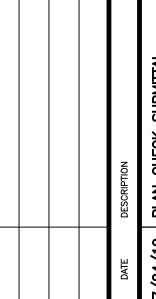
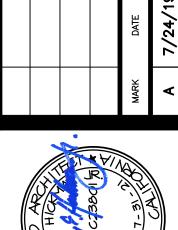
VICINITY MAP

PROJECT DIRECTORY

ABBREVIATIONS

GENERAL 6000 COVER SHEET SHEET SPECIFICATIONS SHEET SPECIFICATIONS GO12 SHEET SPECIFICATIONS | SHEET SPECIFICATIONS ARCHITECTURAL AIOO ARCHITECTURAL SITE PLAN A200 | FLOOR PLAN A600 REFLECTED CEILING PLAN A800 ARCHITECTURAL DETAILS A80I ARCHITECTURAL DETAILS ELECTRICAL PLAN







WALL ADDITION FOR CNG MAINTENANCE

PROJECT NO.

18-10898.00

DRAWING

G000

SHEET LIST

A. THE CONTRACTOR SHALL

- I. Provide all labor, materials, equipment transportation, storage, and service necessary to properly complete the Work.
- 2. Prior to beginning construction: a. Review the Drawings and Specifications, inspect the site and verify all dimensions and existing conditions.
- b. File a statement with the Owner identifying any conflicts with the Drawings and Specifications, any omissions or errors in the Drawings and Specifications and any discrepancies between the design and job site conditions. If the Contractor finds no such conflicts, errors, omissions, or discrepancies, provide a Contractor's statement confirming this. The Owner reserves the right to require the Contractor to remove Work completed prior to submitting above statement.
- 3. Provide certificates of insurance prior to commencement of any work to evidence Workmen's Compensation and employee liability coverage, and comprehensive general liability insurance.
- 4. The Contractor acknowledges that:
- a. Construction Documents are schematic, two dimensional representations of the proposed Work utilizing scaled drawings and details. Construction of the proposed Work in three dimensions at full size can be expected to reveal job site conditions and problems which could not be reasonably
- Contractor shall not scale drawings. Where dimensions are required and not indicated on the drawings, Contractor shall request same
- B. WARRANTY
 - The Contractor shall warrant the Work, including those portions performed under subcontract, for a period of one year from the date of final written acceptance by the Owner.
- 2. No other warranties are expressed or implied.

DIVISION 1 GENERAL REQUIREMENTS SECTION 010000 PROJECT REQUIREMENTS

l. Summary: Section includes Work covered by the Construction Documents. The Work of the Project is defined by the Contract Documents and consists of adding a framed wall beneath an existing mezzanine. This wall will contain new power and data connections for office functions. work consists of the following:

- I.I. Selective demolition to accommodate new power and data. 1.2. Construction of approximately 24'-9" lineal feet of framed wall between existing columns. the wall will be 8'-8" tall the entire
- 1.3. Extension of power and data from existing sources.
- 2. Type of Contract: Project will be constructed under a single prime contract.
- 3. Permits: Contractor shall obtain and pay for all building permits required to perform the work. Submit copies of receipts for reimbursement by Owner.
- 4. Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section. Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
- 5. Intent of Drawings and Specifications: Drawings and Specifications are intended to provide the basis for proper completion of the project of the project suitable for the intended use of the Owner. Items not expressly set forth but which are reasonably implied or necessary for the proper performance of the work shall be included. Details marked "Typical" shall apply in all cases unless specifically indicated otherwise.

SECTION 012300 ALTERNATES

- I. Summary: Section includes administrative and procedural requirements for alternates.
- 2. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or
- installation methods described in the Contract Documents. Alternates are part of the Work only if enumerated in the Agreement. 3. Coordination: Revise or adjust affected adjacent work as necessary to
- completely integrate work of the alternate into Project. 4. Alternates shall be as described on the Drawings and as included in the

SECTION 012500 SUBSTITUTION PROCEDURES

- l. Summary: Section includes administrative and procedural requirements
- 2. Submittals, Substitution Requests: Submit four (4) paper copies of each request for consideration, use form provided or approved by Architect. Identify product, fabrication, or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles. Show evidence of compliance with requirements for substitutions and indicate the following, as applicable:
- A. Statement indicating why specified product or fabrication or installation cannot be provided. B. Coordination information, including a list of changes or modifications
- needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution C. Detailed comparison of significant qualities of proposed substitution
- with those of the Work specified.
- D. Indicate deviations, if any, from the Work specified. E. Product Data, including drawings and descriptions of products and
- fabrication and installation procedures. F. Additional information as requested by Architect.
- 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later
- 4. Substitutions Prior to Bid: Architect will consider requests for substitution if received within 21 days prior to the submission of bids. Requests received after that time may be considered or rejected at discretion of Architect.
- 5. Substitutions After Award of Contract: The Contractor, after award of the Contract, as allowed by the General Conditions, may submit materials and methods to be considered for substitutions.
- 6. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms. Submit requests for substitution immediately upon discovery of need for change, but not later than 21 days prior to time required for preparation and review of related submittals.
- 7. Substitutions for Convenience: Changes proposed by Contractor that are not required in order to meet other Project requirements but may offer advantage to the Owner. Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

SECTION 012613 REQUEST FOR INFORMATION

- 1. Summary: Section includes administrative and procedural guidelines for preparátion, submittal and response to Contractor's Request for
- Information (RFI's) during construction of project. 2. Submittals: Submit RFI's as electronic submittals via email. Attachments shall be electronic files in Adobe Acrobat PDF format. Submittals shall be submitted to Architect from Contractor; RFIs submitted to Architect by other entities controlled by Contractor will not be acknowledged.
- 3. Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

RFI's shall be submitted on for provided or approved by Architect.

- 4. RFI Content: Include a detailed, legible description of item needing information or interpretation including specific reference to the Contract Documents. RFI's shall include Contractor's suggested resolution; if Contractor's resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
- 5. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow 10 working days for Architect's response for each RFI.
- 5.1. Architect will review and respond to legitimate RFI's at no additional cost to the Contractor. RFI's determined by the Architect to be flagrant or unnecessary will have the expense for the Architect's time paid by the Owner with the amount being deducted from the Contract Sum. The expense will be based on an hourly rate in accordance with the Architect's standard hourly rate schedule in effect at the time the work is performed with a minimum of one hour for each flagrant or unnecessary RFI.

SECTION 013300 SUBMITTAL PROCEDURES

- . Summary: Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- A. Submit Product Data, Shop Drawings, Samples, and other information as required by individual Division OI through 33 Sections. Include manufacturer's product data, environmental data, details, connections/transitions to adjacent work.
- B. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
- C. Submit submittals in electronic pdf format unless otherwise indicated by Architect. All items where color selection is required will be done with samples and NOT in pdf format.
- 3. Request selection of items involving selection of colors, textures, or patterns in sufficient time to avoid delaying the progress of the Work. 4. Review of submittals is for the benefit of the contractor and does not relieve the contractor of the responsibility to perform the Work in accordance with the contract documents.
- 5. Coordinate the preparation and processing of submittals with the construction schecule and the performance of the work.

SECTION 013113 COORDINATION

- . Summary: Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, general project coordination procedures, administrative and supervisory personnel, and coordination drawings.
- 2. Submittals: Coordination Drawings, submit as follows: A. Initial Submittal: Submit 3 printed copies of each coordination drawing for each condition where Coordination Drawings are required.
- B. Project Closeout: Submit 3 printed "Record" copies of each coordination drawing for each condition where Coordination Drawings are required. Submit "Record" electronic coordination drawing files.
- 3. Coordination Procedures: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
- A. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation. B. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and
- C. Make adequate provisions to accommodate items scheduled for later
- D. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings. E. Prepare similar memoranda for Owner and separate contractors if
- coordination of their Work is required. F. Verify actual conditions and dimensions of the Project with conditions and dimensions indicated on the Drawings. Promptly notify the Architect in writing of any discrepancies. Recheck dimensions and
- conditions prior to each installation. 6. Coordination Project dimensions and conditions with product manufacturers installation requirements. Promptly notify the Architect

in writing of any discrepancies.

- 4. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to preparation of Contractor's construction schedule, preparation of the schedule of values, installation and removal of temporary facilities and controls, delivery and processing of submittals, progress meetings, preinstallation conferences, startup and adjustment of systems, and project closeout
- activities. 5. Coordination Drawings: Coordination Drawings shall include the work of multiple trades on the same drawing. Prepare Coordination Drawings in addition to Shop Drawings required in individual Sections. Prepare coordination drawings electronically using same digital data software program, version, and operating system as the Architect's original Drawings (DWG files). Prepare Coordination Drawings for the following: A. Work above finished ceilings where limited space requires close tolerances between building elements and services such as ductwork,
- conduit, and piping. B. Equipment Rooms: Show work above and below grade including mechanical, plumbing, fire protection, fire alarm, and electrical
- equipment, and related supports, accessories, and utility connections. 6. Examination of Conditions: Require the Installer of each major component to examine both the substrate and conditions under which Mork is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

SECTION 014000 QUALITY ASSURANCE

- . Summary: Section includes administrative and procedural requirements for Quality Assurance and Quality Control. 2. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document
- requirements. 3. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- 4. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to
- produce required units. 5. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a
- record of successful in-service performance. 6. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum
- will be adjusted by Change Order. 7. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
- 8. Contractor shall provide a full time qualified construction superintendent on site during the course of the work.

