	LED	102	120	POLE	4000K	LED SINGLE AREA LIMINAIRE ON 25FT SQUARE STRAIGHT STEEL POLE. MTD 2FT BASE.
S4	RECESSED LED DECORATIVE STEP/WALL LIGHT	BEGA	33055-K4	LED	11	120	RECESSED - WALL OR BENCH	3500K	
W1	OUTDOOR LED WALL MOUNT - INTEGRAL OCCUPANCY SENSOR	LITHONIA	WDGE2-LED-P2SW-40K-80CRI-VF-MVOLT-DDBTXD	LED	15	120	WALL	4000K	
UXX (SEE NOTES)	UNDERCABINET LIGHT FIXTURE	JUNO	UCES-XXIN-SWW4-90CRI-WH-M6 (SEE NOTES)	LED	VARIES (SEE NOTES)	120	SURFACE - COORD WITH CASEWORK	ADJUSTABLE (SET TO 3000K)	ITEM COMES IN 12" (6.7 WATTS), 18" (8.2 WATTS), 24" (10.6 WATTS) AND 36" (16.7 WATTS). LENGTH IS INDICATED IN "XX" PART OF TYPE DESIGNATION AND IN MODEL NUMBER.
X	EXIT SIGN WITH EMERGENCY BATTERY	LITHONIA	LQC-W-1-G-ELN (SINGLE FACE) LQC-W-2-G-ELN (DOUBLE FACE)	LED	1	120	SURFACE	3000K	SEE EXIT SIGN LOCATIONS ON LIGHTING PLANS FOR FACE COUNT AND DIRECTIONAL ARROW INFORMATION.

S2103400AR E6.04 LIGHTING FIXTURE SCHEDULE.DWG

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9-30-23

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LIGHTING FIXTURE SCHEDULE

E6.04

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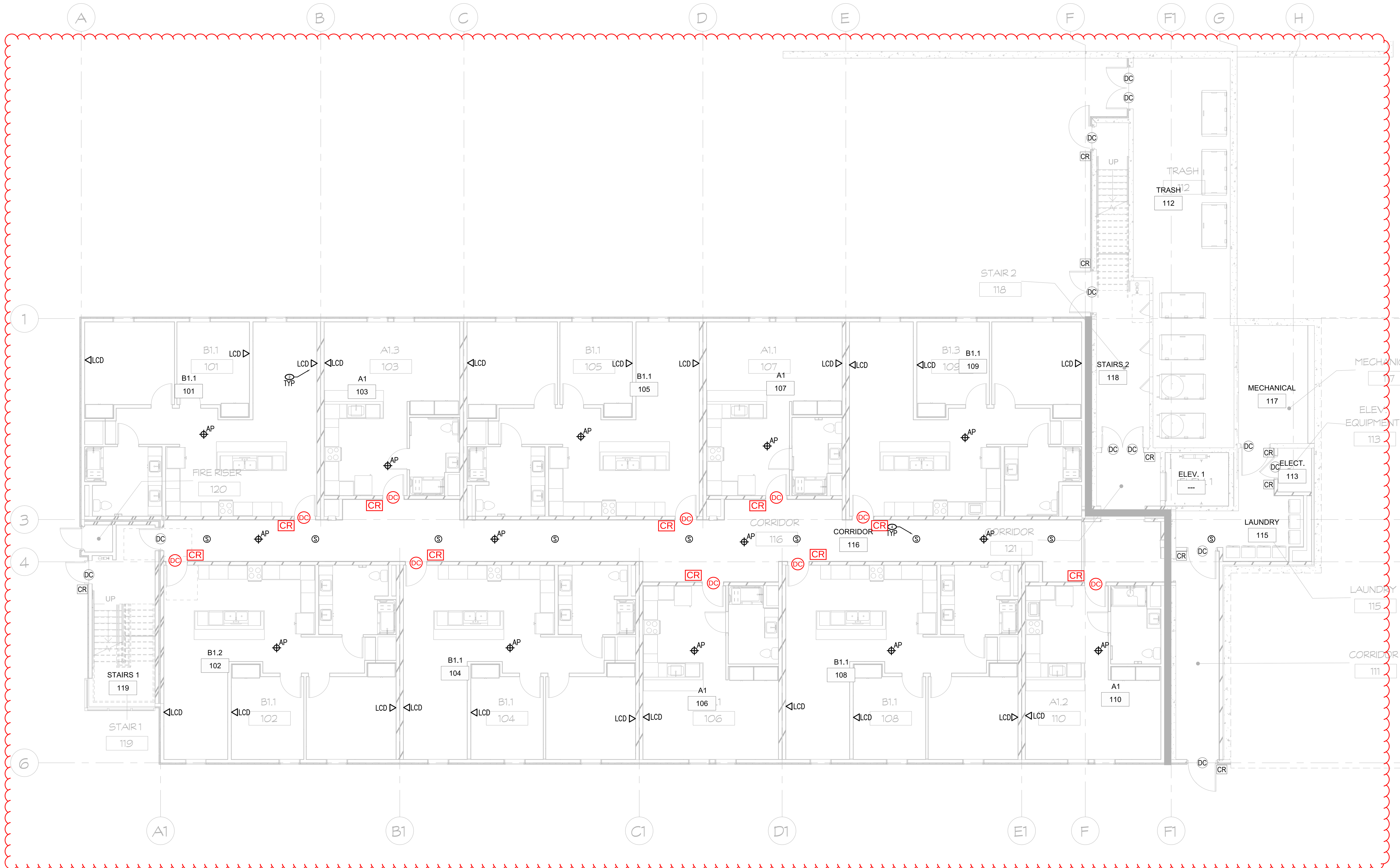