SECTION 016500 PRODUCT REQUIREMENTS

- 1. Summary: Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling, and product installation.
- 2. Submittals: Comply with submittal requirements in Division 03 through 33 Sections as applicable to materials to be incorporated into the Work. 3. Products and Materials: Provide products that comply with the Contract
- Documents, are undamaged and, unless otherwise indicated, are new at time of installation. A. The use of or installation of any material, product, or equipment which is made from or contains asbestos for use or incorporation of the Work of this Project is prohibited. Any party installing or using such materials or
- equipment shall be soley responsible for injuries, damages, or liabilities of any kind casued by the use of such materials or equipment. B. Composite wood and agri-fiber products, and laminating adhesives, incorporated in the Work shall be free of urea-formal dehyde containing
- 4. Delivery and Handling: Deliver and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products
- are undamaged and properly protected. 5. Storage: Store products and materials in accordance with manufacturer's written instructions and recognized industry standards for temperature, humidity, ventilation, and weather-protection requirements. Store products to allow for inspection and measurement of quantity or counting of units. Store materials in a manner that will not endanger Project structure. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation. Protect foam plastic from exposure to sunlight, except to
- extent necessary for period of installation and concealment 6. Installation: Install products in accordance with Drawings, Specifications, and product manufacturer's written installation instructions. Installation shall include examination of conditions and preparations necessary for proper

SECTION 017305 CUTTING AND PATCHING

- 1. Summary: Cutting and patching of in-place construction. 2. Submittals: Comply with submittal requirements in Division 03 through 33 Sections as applicable to materials to be incorporated into the Work. 3. Cutting of Structural Elements: Do not cut structural elements with out approval from Architect unless otherwise indicated on Drawings. Review precautionary methods and cutting procedures of structural elements with Architect. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could
- change their load-carrying capacity or increase deflection. 4. Patching and Repair Materials: Comply with material requirements in Division 03 through 33 Sections as applicable to materials to be
- incorporated into the Work. 5. Cutting, Patching and Repairing: Employ skilled workers to perform cutting, patching, and/or repairing. Comply with installation and/or application requirements in Division 03 through 33 Sections as applicable to materials
- to be incorporated into the Work. 6. Restore exposed finishes of patched and repaired areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing; cut and patch exposed surfaces in a manner that results of no visual evidence of cutting and patching as viewed
- from a distance of five (5) feet. Maintain integrity of fire resistance rated construction and/or assemblies.

SECTION 024119 SELECTIVE DEMOLITION

. Summary: Section includes demolition and removal of selected portions of building or structure, demolition and removal of selected site elements, and/or salvage of existing items to be reused or returned to Owner. 2. Submittals:

A. Proposed Protection Measures: Submit report, including drawings, that

- indicates the measures proposed for protecting individuals and property, for physical damage, for dust control, and for noise control. Indicate proposed locations and construction of barriers. B. Schedule of Selective Demolition Activities: Detailed sequence of
- selective demolition and removal work, with starting and ending dates for each activity. Indicate interruptions of utility services. C. Predemolition Photographs: Show existing conditions of adjoining construction, including finished surfaces that might be misconstrued as
- photographs before Work begins. 3. Field Conditions: A. Conditions existing at time of inspection for bidding purpose will be

damage caused by demolition operations. Submit copies of digital

maintained by Owner as far as practical. B. Hazardous Materials: It is expected that hazardous materials will not be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

SECTION 024119 SELECTIVE DEMOLITION (CONTINUED)

- 4. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- 5. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- 6. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction,
- to prevent water leakage and damage to structure and interior areas.
- 7. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations. 8. Remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within

SECTION 055000 METAL FABRICATION

limitations of governing regulations.

- 1. Summary: Section includes steel framing and supports for applications where framing and supports are not specified in other Sections. 2. Submittals:
- A. Product data for each type of product indicated or incorporated into
- B. Shop Drawings: For metal fabrications; include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
- 3. Welder Qualifications: Qualify procedures and personnel according to AMS DI.I, "Structural Welding Code--Steel" and/or AWS°DI.3, "Structural Welding Code--Sheet Steel." 4. Steel Products:
- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M. B. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- C. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40); provide galvanized finish for exterior applications. D. Slotted Channel Framing: Cold-formed metal box channels (struts)
- complying with MFMA-4. 5. Fabrication: Provide steel framing and supports not specified in other Sections as needed to complete the Work. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill,
- and tap units to receive hardware, hangers, and similar items. 6. Finishing: A. Galvanizing: Where metal fabrications are indicated to be galvanized, hot-dip galvanize items to comply with ASTM A 123/A 123M, for galvanizing steel and iron products and ASTM A 153/A 153M, for
- alvanizina steel and iron hardware. B. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete or masonry, unless otherwise indicated. Comply with SSPC-PA°1, "Paint Application Specification No.°1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
- 7. Install products as indicated on Drawings.

SECTION 079200 JOINT SEALANTS

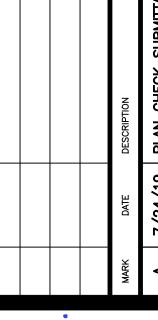
- . Summary: Section includes joint sealants and accessory materials. 2. Submittals: Product data for each type of product indicated or incorporated into the Work, include VOC content of sealants. 3. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant
- manufacturer, based on testing and field experience. 4. VOC Content of Sealants: VÓC content of sealants shall comply with requirements of authorities having jurisdiction. Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
- A. Architectural Sealants: 250 g/L.
- B. Sealant Primers for Nonporous Substrates: 250 g/L. C. Sealant Primers for Porous Substrates: 775 q/L. 5. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified,
- including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates. 6. Urethane Joint Sealant I: Single-Component, Nonsag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
- A. Products, One of the following: <u>BASF Building Systems</u>, Sonolastic NPI; <u>Pecora Corporation</u>, Dynatrol®I-XL; <u>Sika Corporation</u>, <u>Construction</u> <u>Products Division,</u> Sikaflex - Ia. B. Application: Exterior joints of hollow metal frames, exterior joints in
- concrete and masonry walls, and interior and exterior joints requiring
- 7. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF. A. Products, One of the following: <u>BASF Building Systems</u>, Sonolac; <u>Pecora Corporation</u>, AC-20+; <u>Tremco Incorporated</u>, Tremflex 834. B. Application: Interior non-moving joints between gypsum board and
- adjacent materials, trim, or similar surfaces. 8. Joint Sealant Backing: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- 9. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or Type B (bicellular material with a surface skin), as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- 10. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhésive tape where applicable. ll. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field
- 12. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates. 13. Masking Tape: Nonstaining, nonabsorbent material compatible with joint
- sealants and surfaces adjacent to joints. 14. Preparation: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions. Prime joint substrates where recommended by joint-sealant manufacturer. 15.Installation: Comply with joint-sealant manufacturer's written installation

sealants as applicable to materials, applications, and conditions indicated.

instructions and with recommendations in ASTM C 1193 for use of joint

SECTION 081113 HOLLOW METAL FRAMES

- Summary: Section includes hollow metal doors and frames.
- 2. Related Sections: Division 08 Sections as applicable to glazing. 3. Submittals:
- A.Product data for each type of product indicated or incorporated into the Work.
- B. Shop Drawings: Submit drawings for fabrication and installation of interior framés, including schedule of openings
- 4. Hollow Metal Frames: Comply with ANSI A250.8 and with details indicated for type and profile. Frames shall be sized to provide full throat width equal to depth of wall including finishes plus 1/2 inch backbend on each side per SDI-100. Fabricate frames with mitered or coped full profile welded corners.
- A.Interior Frames: Cold-rolled steel sheet, minimum thickness of 0.053 inch (16 gauge).
- 5. Tolerances: Fabricate hollow metal work to tolerances indicated in
- 6. Finish: Clean, pretreat, and apply manufacturer's standard primer. 7. Install frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions. Install hollow-metal frames to comply with SDI A250.11.





BUILDING WALL ADDITION FOR CNG MAINTENANCE

18-10898.00

PROJECT NO.



PROJECT NO.

DRAWING

G011

Construction Documents listed below. General Conditions of Contract

2. Specifications: 3. Electrical Construction Drawings

B. This Section includes all necessary and required work to complete the construction as indicated in the Drawings, called for by notes or schedules, or specified herein. This work includes the furnishing of all permits, labor, supervision, services, materials, tools, equipment, testing, transportation and miscellaneous expenses, and the performance of all operations necessary to or incidental to completion of lawful and operating electrical power, lighting and signal systems, whether or not specifically mentioned.

C. All work not shown in complete detail shall be installed per the CEC and in conformance with the best standard practice for the trade. Any deviation from the approved Drawings shall be submitted in writing to the Engineer and Owner for approval prior to the installation of the work in

D. This work shall include, but not necessarily be limited to, the following elements:

. Demolition and Phasing:

a. De-energize, disconnect and remove electrical feeds to devices and equipment being removed or relocated.

Disconnect and remove existing electrical facilities in areas of remodel and demolition that are not to be reused. Protect existing electrical distribution equipment, conduit and

wiring that is not shown to be removed. Make temporary feeds and connections to areas and equipment to allow phased construction and continuing operation.

2. Electrical Distribution: a. The existing electrical distribution system including switchboards, transformers, panelboards, and feeders shall remain and shall be re-used to supply new and existing branch circuits at the buildings.

b. Circuit breakers in existing panelboards shall be reconfigured and replaced as specifically indicated on the drawings. New circuit breakers that are provided in existing panelboards shall match the make, model and AIC rating of that panelboard. 3. Grounding

a. Provide copper wire type equipment grounding conductors run in the same raceway or cable assemble as the circuit conductors for each branch circuit. Maintain existing building grounding electrode system connections

and bonding connections. Signal Distribution: Conduits and conductors for signal systems.

Conduits for control systems as required by Division 21-25 Specification Sections 5. Building Electrical and Mechanical Systems:

Complete system of branch circuit wiring, conduit and distribution equipment for lighting, receptacles and power.

Electrical work associated with mechanical equipment, including conduit, conductor and disconnect switches. Connection to all equipment as furnished by other Sections of

these Specifications or as listed on Drawings as furnished by Owner. Remove, extend and re-install electrical devices in/on walls receiving new wall coverings.

e. Provide new branch circuits to replace those demolished. Branch circuit are to be concealed within walls where wall surfaces are being replaced. 6. Telecommunication Cabling and Pathway System

a. Provide rough-in for telecommunication outlets including outlet boxes, trim-rings, conduit concealed within walls from the outlet to an accessible space located above the ceiling.

Telecommunication horizontal cabling and cable terminations shall be per City standard IT cabling specifications. Obtain telécommunication horizontal cábling and cable terminations specifications from City IT department and provide a separate line item

bid for telecommunication horizontal cabling. E. Work specifically excluded from this Division.

Furnishing of motors.

F. It shall be understood that the existing conduit with its wiring is presently active (hot), in operation with its pertinent equipment. 6. It shall be noted that this construction work will be planned and

executed during ongoing operation of the Sequoia Sandwich Company. Any modifications to the existing equipment currently in operation shall be done during scheduled shutdowns and coordinated with the Owner's authorized representative and facility operating personnel to assure minimum downtime.

H. In order to avoid disruption to facility operations, certain items of work must be completed before other Items of work can be started. Contractor shall coordinate with the Owner's authorized representative as to the sequence of construction activities.

I.Size, furnish, install and connect new conduit, conduit fittings, and seal fittings, expansion fittings and supports. This includes above grade as well as underground. J. Size, furnish, and install junction, pull and terminal boxes, in accordance

to code requirements and as shown on the construction drawings. K. Size, furnish and install all supports required for conduit installation, supports required for the installation of the equipment furnished by this Contractor and equipment furnished by others but installed by this

L. Size and field cut the openings for conduits passing through building walls and/or floors. Close and seal all openings after conduits have been installed and/or removed. Closing shall be compatible with, or of the same material as wall and/or floor.

M. Furnish and install wire tags in accordance with the specifications indicating wire number as shown on electrical schematics, one line, three line diagrams and specifications.

N. Furnish, install and connect all power, control and instrumentation cable, including all necessary cable lugs, connectors and terminations. O. Perform all testing per the Specifications and report to Owner's field representative in a timely manner so as not to impede the scheduled

completion of the Contract. P. Furnish all material, labor and testing equipment necessary to check out and test the complete power distribution, control systems for all process and utility equipment in strict accordance with specifications. This shall include check out/start up of systems and/or equipment as directed by

Q. Prime paint all uncoated carbon steel items furnished by Contractor. R. Energize low voltage services after testing equipment and wiring in accordance with manufacturer instructions and specifications.

260100 GENERAL CONDITIONS PART 1 - GENERAL

GENERAL CONDITIONS

A. The general provisions of the Contract, including General Conditions and Specification Division OI, General Requirements, shall form a part of this Section, with the same force and effect as though repeated here. The provisions of this Section shall apply to all of the following Sections of Divisions 26 of these Specifications and shall be considered a part of these Sections.

I.2 QUALITY ASSURANCE

A. All work and materials shall fully comply with current rules and regulations of all applicable codes. Nothing in these Drawings or Specifications shall be interpreted as to permit any work not in compliance with these codes. Where work is detailed and/or specified to a more restrictive standard or higher requirement, that standard or requirement shall govern such work. Applicable codes include, but are not limited to, the following:

I. California Code of Regulations (CCR) Title 8, Industrial Relations

Title 17. Public Health Title 24, Building Standards

2. 2016 California Building Code. 3. 2016 California Fire Code. 4. 2016 California Electrical Code.

5. Local Codes. B. All electrical components, devices and accessories shall be listed with Underwriters Laboratories, Inc. (or other testing agency acceptable to authorities having jurisdiction), shall meet their requirements, shall bear their label wherever standards have been established and label service is requiarly furnished by that agency, and shall be marked for intended

I.3 PERMITS, FEES AND TAXES

A. The Contractor shall secure all necessary permits and pay all required fees and taxes. He shall notify the proper authorities and have the work inspected and tested as required by jurisdictional requirements, pay all charges in connection therewith, and shall present to the Owner properly signed certificates of inspection. Acceptance of the work will not be considered until such certificates have been delivered.

I.4 EXISTING CONDITIONS A. The Contractor shall carefully examine the site and existing building, compare them with Drawings and Specifications, and shall have satisfied himself as to the conditions to be encountered during the performance of the work. No subsequent allowance shall be made on his behalf for any additional expense he may incur due to failure or neglect of Contractor to examine site and to include existing conditions in bid.

B. Any work done as an addition, expansion, or remodel of an existing system shall be compatible with and match that system. C. The Contractor shall examine all record drawings made available by the Owner to locate existing utilities, conduits, and pipes prior to beginning work on the electrical systems. Any damage done to the existing systems during the course of the electrical work, whose locations

could be reasonably determined, shall be repaired to the satisfaction of the Owner and the utility or agency involved, at the expense of the

1.5 CONDUCT OF THE WORK A. The Contractor shall maintain on the job a competent foreman or a superintendent at all times to superintend the Work. I.6 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

A. The Engineer's decision will be final on interpretation of the Drawings and Specifications. Whenever the words @AS MAY BE DIRECTEDA, @SUITABLE4, or @APPROVED EQUAL4, or other words of similar intent and meaning are used, implying that judgment is to be exercised, it is understood that it is in reference to the judgement of the Engineer.

A. Shop Drawings and Product Data

I. Shop Drawings and Product Data shall comply with the following requirements: The Contractor shall submit for review, complete sets of Shop Drawings and Product Data brochures for materials and equipment as

required by each section of the Specifications. All Shop Drawings and Product Data shall be submitted at one time in a neat and orderly fashion in a suitable binder with a Title Sheet including Project, Engineer and Contractor, Table of Contents, and indexed tabs dividing each group of materials or item of equipment. The Specification paragraph number for which they are proposed shall identify all items. The mark number as indicated on Drawings shall also identify all equipment and fixtures.

Shop Drawings and Product Data submittal shall include manufacturer's name and catalog numbers, dimensions, loads, and all other characteristics and accessories as listed in the Specifications or on the Drawings. All loads, characteristics, and accessories called for in the Specifications or on the Drawings shall be highlighted, circled or underlined on the Shop Drawings and Product Data. Descriptive literature shall be current factory brochures and submittal sheets.

FAX submittals are not acceptable Material or equipment shall not be ordered or installed until the Engineer processes the written review. Any item omitted from the submittal shall be provided as specified without substitution.

Prior to submission of the Shop Drawings and Project Data, Contractor shall review and certify that they meet the requirements of the Contract Documents. A minimum period of two weeks, exclusive of transmittal time, will

be required each time Shop Drawings and/or Product Data are submitted or resubmitted for review. The Contractor shall consider this time when scheduling a submittal date. B. Submittal Review

. Submittals will be reviewed for general conformance with the design concept, but this review does not guarantee quantity shown, nor does it supersede the responsibility of the Contractor to provide all materials, equipment and installation in accordance with the Drawings and Specifications.

2. The Contractor shall agree that Shop Drawings and Product Data submittals processed by the Engineer are not Change Orders and that the purpose of Shop Drawings and Product Data submittals by the Contractor is to demonstrate to the Engineer that the Contractor understands the design concept. The Contractor demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods he intends to use. 3. It shall be clearly understood that the noting of some errors, but the overlooking of others, does not grant the Contractor permission to proceed in error or in conflict with Contract Document's. The Contractor shall agree that if deviations, discrepancies or conflicts between Shop Drawings and Design Drawings and Specifications are discovered either prior to or after Shop Drawing submittals are processed by the Engineer, the Design Drawings and Specifications shall control and shall be

4. If a resubmittal is required, submit a complete copy of the Engineer's review letter requiring such with the resubmittal.

I. Substitutions shall comply with the following requirements:

a. Manufacturers, model numbers and other pertinent information listed in the Specifications or on the Drawings are intended to establish minimum standards of performance, function and quality. Unless otherwise noted, the Contractor may submit equivalent compatible UL-listed equipment from other manufacturers for review, as long as the minimum standards are met.

b. Calculations and other detailed data indicating how the item was selected shall be included for items that are not specified. Data must be complete enough to permit detailed comparison of every significant feature, function, performance, and quality characteristic that is specified, scheduled or detailed. The comparison must prove that the substituted item equals or exceeds the requirements of the specified

The Contractor shall assume full responsibility that substituted items or procedures will meet the Specification and job requirements and shall be responsible for the cost of redesign and modifications to the work caused by these items.

d. At the Engineer's request, the Contractor shall furnish locations where equipment similar to the substituted equipment is installed and operating along with the user's phone numbers and contact person. Satisfactory operation and service history will be considered in the acceptance or rejection of the proposed substitution.

D. Record Drawings l. Record Drawings shall comply with the following requirements:

At the beginning of the Project, one print of each applicable Drawing will be issued to the Contractor specifically for use in preparing Record Drawings. As the work progresses, the Contractor shall maintain a record of all deviations in the work from that indicated on the Drawings. Final locations of all underground work shall be recorded by depth from finished arade and by offset distance from permanent surface structures, e.g. building, curbs, walks. The original Drawings will be made available to the Contractor, from which he shall have made, a set of reproducible Drawings. The Contractor shall then transfer the changes, notations, etc. from the marked-up prints to the reproducible Drawings. The Record Drawings (marked-up prints and reproducibles) shall be submitted to the Engineer for review, after first securing the Inspector's verification by signature. Operations and Maintenance Instructions

Operations and Maintenance Instructions shall comply with the following requirements:

Three copies of Operation and Maintenance Instructions and Wiring Diagram's for all equipment shall be submitted to the Engineer. All instructions shall be clearly identified by marking them with the same designation as the equipment item to which they apply (e.g. UPS-I). All Wiring Diagrams shall agree with reviewed Shop Drawings and indicate the exact field installation.

o. All instructions shall be submitted at the same time and shall be bound in a suitable binder with tabs dividing each type of equipment (e.g. MCC, UPS, etc.). Each binder shall be labeled indicating @Operating and Maintenance Instructions, Project Title, Contractor, Date and shall have a Table of Contents listing all items included.

The Contractor shall verbally instruct the Owner's maintenance

staff in the operation and maintenance of all equipment and systems. The Engineer's office shall be notified 48 hours prior to this meeting. The Contractor shall prepare a letter indicating that all Operation and Maintenance Instructions (printed and verbal) have been given to the Owner, to the Owner's satisfaction. This letter shall be acknowledged (signed) by the Owner and submitted to the Engineer. 1.8 COORDINÁTION

A. Electrical Drawings are essentially diagrammatic, unless specifically dimensioned. Some work may be shown offset for clarity. The actual locations of all materials, conduits, fixtures, supports, etc. shall be carefully planned prior to installation of any work in order to avoid all interferences with each other, or with architectural, civil, mechanical, plumbing, structural or other elements.

B. While the size and location of equipment are shown to scale wherever possible, all dimensions and conduit/conductor data shall be verified in the

C. Where the work requires connections to be made to equipment furnished and set in place by others, the Contractor shall obtain exact rough-in dimensions from the manufacturer of such equipment and he shall install the connections in a neat and workmanlike manner.

D. If discrepancies are discovered between Drawings and Specifications requirements, the more stringent requirement shall apply. E. All conflicts shall be called to the attention of the Architect and the Engineer prior to the installation of any work or the ordering of any

F. No work shall be prefabricated or installed prior to this coordination. No additional compensation will be considered to the Contractor for any prefabrication or installation performed prior to this coordination.

A. All work shall be scheduled subject to the review of the Architect, Engineer and the Owner. No work shall interfere with the operation of the existing facilities on or adjacent to the site. The Contractor shall have at all times, as conditions permit, a sufficient force of workmen and quantity of materials to install the work for which contracted, as rapidly as possible consistent with good work, and shall cause no delay to other Contractors engaged upon this project or to the Owner. I.IO WARRANTY

A. Guarantee shall be in accordance with the General Conditions. These Specifications may extend the period of the guarantee for certain items. Where such extension are called for, or where items are normally provided with quarantee periods in excess of that called for in the General Conditions, the Certificate of Guarantee shall be furnished to the Owner through the Engineer.