ADDENDA 7 CHANGES
CARD READERS AND DOOR CONTACTS WERE ADDED AS SHOWN AT ALL UNIT ENTRY DOORS, AND AT OFFICE DOORS.

1 TECHNOLOGY ENLARGED PLAN - LEVEL 01 - NORTH

SCALE: 1/8" = 1'-0"

REFER TO ADDENDA 7, SHEET E0.03 FOR ADDED EXTERIOR CAMERA LOCATIONS, AND ADDED CARD READERS AND DOOR CONTACTS AT EXTERIOR GATES.

GENERAL NOTES

1. REFER TO SHEET T0.01 FOR TECHNOLOGY GENERAL NOTES.
2. REFER TO SHEET T4.01 FOR TECHNOLOGY ENLARGE PLAN FOR DATA ROOM INFORMATION.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. ALL STRUCTURE CABLING IN THIS AREA WILL BE ROUTED TO THE IDF ROOM ON THIS FLOOR.

KEYNOTES

1. PROVIDE AND INSTALL (2) CAT6 CABLES TO THIS LOCATION. INSTALL AT +18" AFF FOR WORKSTATION AND THEN ROUTE TO NEAREST IDF SERVING THIS FLOOR. COORDINATE REQUIREMENTS AND LOCATION WITH CONTRACTOR.
2. AT 42" AFF, CONTRACTOR TO INSTALL 'LCD' DROP AT CASEWORK AS SHOWN. ALL BOXES ARE AT SAME ELEVATION NEXT TO EACH OTHER. PROVIDE ALL A/V CABLING CONNECTIONS REQUIRED FOR LCD INTERFACE. ROUTE DATA BACK TO IDF SERVING THIS AREA.
3. WIRELESS ACCESS POINT, CEILING MOUNT. PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLES, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO THE CABLE TRAY AND THEN TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS PROVIDE 10' SLACK CABLE COILS ABOVE CEILING AT OUTLET LOCATION FOR FUTURE RELOCATION.
4. CEILING MOUNTED PAGING SPEAKER. REFER TO SPECIFICATIONS FOR MODEL NUMBER AND ADDITIONAL DETAILS.
5. CEILING MOUNTED MOTION DETECTOR. REFER TO SPECIFICATIONS FOR MODEL NUMBER AND ADDITIONAL DETAILS.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

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2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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KCCD - BAKERSFIELD