B. Contractor shall deliver to the Owner a written guarantee on all workmanship, materials and equipment for a period of one (1) year from the date of acceptance by the Owner. Any work found to be faulty during that period of time shall be corrected at once, upon written notification, at the expense of the Contractor. This shall include repair or replacement of the premises that may be damaged as a result of faulty work and materials furnished.

PART 2 - PRODUCTS

2.I MATERIALS AND EQUIPMENT

A. Materials and equipment shall be new unless otherwise noted. B. Materials and equipment of a given type shall be by the same

C. Materials and equipment shall be covered or otherwise protected during construction as required to maintain the material and equipment in new factory condition until project acceptance. Upon completion of work and prior to final inspection, Contractor shall thoroughly clean all exposed fixtures, trim and equipment, and shall leave the entire installation in neat, clean, and useable condition. Materials and equipment shall be free of dents, scratches, marks, shipping tags, and all defacing features at time

of project acceptance. D. The Contractor shall order materials and equipment in a timely manner to prevent any delay in the construction schedule, and he shall bear any penalty by vendors to meet schedules.

E. Verify all dimensional information to ensure proper clearance for installation of equipment. Check all materials and equipment after arrival on the jobsite and verify compliance with the Contract Documents.

PART 3 - EXECUTION

3.I DEMOLITION

A. The Contractor shall protect existing electrical equipment and installations that are not indicated to be removed. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Exposed electrical equipment and installations, indicated to be

demolished, shall be removed in their entirety. C. Buried raceway and wiring, indicated to be abandoned in place, shall be cut 2 inches below the surface of adjacent construction and removed in its entirety. Raceways abandoned in place shall be capped and disturbed surfaces shall be patched to match existing finish.

D. Demolished material shall be removed from Project site. E. Components indicated for relocation shall be removed, stored, cleaned, reinstalled, reconnected, and made operational.

3.2 CUTTING AND PATCHING A. The Contractor shall perform all cutting and drilling, or other work, required to provide opėnings in walls, ceilings, floors, footings, foundations or other structures necessary to accomplish work under this Specification Division. The cutting shall be performed by skilled mechanics of the trades involved.

B. Cutting or coring shall not impair the strength of the structure. Any damage resulting from this work shall be repaired at the Contractor's expense to the satisfaction of the Architect

C. Wherever possible, work shall be done in a concealed and neat workmanlike manner requiring the least amount of cutting of studs, plates and woodwork. Such cutting or notching is allowed only after consultation with and by permission of the Engineer.

D. The Contractor shall repair and refinish disturbed finish materials and other surfaces to accurately match adjacent undisturbed new or existing structures and surfaces and shall install new fireproofing where existing fire-stopping has been disturbed. The repair and refinishing of materials and other surfaces shall be by skilled mechanics of the trades involved. E. All cuts are to be clean with no chipping. Where chipping occurs as a

result of work in a cut area, a new clean cut shall be made immediately prior to patching.

3.3 SEISMIC ANCHORAGE AND BRACING A. Equipment Anchorage

I. All electrical equipment and components shall be anchored and installed per the details on the approved construction documents. Where no detail is indicated, the following components shall be anchored or braced to meet the force and displacements requirements prescribed in the 2016 CBC, Sections 1616A.1.18 through 1616A.1.26. and ASCE 7-10 Chapter 13, 26, and 30:

All permanent equipment and components Temporary or movable equipment that is permanently attached (e.q. hard wired) to building utility electrical service.

Movable equipment which is stationed in one place for more than 8 hours and heavier than 400 pounds are required to be anchored with temporary attachments.

2. The attachment of the following electrical components shall be positively attached to the structure, but need not be detailed on the plans. These components shall have flexible connections provided between the components and associated conduit.

a. Components weighting less than 400 pounds and have a center of mass located 4 feet or less above the adjacent floor or roof level that directly support the components. b. Components weighting less than 20 pounds, or in the case of

distributed systems, less than 5 pounds per foot, which are suspended

from a roof or floor or hung from a wall. For those elements that do not require details on the approved drawings, the installation shall be subject to the approval of the Structural Engineer of Record. The project inspector will verify that all components and equipment have been anchored in accordance with

above requirements. B. Electrical Distribution System Bracing

l. Electrical distribution systems shall be braced to comply with the forces and displacements prescribed in ASCE 7-10 Section 13.3 as defined in ASCE 7-10 Section 13.6.8, 13.6.7, 13.6.5.6, and 2016 CBC, Sections 1616A.1.23, 1616A.1.24, 1616A.1.25, and 1616A.1.26. 2. The bracing and attachments to the structure shall be detailed on the approved drawings or they shall comply with one of the OSHPD Pre-Approvals (OPA#) as modified to satisfy anchorage requirements of

ACI 318, Appendix D. 3. Copies of the manual shall be available on the jobsite prior to the start of hanging and bracing of the electrical distribution systems. 4. The Structural Engineer of Record shall verify the adequacy of the

structure to support the hanger and brace loads. 3.4 CLEANING AND PROTECTION A. The Contractor shall, progressively and at completion of the job, thoroughly clean all of his work including outlets, fittings, and devices, and inspect exposed finishes. The Contractor shall remove all burrs, dirt, grease, paint spots, stains, labels, tags, rust, foreign material, and

construction debris resulting from his work. B. The Contractor shall protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

260500 BASIC ELECTRICAL MATERIALS AND METHODS PART 1 - GENERAL

I.I SCOPE

A. See Section 260000 I.2 STANDARDS

A. NEMA 250 - Standard for Enclosures for Electrical Equipment (1000 Volts Maximum)

PART 2 - PRODUCTS

2.I RACEWAYS AND FITTINGS

A. Galvanized rigid steel conduit (GRC) shall meet ANSI C80.1, and be heavy wall, hot dipped galvanized inside and out, with threaded ends, for use with threaded type fittings

B. Galvanized intermediate metallic conduit (IMC) shall meet ANSI C80.6, be zinc-coated steel and have threaded fittings. C. Galvanized electrical metallic tubing (EMT) shall meet ANSI C80.3, and be continuous, seamless steel tubing, galvanized or sherardized on exterior, coated on interior with smooth hard finish of lacquer, varnish or

enamel, with steel set-screw, steel compression or die-cast compression type fittings. Provide concrete type fittings where required or water-tight compression fittings for wet locations. D. Riqid non-metallic conduit (RNC) shall meet NEMA TC 2, be Schedule 40 PVC, suitable for 90 C, with solvent cemented type NEMA TC3 fittings. E. Flexible metallic conduit (FMC) shall be single strip, continuous, flexible

interlocked double-wrapped steel, hot dip qalvanized inside and out forming smooth internal wiring channel, with steel, compression type fittings. F. Liquid-tight flexible metallic conduit (LFMC) shall be same as FMC except with inert sunlight-resistant, mineral-oil-resistant watertight plastic outer jacket. Fittings shall be cast malleable iron body and gland nut, cadmium plated with one-piece brass grounding bushings threaded to interior of conduit. Spiral molded vinyl-sealing ring between gland nut and

bushing and nylon-insulated throat. 6. All raceway fittings shall be specifically designed for the raceway type with which used. 2.2 CONDUCTORS

A. All conductors shall be delivered to the site in their original unbroken packages, plainly marked or tagged with UL labels, size, type of wire, type of insulation, name of the manufacturing company and trade name of the

B. All conductors shall be minimum of 98% conductivity soft drawn copper Conductors #8 AMG and larger shall be stranded type "THWN/THHN", 600 Volt insulation. Conductors #10 AWG and smaller shall be solid copper "THWN/THHN", 600 Volt insulation.

C. Insulation shall be Thermoplastic Type rated at 75 degrees C. minimum. 2.3 PULL BOXES AND WIREWAYS A. Pullboxes and Enclosures for outdoor use shall be NEMA 250, Type 3R or Type 4, unless otherwise noted.

B. Pullboxes and Enclosures for indoor use shall be NEMA 250, Type I, unless otherwise noted. C. Wireways shall be constructed in accordance with UL 870 for wireways, auxiliary gutters and associated fittings. Every component including

lengths, connectors and fittings shall be UL Listed. D. Mireways and auxiliary gutters shall have continuous removable cover secured with screws and keyhole slots. Hinged cover shall be provided where installed above suspended ceiling.

E. Fabricated sheet steel pull boxes shall be installed only in dry, protected locations and shall be furnished with knockouts and removable screw cover. Box shall be finished with one coat of zinc chromate and a coat of primer sealer and where exposed to public view shall be painted to match the surrounding surface.

F. Weatherproof sheet steel pull boxes shall be fabricated of code qauqe qalvanized sheet steel with two coats of rust resistant finish and shall be furnished with qasket and made completely weathertight. 2.4 WIRING DEVICES AND MATERIALS

A. Outlet Boxes shall meet NEMA OSI and be galvanized code gauge steel. Boxes in masonry shall be square cornered. Boxes exposed to weather or in wet locations shall be Type FD cast metal with external threaded hubs and gasketed cover and shall meet NEMA FBI. B. Outlet box extensions shall be U.L. listed and shall be attached to box

with threaded metal screws. C. Approved manufacturers of metal boxes are Circle AW, Crouse-Hinds, Steel City or equal. D. Receptacles:

a. Duplex Receptacles shall be full gang size, polarized duplex,

Duplex Receptacles:

parallel blade, U-grounding slot, specification grade, rated at 20 amperes, 125 volts and designed for split feed service.

b. Receptacles served by normal power circuits shall be ivory, grey, white or brown, dependent upon room wall finish and as direct by Architect. Receptacles served by emergency power circuits shall be

Duplex receptacles shall be Hubbell or Leviton 5352 series. 2. Quad Receptacles:

a. Quad receptacles shall be quadruplex, feed-through type, with Integral NEMA WD 6, Configuration 5-20R duplex receptacle arranged to protect connected downstream receptacles on same circuit. Design units for installation in a 2-3/4-inch deep outlet box without an adapter. b. Quad GFCI receptacles shall be Hubbell or Leviton #5352 to match regular duplex receptacle.

3. Other Receptacles: Other receptacles shall match the plug configuration and ratings required for the utilization equipment that is

E. Device cover plates shall be provided and installed at all wiring devices, switches, outlets, and similar applications, and shall be as directed by architect. Pull boxes and junction boxes to which no fixture is to be attached shall be fitted with blank cover plates painted to match surrounding. All cover plates installed on rated walls shall be brushed stainless steel. Cover plates installed at switches used for lighting control in all multiple occupant restrooms, all hallways and corridors, and in other locations where lockable cover plates are indicated on the Drawings shall be the dustproof locking stainless steel cover Legrand model MP26-L.