PROJECT NUMBER
S2103400AR

DATE 03/22/2024

REVISIONS

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	ADDENDUM 07	04/15/24

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ALT. NO. 1 - TECHNOLOGY ENLARGED PLAN - LEVEL 01 - NORTH

T1.11A

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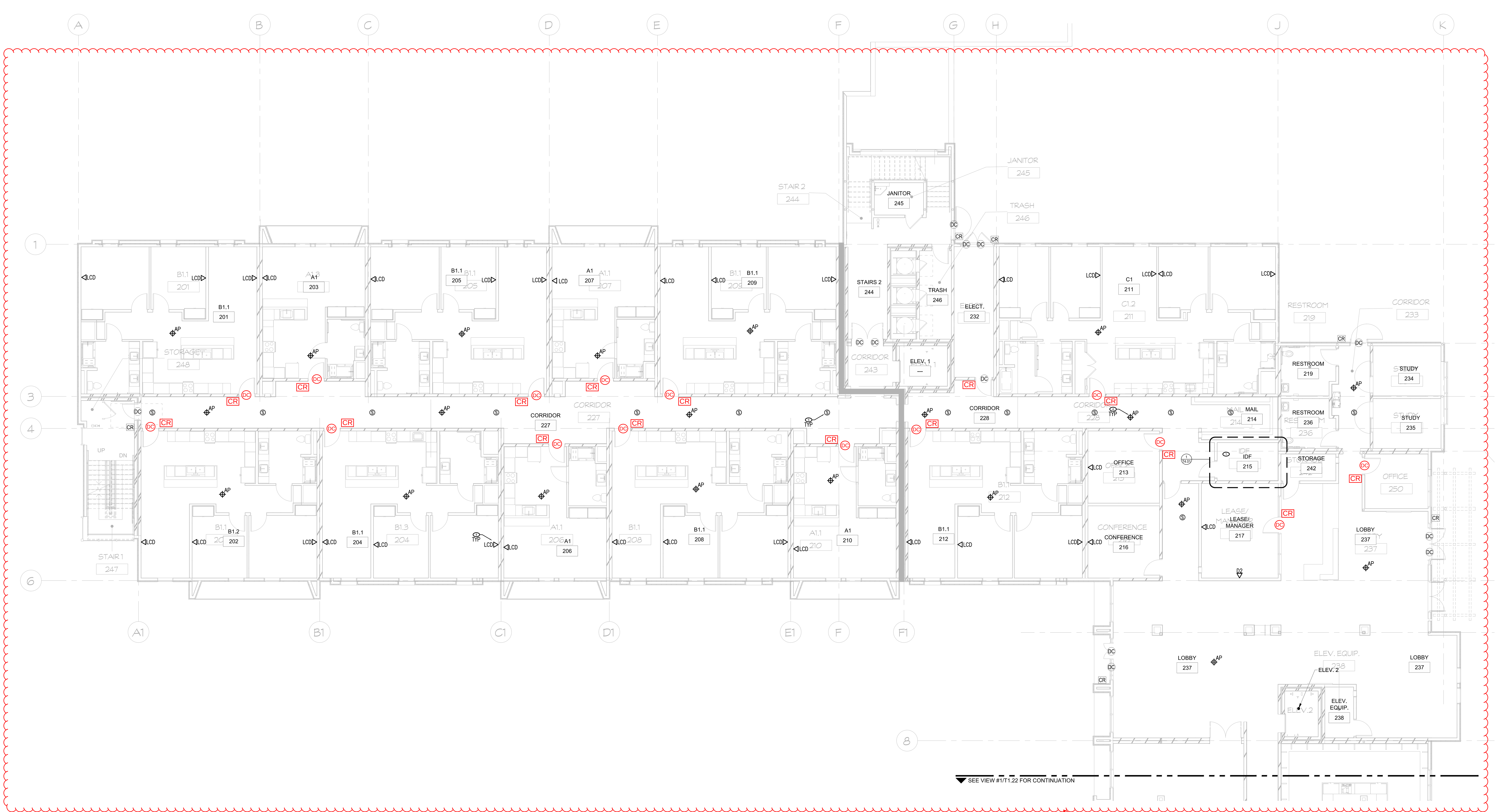

1 TECHNOLOGY ENLARGED PLAN - LEVEL 02 - NORTH

SCALE: 1/8" = 1'-0"

ADDENDA 7 CHANGES
CARD READERS AND DOOR CONTACTS
WERE ADDED AS SHOWN AT ALL UNIT
ENTRY DOORS, AND AT OFFICE DOORS.

GENERAL NOTES

1. REFER TO SHEET T0.01 FOR TECHNOLOGY GENERAL NOTES.
2. REFER TO SHEET T4.01 FOR TECHNOLOGY ENLARGE PLAN FOR DATA ROOM INFORMATION.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. ALL STRUCTURE CABLING IN THIS AREA WILL BE ROUTED TO THE IDF ROOM ON THIS FLOOR.

KEYNOTES

(1) INDICATES THE LOCATION OF THE IDF. CONTRACTOR SHALL PROVIDE AND INSTALL ALL RACKS/CABINETS AS SHOWN ON ENLARGED AND RISER PLANS. AND PROVIDE AND INSTALL ALL DEVICES REQUIRED TO TERMINATE ALL NEW DATA/VOICE CABLES THAT ARE SCHEDULED TO ROUTE TO THIS ROOM FOR TERMINATION.

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(6) CEILING MOUNTED MOTION DETECTOR. REFER TO SPECIFICATIONS FOR MODEL NUMBER AND ADDITIONAL DETAILS.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / 5/8" GYP.

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KCCD - BAKERSFIELD

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TECHNOLOGY ENLARGED PLAN - LEVEL 02 - NORTH

T1.21

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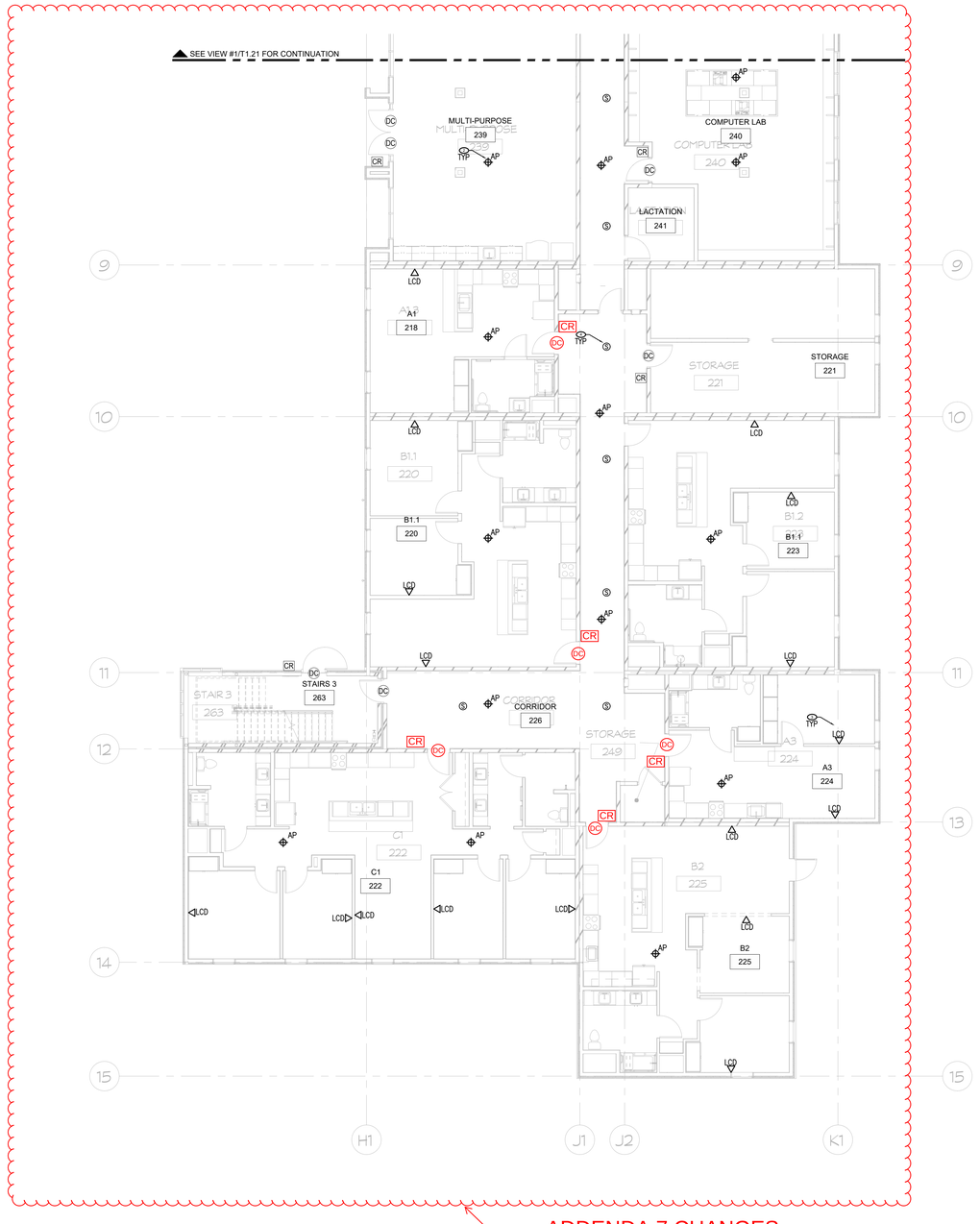

ADDENDA 7 CHANGES
CARD READERS AND DOOR CONTACTS WERE ADDED AS SHOWN AT ALL UNIT ENTRY DOORS, AND AT OFFICE DOORS.

1 TECHNOLOGY ENLARGED PLAN - LEVEL 02 - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. REFER TO SHEET T0.01 FOR TECHNOLOGY GENERAL NOTES.
2. REFER TO SHEET T4.01 FOR TECHNOLOGY ENLARGE PLAN FOR DATA ROOM INFORMATION.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. ALL STRUCTURE CABLING IN THIS AREA WILL BE ROUTED TO THE IDF ROOM ON THIS FLOOR.

KEYNOTES

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5/8" GYP./ 2x6 / 5/8" GYP.