2.5 SUPPORTING DEVICES A. Supporting devices shall be constructed of cold-formed steel, with a corrosion-resistant coating acceptable to authorities having jurisdiction. B. Metal items for use outdoors or in damp locations shall be hot-dipped C. Slotted-steel channel supports shall have flanged edges turned toward

the web, and 9/16-inch diameter slotted holes at a maximum of 2 inches on l. Channel thickness shall be selected to suit structural loading. 2. Fittings and accessories shall be products of the same manufacturer as

the channel supports. D. Raceway and cable supports shall be manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers. E. Pipe sleeves shall be ASTM A 53, Type E, Grade A, Schedule 40,

galvanized steel, with plain ends. F. Cable supports for vertical conduit shall be a factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Pluqs shall have number and size of conductor gripping holes as required to suit individual risers. Body shall be constructed of malleable-iron casting with hot-dip

galvanized finish. 6. Concrete anchors shall be steel bolts with expansion anchors requiring a drilled hole. Powder driven anchors are not acceptable.

application category. Colors shall be as prescribed by ANSI AI3.1, NFPA

H. Togale bolts shall be all-steel springhead type. 2.6 ELÉCTRICAL IDENTIFICATION A. Identification devices shall be a single type of product for each

B. Raceway and cable labels shall comply with ANSI Al3.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway and cable size. I. Pre-tensioned, wraparound plastic sleeves shall be a flexible,

preprinted, color-coded, acrylic band sized to suit the diameter of the 2. Preprinted, flexible, self-adhesive, vinyl labels shall have a legend, over-laminated with a clear, weather- and chemical-resistant coating. 3. Color shall be black letters on orange background.

C. Self-adhesive colored marking tape for raceways, wires and cables shall be vinul tape, not less than I inch wide by 3 mils thick.

D. Engraved plastic labels, signs and instruction plates shall be made from black (or red as noted) Bakelite laminate engraving stock with a white core, punched or drilled for mechanical fasteners. It shall have a minimum thickness of 1/16-inch for signs up to 20 sq. in. and a minimum thickness of 1/8-inch for larger sizes.

E. Fasteners for nameplates and signs shall be self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers. F. Arc-Flash Hazard Warning labels shall be provided at electrical

equipment such as switchboards and panelboards in accordance with CEC 6. Circuit Identification - A typewritten circuit directory shall be provided at each panelboard and switchboard in accordance with CEC Article 408.4(A). The Contractor shall develop and prepare the circuit

identification description based on the as-built condition. H. Source of Supply Identification - All switchboards, panelboards and transformers shall have a typewritten label applied indicating the device or equipment where the power supply originates per CEC Article

PART 3 - EXECUTION

70, and these Specifications.

4. Legend shall indicate voltage.

3.I ELECTRICAL INSTALLATION A. All material, equipment, devices, etc., shall be installed in accordance with the recommendations of the manufacturer of the particular item. The Contractor shall be responsible for all installations contrary to the manufacturer's recommendations. The Contractor shall make all necessary changes and revisions to achieve such compliance. Manufacturer's installation instructions shall be delivered to and maintained at the job

site throughout the construction of the project. B. The layout and installation of electrical work shall be coordinated with the overall construction schedule to prevent delay in completion of the

project.

C. Dimensions and information regarding accurate locations of equipment and structural limitations and finish shall be verified with other sections. D. The drawings do not show all raceway, wiring, offsets, bends, special fittings, junction or pull boxes necessary to meet job conditions. Items not shown as indicated, where are clearly necessary for proper operation or installation of systems shown, shall be provided as required, at no

increase in contract price. E. Materials and Components shall be installed level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

F. Electrical equipment, outlets, junctions and pull boxes shall be installed in accessible locations, avoiding obstructions, preserving maximum headroom, and keeping openings and passageways clear. 6. Equipment shall be installed to facilitate service, maintenance, and

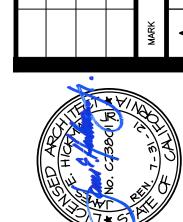
repair or replacement of components. It shall be connected for ease of

disconnecting, with minimum interference with other installations. Minor

adjustments in the locations of equipment shall be made where necessary providing such adjustments do not adversely affect function of the equipment. Major adjustments for the location of equipment shall be previously approved and detailed on the Record Drawings. H. Right of Way shall be given to raceways and piping systems installed at

a required slope. 3.2 RACEWAY APPLICATION I.Galvanized Rigid Steel Conduit (GRC) may be used in all locations. Where installed in direct contact with earth, conduit shall be wrapped with two layers of half-lapped 10-mil PVC tape for a total thickness of 40-mil or

have a factory applied 40-mil PVC coating.



NO. BUIL

PROJECT NO.

18-10898.00

SPECIFICATIONS

- ADDITION FOR MAINTENANCE

B. Galvanized Intermediate Metallic Conduit (IMC) may be used in indoor locations not in direct contact with earth. C. Galvanized Electrical Metallic Tubing (EMT) may be used in dry indoor

locations according to the following criteria: 1.1t is not subject to physical damage 2. It is not in direct contact with earth.

3. It is not in concrete slabs.

4. It is not in a hazardous area. D. Rigid Non-Metallic Conduit (RNC) Schedule 40 PVC may be used underground or below concrete slabs on grade. Rigid Non-Metallic

Conduit (RNC) Schedule 80 PVC may be used to pass through concrete slabs. Rigid Non-Metallic Conduit (RNC) may be used in compliance with utility company requirements for utility service conduits. Rigid Non-Metallic Conduit (RNC) shall not be installed above grade or above finished floor

E. Liquid-tight Flexible Metallic Conduit (LFMC) may be used in all locations to make final connections to motors, transformers, or other mechanical equipment (not to exceed 24 inches in length) or lighting fixtures (not to exceed 72 inches in length). Where specifically approved by the Engineer, LFMC may be used to facilitate wiring in tight locations or in other conditions that make the use of other conduit impracticable.

F. Flexible Metallic Conduit (FMC) may be used in dry locations to make final connections to motors, transformers, or other mechanical equipment (not to exceed 24 inches in length) or lighting fixtures (not to exceed 72 inches in length). Where specifically approved by the Engineer, FMC may be used to facilitate wiring in tight locations or conditions that make the use of other conduit impracticable.

3.2 RACEWAY INSTALLATION

A. General 1. Expansion joints shall be provided at building expansion joints or as required due to length of run or difference in temperatures. 2. All fittings that are exposed or in damp areas shall have sealing

alands and proper aasket. 3. In general, all conduits shall be sloping to drain. Bends that place a trap in a conduit shall be avoided. Provided drip fitting as required. Dux-Seal high ends of all underground raceways.

4. All conduit runs shall be mechanically and electrically continuous from outlet to outlet. Conduit size or type shall not be changed between

outlets. 5. All empty raceways shall be equipped with pull lines, capped and labeled. Pull lines shall be 3/164 polypropylene, No. 14 AWG zinc-coated steel or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 24 inches of slack with identification tag at each end of the pull wire.

6. Minimum size of any conduit for lighting, power and signal shall be ¾△ conduit unless shown otherwise.

7. Use temporary raceway caps to prevent foreign matter from entering. Immediately prior to installation of conductors, conduit shall be blown and swept free of foreign materials. All conduit stubs for future, both above and below grade, shall be capped. Run conduits for spare panelboard circuits to attic or accessible spaces.

8. Make conduit bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless

Make bends in exposed parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for exposed parallel raceways.

10. There shall be no more than the equivalent of four quarter bends (360-degrees total) between pull points such as pull boxes, outlet boxes or conduit bodies, in one run of conduit.

II. Install raceways and cables at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Locate horizontal raceway runs above water and steam piping.

12. Conduits shall be securely fastened to building structure at intervals not greater than ten feet.

13. Conduit shall be square cut and reamed if required to full size, with thread full cut and true.

14. Conduits shall be jointed by approved couplings with ends of conduits tightly butted. Non-insulating compound shall be used in making up joints below grade or inside on grade to insure a watertight system. 15. Conduit connections to outlet boxes or cabinets shall be made with

approved connectors, using locknuts and insulated throat bushings. 16. Complete raceway installation before starting conductor installation. 17. Contractor shall provide rubber grommets to fasten galvanized conduit to exterior structures made of dissimilar metals at all exterior locations to prevent galvanic corrosion.

18. Contractor shall provide rubber grommets to fasten galvanized conduit to supports which are also used by other systems utilizing piping of dissimilar metals to prevent galvanic corrosion.

B. Interior I.Conceal raceways and cables, unless otherwise indicated, within finished walls, ceilings, and floors.

2. All concealed conduits shall be installed in as direct a line as possible between outlets. No more than four quarter bends, or their equivalent, will be allowed between outlets. Feeder conduits shall follow arrangement shown on plans unless a change is authorized. Branch circuit conduits shall, in general, follow arrangement as shown as far as structural conditions permit. All 3.3 CONDUCTOR APPLICATION

A. Feeders and branch circuits shall be Type THHN/THWN insulated

conductors in raceway. B. Branch circuits shall be Type THW or THHN/THWN insulated conductors in raceway where exposed and metal-clad cable where concealed in ceilings and gupsum board partitions.

C. Minimum conductor size shall be #12 for power and lighting, #14 for 120V control circuits and #18 for 24V control circuits.

D. Remote control, signaling and power-limited circuits shall be Type THHN/THWN insulated conductors in raceway for Classes 1, 2, and 3, unless noted otherwise.

3.4 CONDUCTOR INSTALLATION

A. Conductors shall be continuous from outlet to outlet, no splices shall be

made except within outlet or junction boxes. B. Wiring at outlets shall be installed with at least 12 inches of slack conductor at each outlet

C. Outlet and component connections shall be made to wiring systems and to ground. Electrical connectors and terminals shall be tightened according to manufacturer's published torque-tightening values. Torque values specified in UL 486A shall be used where manufacturer's torque values are not indicated.

D. Wire in panels, cabinets, pull boxes, and wiring autters shall be squared, labeled, and neatly grouped with cable ties and fanned out to the terminals.