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2-HR - NEW WOOD STUD WALL 5/8" GYP./ 2x6 / (2) SHAFTLINER

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STATE OF CALIFORNIA

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KCCD - BAKERSFIELD

PROJECT NUMBER
S2103400AR

DATE 03/22/2024

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TECHNOLOGY ENLARGED PLAN - LEVEL 02 - SOUTH

T1.22

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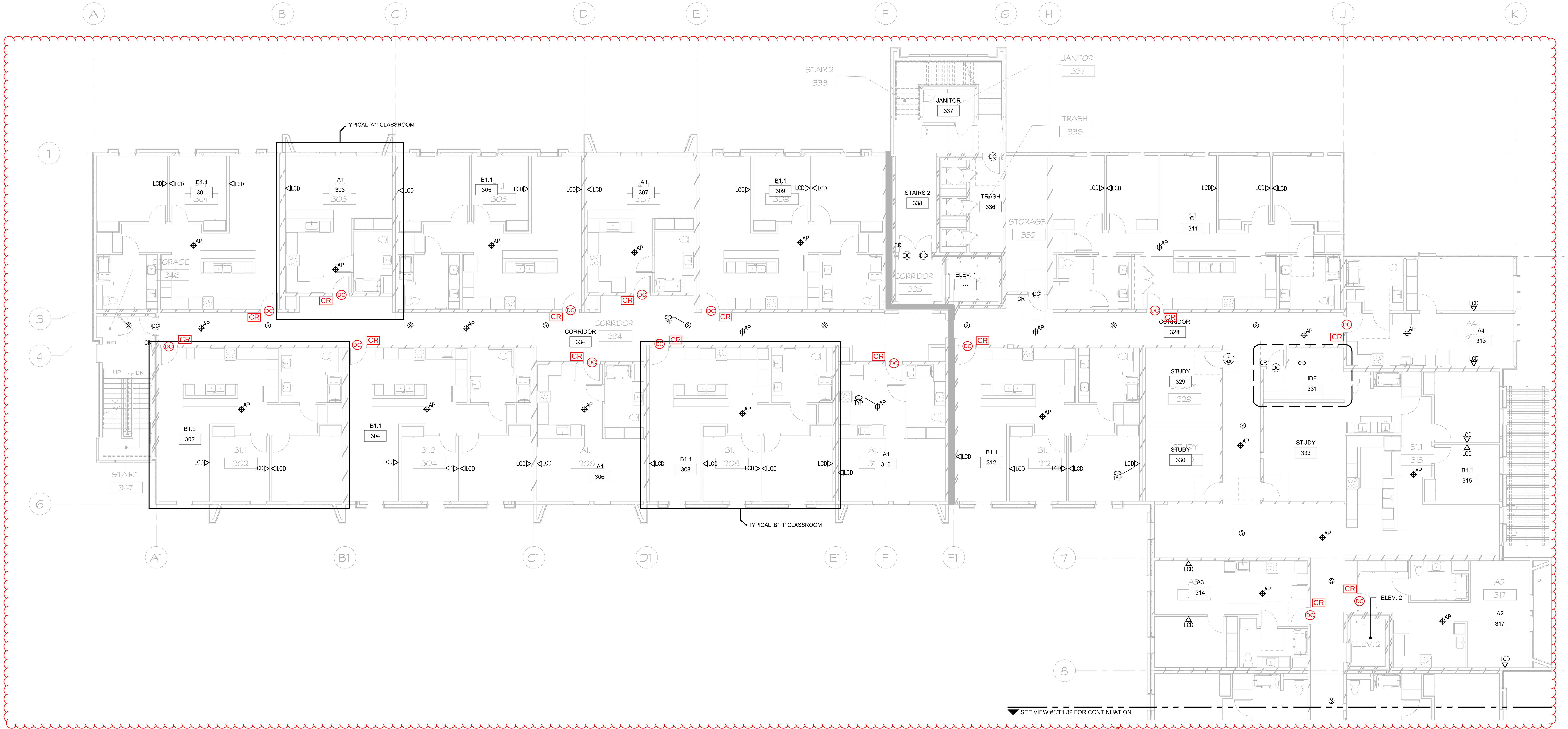

1 TECHNOLOGY ENLARGED PLAN - LEVEL 03 - NORTH

SCALE: 1/8" = 1'-0"

ADDENDA 7 CHANGES
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KCCD - BAKERSFIELD

PROJECT NUMBER S2103400AR
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REVISIONS

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TECHNOLOGY ENLARGED PLAN - LEVEL 03 - NORTH

T1.31

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CHECKED BY: K.K.