E. All branch circuits, fixture wiring joints, splices, and taps for conductors #10 and smaller shall be made with 3M @Scotchlock△ connectors, or approved equal. F. All branch circuits, fixture wiring joints, splices, and taps for conductors

#8 and larger shall be made with two-bolt type solderless connectors or

T & B @color keyed△ compression lugs. 6. Bolt-type solderless connectors shall be torqued with a torque wrench according to the manufacturer's recommendations, and then retightened after 24-48 hours before taping. Owners' inspector shall be informed of this procedure during the waiting period and shall witness the act of retightening.

H. Connectors and lugs for terminating stranded conductors #8 and larger shall be machine crimp compression type. I.All splices shall be taped with Scotch #88 plastic electrical tape with ©Scotch Fill△ where necessary for a smooth joint. Scotch #27 or #2520

shall be used for other than normal temperatures or conditions. All connections and splices shall be electrically perfect and in strict accordance with all code requirements.

J. No splices shall be made below grade in a manhole or pullholes without Engineer's written approval, and then shall be encapsulated with 3M potting kits per 3M Specifications. For larger gauge wire where 3M potting kits are prohibited Contractor shall use submersible UL listed Polaris connectors by NSi.

3.5 WIREWAY AND AUXILIARY GUTTER APPLICATION A. Wireways and auxiliary gutters shall be used above and below panelboards, lighting relay cabinets, and terminal cabinets to accommodate large concentrations of wires.

3.6 PULL BOXES AND WIREWAYS: A. Boxes shall be installed square and plumb. An engraved nameplate shall be installed on each box indicating its function. Nameplate shall be installed on the exterior of each box in unfinished areas and on the interior of each box in finished areas. B. Wireways shall be installed with strip-type connectors with self-retained

used to permit preassembly of wireway and hanger bottom plate before hanging on a preinstalled upper bracket. C. Pull and junction boxes shall be installed as shown to ease the pulling

mounting screws. Hangers with two piece, hook together features shall be

of wire and to comply with CEC requirements. 3.7 WIRING DEVICES AND MATERIAL'S

A. Outlets shall be mounted at IBA minimum above finished floor unless otherwise noted.

B. The locations of outlets shown on drawings shall be located with respect to work of others and to be symmetrical with room layout. C. Outlets in architectural patterned surfaces such as tile and finish panels shall be centered on intersections of four panels or in exact center of panels, unless otherwise shown on architectural plans or directed by Architect.

D. Outlet boxes for concealed work shall be one-piece steel knock out tupe with zinc coating. Boxes shall not be smaller than 4" square nominal size, unless otherwise indicated. Extension rings, plaster rings, and covers shall be provided as necessary for flush finish.

E. The Contractor shall inform himself of wall thickness throughout the building and shall provide outlet boxes of suitable depth that can be flush mounted and yet will be deep enough to contain the particular apparatus involved. Location of exposed pull or junction boxes will be subject to

the Architect's approval. F. Outlet boxes on opposite sides of walls shall not be placed back-to-back, nor shall @through△ boxes be employed (except where specifically permitted on the drawings by note).

G. Switches shall be mounted 484 to top of device box above finished

floor unless otherwise noted. H. Where more than one switch occurs at the same location, use multiple gang outlet boxes covered by a single plate; provide box partitions as required by the N.E.C.

I.Bar hangers shall be used to support outlet boxes in stud or furred partitions and ceilings. Attachment screws, devices, etc., shall be of the proper type to secure boxes to metal studs complemented by expansion shields to concrete and masonry.

J. All outlet boxes and particularly those supporting fixtures shall be securely anchored in place in an approved manner. Support outlet boxes and fixtures in acoustic ceiling areas from building structures, not from acoustic ceilings. All lighting fixture outlets shall be coordinated with mechanical, architectural, or other equipment to eliminate conflicts and provide a workable, neat installation.

K. Approved knock out holes shall be provided. Outlet boxes from which light fixtures will be suspended shall be equipped with 3/84 fixture studs fastened through from back of box. L. Surface boxes of the cast metal threaded hub type with suitable

qasketed covers shall be used for exposed condult runs less than 5' above a finished floor or where waterproof boxes are required. M. Floor boxes shall be adjustable, brass trimmed with carpet flanges where carpet is indicated on architectural drawings.

N. Set floor boxes level and trim after installation to fit flush to finished

O. Masonry boxes shall have conduit entrances to rear of box with depth as required to clear masonry. P. Boxes shall be sized for number of conductors entering box.

Q. Wiring devices shall be securely fastened to the outlet box. Where the outlet box covers are back from the finished walls, the device shall be built out with washers so that it is rigidly held in place to the box. Metal extenders shall be provided in flammable construction per CEC. R. All device screw slots shall be left in a vertical orientation.

5. Connect wiring device grounding terminal to branch-circuit equipment arounding conductor and to outlet box with bonding jumper. Connect ground terminal of isolated-ground receptacles to

isolated-ground conductor routed to designated isolated equipment around terminal of electrical system. 3.5 PANELBOARDS

A. A typewritten directory shall be updated and mounted in a metal holder welded to the inside of each panel door showing circuit numbers and complete description of all outlets on each circuit and an Arc-Flash Hazard Warning label shall be applied to each panelboard in accordance with CEC 110.16.

B. Labeling of all circuits at panel boards shall match the exact room names of each of the spaces. Verify exact room names with Owner prior to labelina. 3.9 DISCONNECT DEVICES A. Thoroughly examine site conditions for acceptance of disconnects

switch installation to verify conformance with manufacturer and specification tolerances. Do not commence with installation until all conditions are made satisfactory. B. Coordinate locations of switches and equipment in the field to provide code required clearances in front of switches and to insure that switches

are in sight of the controllers as described in NEC Article 430. C. Install disconnect switches where indicated on the Drawings. D. Install fuses in fusible disconnect switches.

E. Include construction channel and mounting hardware as required to support disconnect switch.

F. Provide engraved, machine screw retained nameplate on each

disconnect switch. Name plate shall identify equipment and panelboard + branch circuit breaker. 3.10 SUPPORTING DEVICE APPLICATION A. Hot-dip galvanized materials or nonmetallic channel and angle system

components shall be used in damp locations and outdoors. B. Steel materials shall be used in dry locations. C. Support clamps for PVC raceways shall be click-type clamp system. D. Strength of supports shall be adequate to carry present and future

loads, times a safety factor of at least four with a minimum of 200-lb design load. 3.11 SÚPPORT INSTALLATION

A. Install support devices to securely and permanently fasten and support electrical components. B. Install individual and multiple raceway hangers and riser clamps to

support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits. C. Support parallel runs of horizontal raceways together on trapeze- or

bracket-type hangers D. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.

E. Support individual horizontal raceways with separate, malleable-iron pipe hangers or clamps. F. Install 1/4-inch diameter or larger threaded steel hanger rods, unless

otherwise indicated. G. Spring-steel fasteners specifically designed for supporting single conduits or tubing may be used instead of malleable-iron hangers for 1-1/2-inch and smaller raceways serving lighting and receptacle branch circuits above suspended ceilings and for fastening raceways to slotted

channel and angle supports. H. Arrange supports in vertical runs so the weight of raceways and enclosed conductors is carried entirely by raceway supports, with no weight load on raceway terminals.

1. Simultaneously install vertical conductor supports with conductors. J. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers. If bar hangers are used, attach bar to raceways on opposite sides of the box and support the raceway with an approved fastener not more than 24 inches from the box.

K. Install metal channel racks for mounting cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices unless components are mounted directly to structural elements of adequate strength

L. Install sleeves for cable and raceway penetrations of concrete slabs and walls unless core-drilled holes are used. Install sleeves for cable and raceway penetrations of masonry and fire-rated gypsum walls and of all other fire-rated floor and wall assemblies. Install sleeves during erection of concrete and masonry walls.

M. Securely fasten electrical items and their supports to the building structure, according to the following criteria, unless otherwise noted: 1. Wood - wood screws or screw-type nails.

2. Masonry - toggle bolts on hollow masonry units, expansion bolts on solid masonry units. 3. New Concrete - concrete inserts with machine screws and bolts.

4. Existing Concrete - expansion bolts. 5. Steel - welded threaded studs or spring-tension clamps on steel. Field welding shall comply with AMS Di.I. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other

6. Light Steel - sheet-metal screws. 7. Fasteners shall be selected so the load applied to each fastener does not exceed 25 percent of its proof-test load.

3.12 ELECTRICAL IDENTIFICATION A. Each conductor of every system shall be permanently tagged in each panelboard, pull box, J-box, etc., in compliance with the Occupational Safety and Health Administration (OSHA)

B. Brady labels shall be used to identify terminals and destination of feeders, branch circuits, signal and control circuits, etc., at all terminations, junction boxes and pull boxes, and shall be coordinated with the nameplates in all boxes and equipment.

C. All terminals in the switchboards, panels, relays, switches, devices,

starter terminals, etc., shall have Brady labels for identification to identify both ends of all wiring. D. The Contractor shall furnish and install $| \triangle \times 3 \triangle \times 3/32 \triangle$ thick laminated black Bakelite nameplates with a white core (unless specifically shown as

red) engraved to produce white letters on black background for all items of electrical equipment, including 2-pole and 3-pole circuit breakers, panelboards, starters, relays, time switches and disconnect switches. E. All devices shall have their branch circuit identified on the back side of device plate with a permanent type black marker, i.e. CT A-21. Identify

panelboard and circuit number from which receptacles are served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes. F. Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use

consistent designations throughout Project. 6. Panels having single-pole circuit breakers shall be provided with typed schedules mounted in welded metal holders behind plastic. H. Clean surfaces that are to receive self-adhesive identification

products before applying I. Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate. J. Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and

identification. K. All power conductors shall be identified in accordance with the following schedule:

outlet box. Color-coding may be used for voltage and phase

 1. 120/208V, 3 Phase, 4 Wire System. Phase A: Black. Phase B: Red.

Phase C: Blue. Neutral: White. Ground: Green

2. 277/480V, 3 Phase, 4 Wire System. Phase A: Brown

Phase B: Orange Phase C: Yellow.