S2103400AR T1.31 TECHNOLOGY ENLARGED PLAN - LEVEL 03 - NORTH.DWG
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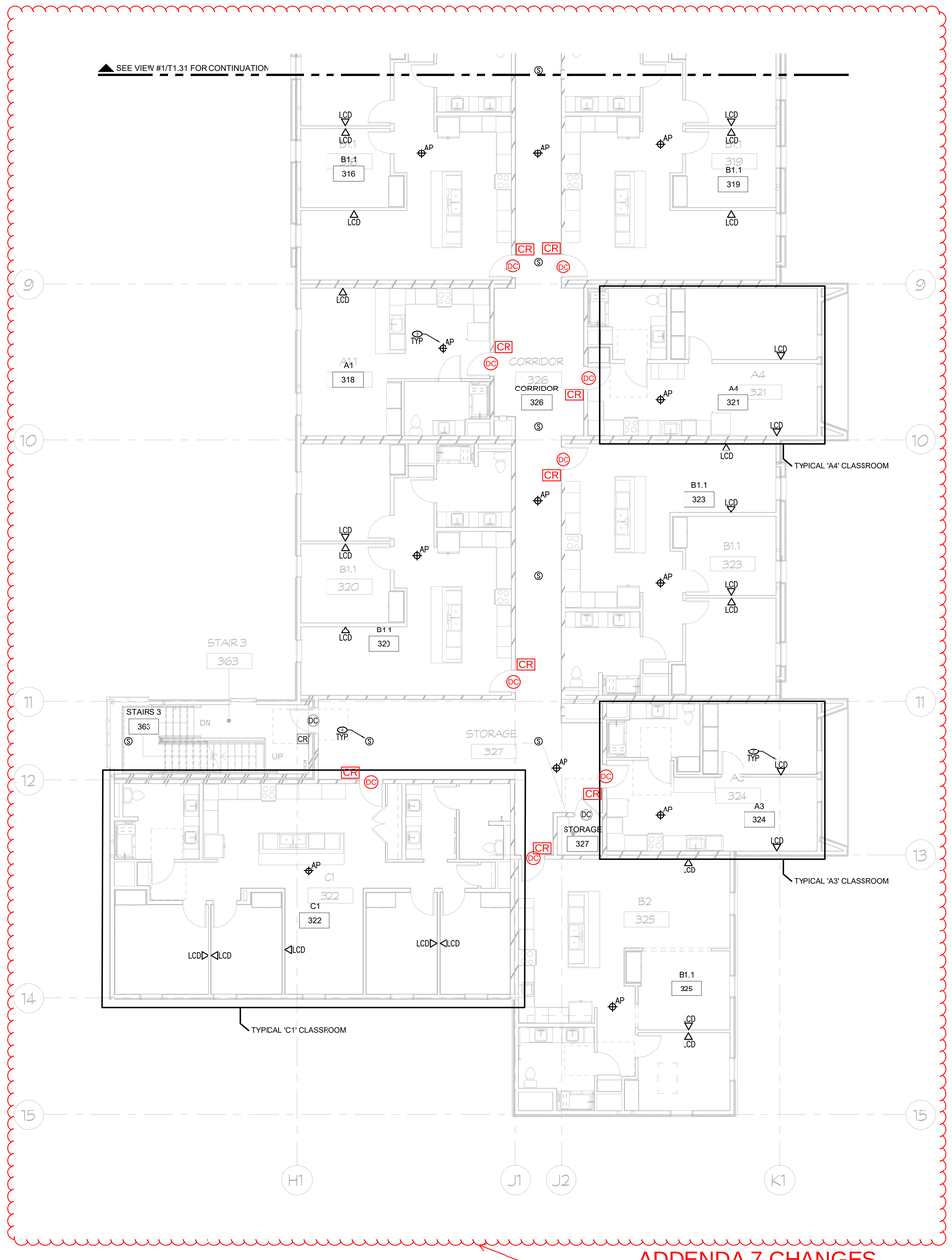

ADDENDA 7 CHANGES
CARD READERS AND DOOR CONTACTS WERE ADDED AS SHOWN AT ALL UNIT ENTRY DOORS, AND AT OFFICE DOORS.

1 TECHNOLOGY ENLARGED PLAN - LEVEL 03 - SOUTH

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. REFER TO SHEET T0.01 FOR TECHNOLOGY GENERAL NOTES.
2. REFER TO SHEET T4.01 FOR TECHNOLOGY ENLARGE PLAN FOR DATA ROOM INFORMATION.
3. COORDINATE ALL EQUIPMENT LOCATIONS WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS. VERIFY PRIOR TO INSTALLATION.
4. ALL STRUCTURE CABLING IN THIS AREA WILL BE ROUTED TO THE IDF ROOM ON THIS FLOOR.