Neutral: White with a colored stripe or gray. Ground: Green

L. Install warning, caution, and instruction signs where required to comply with 29 CFR, Chapter XVII, Part 1910.145, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor

3.13 FIRESTOPPING A. Seal all penetrations for work of this section through fire rated floors, walls and ceilings to prevent the spread of smoke, fire, toxic gas or water through the penetration, either before, during, or after the fire. The fire and temperature ratings of the penetration assembly shall be at least that of the floor, wall, or ceiling into which it is installed so that the original fire rating of the floor or wall is maintained as required by

Article 300.21 of the California Electrical Code (CEC). B. Where applicable, provide OZ Type CFSF/I and CAFSF/I fire seal fittings for conduit and cable penetrations through concrete and masonry walls, floors, slabs and similar structures. Where applicable, provide 3M fire barrier sealing penetration system, and/or Thomas and Bett Flame Safe Fire Stop System, and/or Chase Foam fire stop system, including wall wrap, partitions, caps and other accessories as required. All manufacturers' instructions and recommendations for installation of sealing

fittings and barrier sealing systems. C. The Contractor shall repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed new structures, surfaces and shall install new fireproofing where existing firestopping has been disturbed. The repair and refinishing of materials and other surfaces shall be by skilled mechanics of the trades involved.

265113 LIGHTING PART 1 - GENERAL

RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division OI Specification Sections shall form a part of this Section, with the same force and effect as though repeated

I.2 SCOPE A. The Contractor shall remove one existing light fixture. B. Existing lighting system to remain.

1.3 DEFINITIONS A. A Fixture is a complete unit, exit sign, or emergency lighting unit. B. An Emergency Lighting Unit is a fixture with integral emergency battery-powered supply and the means for controlling and charging the battery. It is also known as an emergency light set. Émergency lighting units include ones with and without integral LED or lamp heads.

A. Confirm compatibility and interface of other materials with luminaires and ceiling system. Report discrepancies to the Architect or Electrical Engineer, and defer ordering until clarified. B. Supply plaster frames, trim rings, and back boxes to other trades.

C. Coordinate with other trades to avoid conflicts between luminaries,

supports, fittings, and mechanical equipment.

1.5 QUALITY ASSURANCE A. Nothing in these Drawings or Specifications shall be interpreted as to permit any device, system, or work that is not in compliance with the current California Code of Regulations. Where work is detailed and/or specified to a more restrictive standard or higher requirement, that standard or requirement shall govern such work. Applicable codes and regulations include, but are not limited to, the following: I.Fixtures and emergency lighting units shall be certified by the manufacturer as meeting efficiency requirements prescribed under the

test methods of the current California Code of Regulations Title 20, Appliance Efficiency Regulations. 2. All work, commissioning and testing shall fully comply with the 2016 California Energy Code.

I.6 WARRANTY A. The Special Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

PART 3 - EXECUTION

A. NONE

A. NONE

266100 LIGHTING CONTROL SYSTEMS PART 1 - GENERAL

I.I RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division OI Specification Sections shall form a part of this Section, with the same force and effect as though repeated

I.2 SCOPE A. The Contractor shall preserve and protect the existing lights and two-way switches, commission, test and comply with the requirements of 2016 California Energy Code, California Code of Regulations Title 24,

Part 6, and as herein specified. B. Basis of design for lighting control systems: Lighting control systems are existing.

C. Test existing lighting control equipment

D. Mandatory Indoor Lighting Controls: I.Area Controls - Provide area controls in each space to facilitate the manual control of lighting within that space.

I.3 COORDINATION A. Confirm operation of the existing lighting control equipment with lighting fixtures, ceiling systems and two way switching. Report discrepancies to the Architect or Electrical Engineer, and defer ordering until clarified. I.4 SUBMITTALS

A. NONE 1.5 QUALITY ASSURANCE

A. Nothing in these Drawings or Specifications shall be interpreted as to permit any device, system, or work that is not in compliance with the current California Code of Regulations. Where work is detailed and/or specified to a more restrictive standard or higher requirement, that standard or requirement shall govern such work. Applicable codes and regulations include, but are not limited to, the following: I.All lighting control devices and systems shall be certified by the

manufacturer as meeting the requirements of the current California Code of Regulations Title 20, Appliance Efficiency Regulations. 2. All work, commissioning and testing shall fully comply with the 2016

California Energy Code.

I.6 CODES AND STANDARDS A. All work and materials shall fully comply with current rules and regulations of all applicable codes. Nothing in these Drawings or Specifications shall be interpreted as to permit any work not in compliance with these codes. Where work is detailed and/or specified to a more restrictive standard or higher requirement, that standard or requirement shall govern such work. Installation shall comply with the following codes and standards:

I.California Code of Regulations (CCR) Title 8. Industrial Relations

Title 17. Public Health Title 24, Building Standards 2. 2016 California Building Code. 3. 2016 California Fire Code.

4. 2016 California Electrical Code 5. 2016 California Energy Code. 6. Local Codes. 7. ANSI/TIA/EIA-568-C-2012 Commercial Building Telecommunications

8. ANSI/TIA/EIA-607-B-2013 Grounding and Bonding Requirements for Telecommunications in Commercial Buildings

9. BICSI TDMM Telecommunications Distribution Methods Manual 12th Edition 10.NEMA VEI Cable Tray Systems II. NEMA VE2 Cable Tray Installation Guides 12. UL 467 Grounding and Bonding Equipment.

13. UL 1479 Fire Tests of Through-Penetration Firestops A. The Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract

B. Provide five-year manufacturer's warranty on all digital lighting management system room control devices and panels.

PART 2 - PRODUCTS

PART 3 - EXECUTION

270000 TELECOMMUNICATIONS PART 1 - GENERAL

A. Furnish and install network telecommunications cabling system including a system of horizontal cable links between each buildings outlets and the corresponding building IDF, outlet boxes, conduits and raceway, jack modules for terminating both ends of each cable, and coverplates. B. The Contractor shall provide termination, testing and certification of

each cable. C. Install a terminal cabinet under the mezzanine as shown and include the patch panels, connections, devices and terminations as a complete system as shown on the plans.

PART 2 - PRODUCTS

2.I TELECOMMUNICATION HORIZONTAL CABLING

A. Horizontal Data Cable I. Materials - 23 AWG Solid Copper UTP, 4-pair, CMP rated, premium Category 6 cable. Color: Blue.

2. Manufacturer - Berk-Tek.

3. Model: 10163780; Description: type LANmark-2000 Series

I. I hook cable supports shall provide a bearing surface of sufficient width to comply with required bend radii of high-performance cables: cULus listed: J hook cable supports shall have flared edges to prevent damage while installing cables. I hook cable supports shall be I 5/164 minimum and have a cable retainer strap to provide containment of cables within the hanger. The cable retainer strap shall be removable and reusable and be suitable for use in air handling spaces. J hook cable supports shall have a 660 or electro-galvanized finish for indoor use in non-corrosive environments.

2. Manufacturer - Erico (Caddy Cablecat Series Non-continuous Support Cable System).

2.2 TELECOMMUNICATION HORIZONTAL CABLE TERMINATIONS A. Data Outlets

1. Station Jack Modules - Materials 8-position RJ45, Category 6 rated jack modules. Color: Blue. Manufacturer - Panduit (P/N CJ6X88TGBU). Quantity - Three (3) to Six (6) as indicated on symbol subscript. 2. Outlet Box and Faceplate - Materials 0 4 or 6-port, single-gang angled faceplate shall be mounted to a two-gang outlet box fitted with a single-gang reducer. Blanks shall be installed in each unused port. Panduit (Mini-com Series 4 or 6 module).

2.3 LABELS A. Materials: Vinyl plastic type that meet UL 969 requirements, preprinted or laser printed type, and easily distinguishable. B. Manufacturers - Panduit, W.H. Brady, Ideal.

PART 3 - EXECUTION

local codes and practices.

labeling conventions.

3.I INSTALLATION A. The Contractor shall install all cables supports, cable management,

connectors, and all appropriate termination and mounting hardware. B. The Contractor shall utilize conduits for the placement of horizontal data cables in walls and above ceilings in inaccessible spaces. Cables above ceilings in accessible spaces shall be supported by JOhooks that are attached to the structure independently form ceiling or lighting fixture supports.

C. Where penetrations through fire rated walls, acoustic or other walls are made for cable pass-thru, such penetrations shall be sealed by the Contractor in compliance with code requirements.

3.2 BONDING AND GROUNDING A. The Contractor shall provide ground continuity by properly bonding all appropriate cabling, closures, cabinets, service boxes, conduit, cable

copper wire and shall be attached to an approved building ground, which is bonded to the main electrical ground. B. Grounding shall be in accordance with J-STD-607-A, NEC, NFPA and all

trays, and framework. All grounds shall consist of #6 AMG stranded

3.3 IDENTIFICATION AND LABELING A. The Contractor shall obtain the room numbers that will appear in the area of work prior to assigning origin and destination identification for

I.Horizontal cables shall be labeled at each endpoint. Labels shall indicate the origination and destination identification. 2. All label printing will be machine generated by system software using indelible ink ribbons or cartridges. Self-laminating labels will be used on cable jackets, appropriately sized to the OD of the cable, and placed

3.4 ACCEPTANCE TESTING AND CERTIFICATION A. All distribution cables shall meet or exceed all performance specifications designated by ANSI/EIA/TIA-568-B.I, and IEEE for

with view at the termination point on each end.

telephone and data communications. B. No later than five days after testing, Contractor shall furnish the Owner with a documentation binder and electronic disks of all test results from OTDR and power meter test equipment. Electronic copies of test results must be present in format acceptable to the Owner (runtime software application included if necessary). The content requirements for these

forms are described in the following sections. C. Copper cables: Testing of all copper wiring shall be performed prior to system cut-over. 100 percent of the OSP and horizontal wiring pairs shall be tested for opens, shorts, polarity reversals, transposition and presence of AC voltage. Test shall include lengths, mutual capacitance, characteristic impedance, attenuation, and near-end and far end cross-talk. The Contactor, at no charge shall bring any pairs not meeting the requirements of the standard into compliance with the standards and specifications. Complete, end to end test results must be submitted to the Owner. Test results for each of the above tests and associated cable lengths shall be generated by an automated testing device. Test

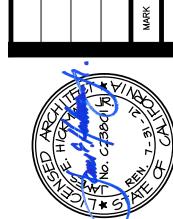
hardcopy and in a computer-readable format. 3.5 PROJECT RECORD DOCUMENTATION A. The Contractor shall provide a database of cable records, both hard copy and on floppy disk or memory stick, using Owner approved format Excel spreadsheet or otherwise specified) for use by the Owner for cable and facilities management. The cable records format must include, at a minimum the following information about each cable:

results must be permanently recorded and presented for review in both

I.Distribution Cable Pair Assignments. 2. Test Results. B. Three (3) sets of reproducible as-built floor plans plus vertical rack elevations and wall mounted termination field details in digital format (AutoCAD v.14 or Bluebeam)Showing all installed cables, pair and strand assignments, routing, terminal and outlet locations patch panels and

C. These documents shall be delivered to the Owner no more than 20

working days after completion and acceptance of the Contractor's work.