KEYNOTES

1. PROVIDE AND INSTALL (2) CAT6 CABLES TO THIS LOCATION. INSTALL AT +18" AFF FOR WORKSTATION AND THEN ROUTE TO NEAREST IDF SERVING THIS FLOOR. COORDINATE REQUIREMENTS AND LOCATION WITH CONTRACTOR.
2. AT 42" AFF, CONTRACTOR TO INSTALL 'LCD' DROP AT CASEWORK AS SHOWN. ALL BOXES ARE AT SAME ELEVATION NEXT TO EACH OTHER. PROVIDE ALL A/V CABLING CONNECTIONS REQUIRED FOR LCD INTERFACE. ROUTE DATA BACK TO IDF SERVING THIS AREA.
3. WIRELESS ACCESS POINT, CEILING MOUNT. PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLES, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO THE CABLE TRAY AND THEN TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS PROVIDE 10' SLACK CABLE COILS ABOVE CEILING AT OUTLET LOCATION FOR FUTURE RELOCATION.
4. CEILING MOUNTED PAGING SPEAKER. REFER TO SPECIFICATIONS FOR MODEL NUMBER AND ADDITIONAL DETAILS.
5. CEILING MOUNTED MOTION DETECTOR. REFER TO SPECIFICATIONS FOR MODEL NUMBER AND ADDITIONAL DETAILS.

FIRE WALL LEGEND

1-HR - NEW WOOD STUD WALL 5/8" GYP. / 2x6 / 5/8" GYP.

1-HR - NEW WOOD STUD WALL 5/8" GYP. / (2) 2x6 STUD/ 5/8" GYP.

2-HR - NEW WOOD STUD WALL 5/8" GYP./ (2) 2x6 STUD/ (2) SHAFTLINER

2-HR - NEW WOOD STUD WALL 5/8" GYP. / 2x6 / (2) SHAFTLINER

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DSA APPL. NO. 03-122124 FILE: 15-C1

ENGINEER LOGO
MEP Engineering
LEAF ENGINEERS
895 W. Ashlan Ave. Suite 101 Clovis, CA 93612
p 559-223-9600 www.LEAFengineers.com
job #: S2103400AR

ENGINEER
REGISTERED PROFESSIONAL ENGINEER GARY A. MOORE ELECTRICAL STATE OF CALIFORNIA

ARCHITECT
LICENSED ARCHITECT CONRAD M. TOWLE JR. LIC 19838 9-30-23 RENEWAL DATE STATE OF CALIFORNIA

CLIENT
KCCD - BAKERSFIELD

PROJECT NUMBER
S2103400AR

DATE 03/22/2024

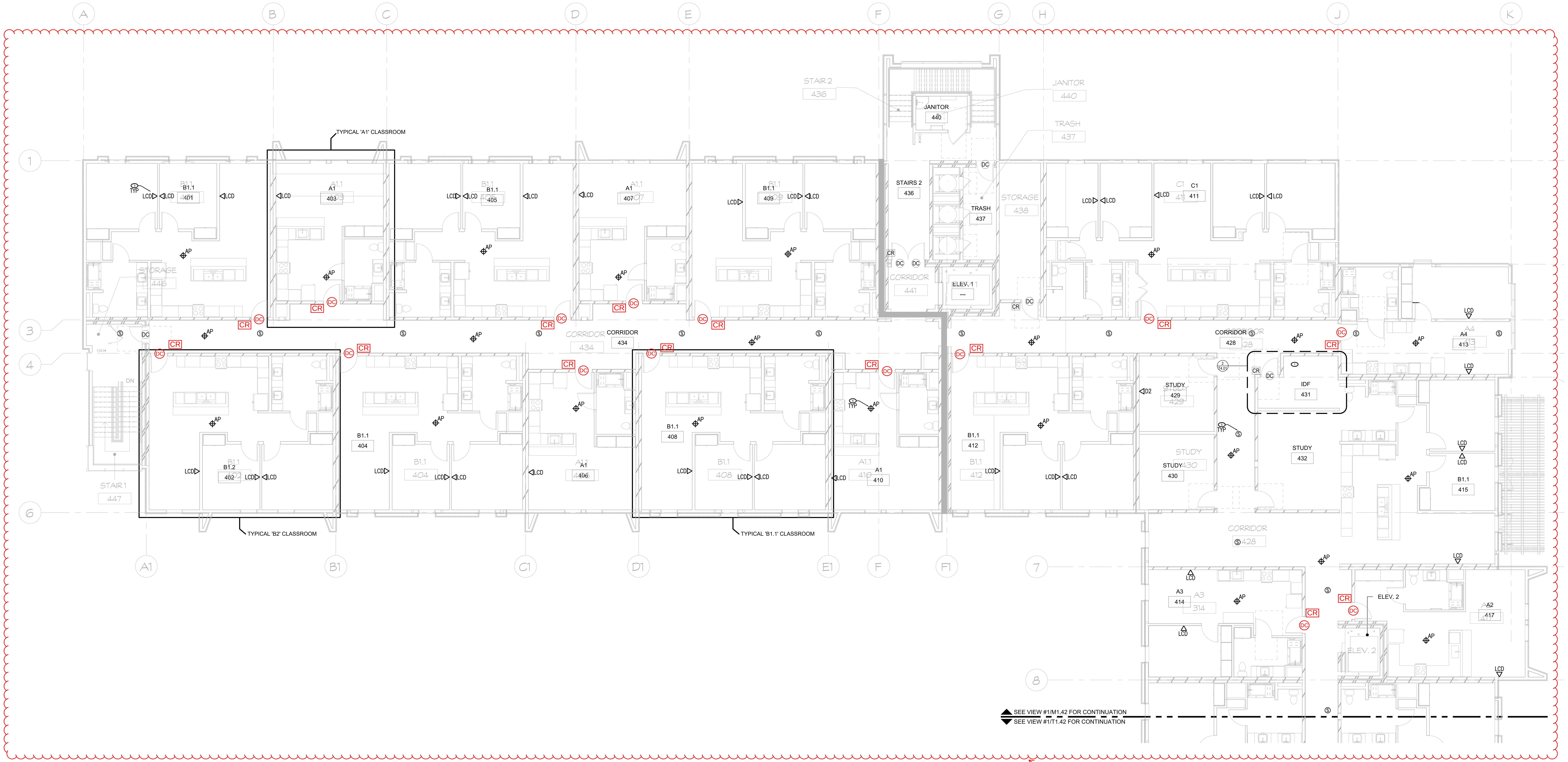
REVISIONS

#	DESCRIPTION	DATE
	ADDENDUM 07	04/15/24

BID

TECHNOLOGY ENLARGED PLAN - LEVEL 03 - SOUTH

T1.32



1 TECHNOLOGY ENLARGED PLAN - LEVEL 04 - NORTH

SCALE: 1/8" = 1'-0"

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KEYNOTES

(1) INDICATES THE LOCATION OF THE IDF. CONTRACTOR SHALL PROVIDE AND INSTALL ALL RACKS/CABINETS AS SHOWN ON ENLARGED AND RISER PLANS. AND PROVIDE AND INSTALL ALL DEVICES REQUIRED TO TERMINATE ALL NEW DATA/VOICE CABLES THAT ARE SCHEDULED TO ROUTE TO THIS ROOM FOR TERMINATION.

(2) PROVIDE AND INSTALL (2) CAT6 CABLES TO THIS LOCATION. INSTALL AT +18" AFF FOR WORKSTATION AND THEN ROUTE TO NEAREST IDF SERVING THIS FLOOR. COORDINATE REQUIREMENTS AND LOCATION WITH CONTRACTOR.

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(4) WIRELESS ACCESS POINT, CEILING MOUNT. PROVIDE DATA OUTLET FOR WIRELESS ACCESS POINT, (2) CAT6A CABLES, 2-PORT PLENUM RATED SURFACE MOUNT BOX ABOVE ACCESSIBLE CEILING AS INDICATED ON DRAWINGS. USE J-HOOKS TO THE CABLE TRAY AND THEN TO SUPPORT NEW CABLING ABOVE ACCESSIBLE CEILING SPACE, FOR INACCESSIBLE CEILINGS SPACES NEW CONDUITS SHALL BE PROVIDED ABOVE CEILING TO THE IDF CABINET SERVING THIS PROVIDE 10' SLACK CABLE COILS ABOVE CEILING AT OUTLET LOCATION FOR FUTURE RELOCATION.

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ENGINEER LOGO
MEP Engineering
LEAF ENGINEERS

ENGINEER

ARCHITECT
C 15885
9-30-23
RENEWAL DATE

CLIENT
KCCD - BAKERSFIELD

PROJECT NUMBER
S2103400AR

DATE 03/22/2024

REVISIONS

#	DESCRIPTION	DATE
	ADDENDUM 07	04/15/24

BID

TECHNOLOGY ENLARGED PLAN - LEVEL 04 - NORTH

T1.41

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DRAWN BY: CAL
CHECKED BY: K.K.

ADDENDA 7 CHANGES
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job #: S2103400AR

ENGINEER

REGISTERED PROFESSIONAL ENGINEER GARY L. ANDERSON ELECTRICAL STATE OF CALIFORNIA

ARCHITECT

LICENSED ARCHITECT CHRISTOPHER A. HAMILTON C 19838 9-30-23 RENEWAL DATE STATE OF CALIFORNIA

CLIENT
KCCD - BAKERSFIELD

PROJECT NUMBER
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TECHNOLOGY ENLARGED PLAN - LEVEL 04 - SOUTH

T1.42

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