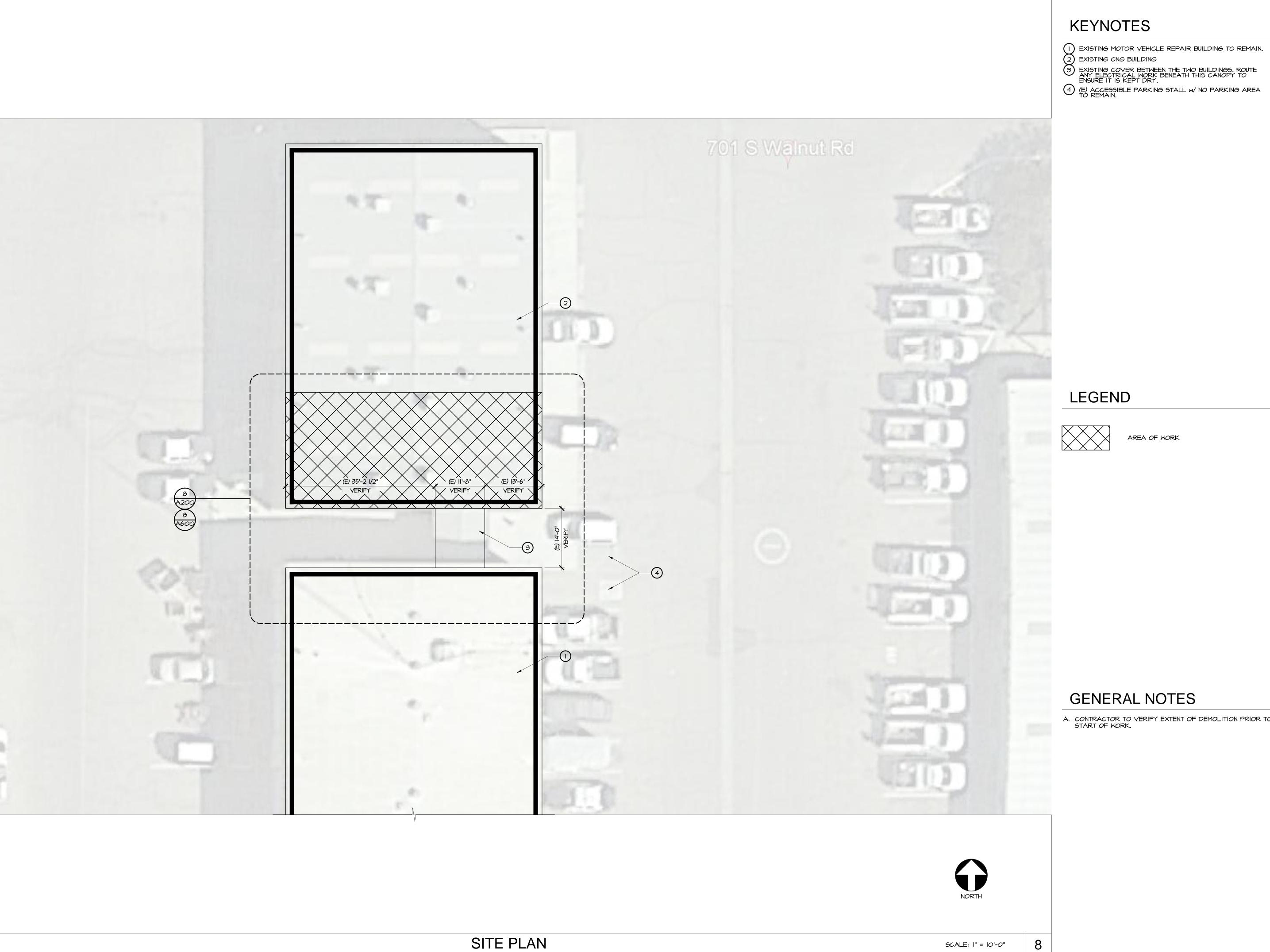




Ž O

PROJECT NO.

18-10898.00



A. CONTRACTOR TO VERIFY EXTENT OF DEMOLITION PRIOR TO START OF WORK.

WALL ADDITION FOR CNG MAINTENANCE BUILDING

PROJECT NO. 18-10898.00

DRAWING

A100

KEYNOTES

- METAL STUD WALL FROM (E) CONCRETE SLAB TO BOTTOM OF (E)
 MEZZANINE. PLYWOOD FINISH TO MATCH (E). FRAME AROUND (E)
 FIRE SPRINKLER LINE AND ELECTRICAL CONDUIT.
- (E) OVERHEAD COILING DOOR TO REMAIN
- (E) FURNITURE, OWNER TO REMOVE DURING CONSTRUCTION AND REINSTALL
- (E) STAIRS TO REMAIN
- 5) DASHED LINE INDICATES EDGE OF (E) MEZZANINE ABOVE TO REMAIN.
- DASHED LINE INDICATES CANOPY BETWEEN THE TWO (E) BUILDINGS TO REMAIN

 (E) STRUCTURAL COLUMN TO REMAIN, TYP.



LEGEND

6" METAL STUD PER PLAN w/ I/2" PLYWOOD EACH SIDE TO MATCH (E)

(E) WALL TO REMAIN

AREA NOT IN ARCHITECTURAL SCOPE OF WORK.

WINDOW AS SCHEDULE, SEE 4809

KEYNOTE SYMBOL

(E) DOOR, FRAME & HARDWARE TO REMAIN, U.N.O

GENERAL NOTES

- A. CONTRACTOR TO VERIFY EXTENT OF ANY DEMOLITION
 BEFORE BEGINNING WORK.
 B. FOR TYPICAL METAL FRAMING DETAILS/ATTACHMENTS, SEE

 (A80)
- C. CONTRACTORS SHALL PATCH, REPAIR OR REPLACE ANY ADJACENT WORK, WALL/CEILING FLOOR SURFACES THAT ARE DAMAGED DURING THE COURSE OF CONSTRUCTION"

 D. ALL ITEMS NOT NOTED FOR REMOVAL ARE EXISTING AND ARE TO REMAIN. PROTECT FROM DAMAGE.

WALL ADDITION FOR CNG MAINTENANCE BUILDING

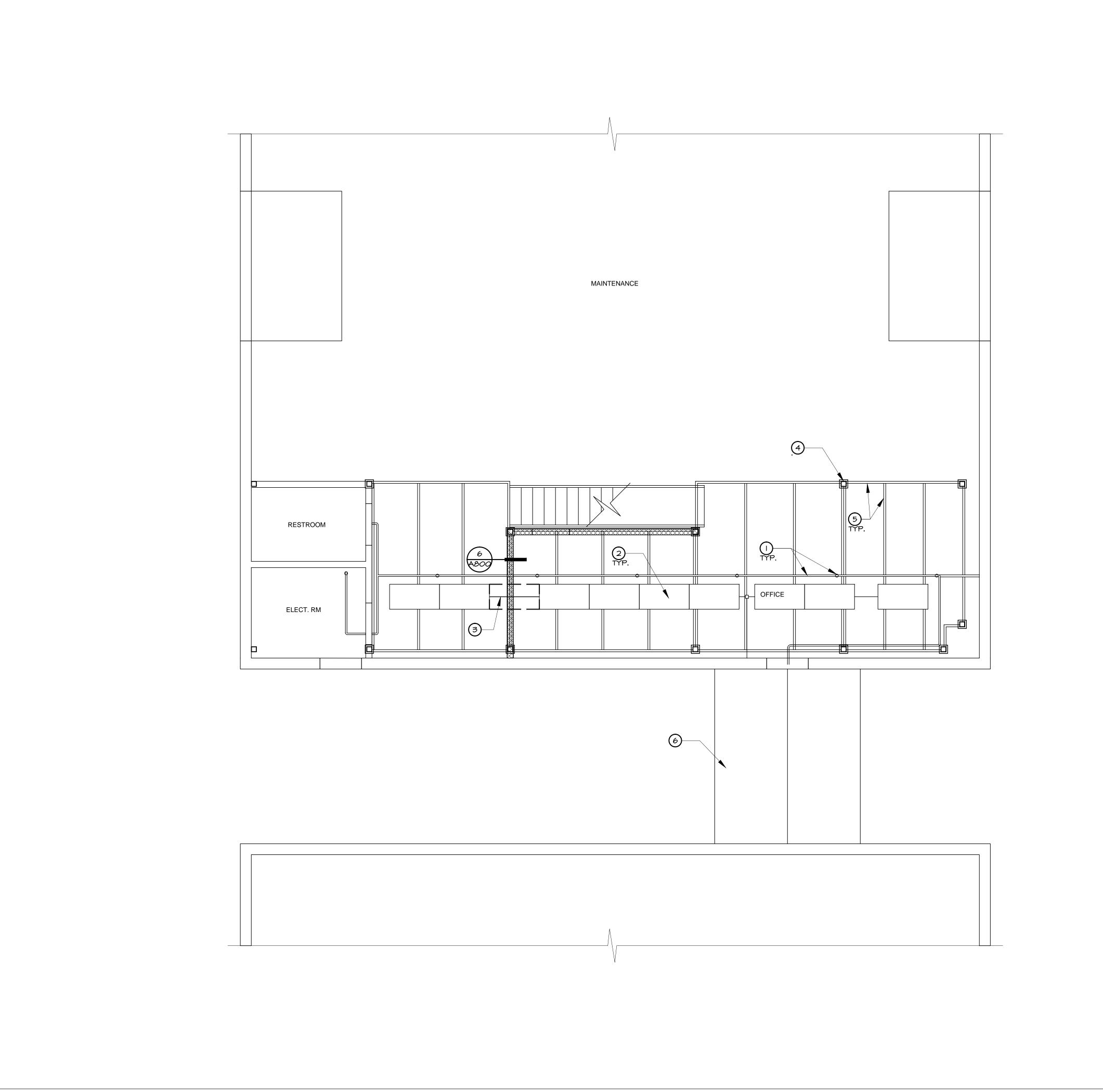
PROJECT NO.

18-10898.00

DRAWING

FLOOR PLAN

SCALE: 1/4" = 1'-0"



KEYNOTES

LEGEND

- (E) FIRE SPRINKLER PIPING AND HEADS TO REMAIN, TYP.

 (E) LIGHTS TO REMAIN, TYP.

 REMOVE (E) LIGHT AND REPLACE WITH CONDUIT, SEE ELECTRICAL DRAWINGS
- (E) STRUCTURAL COLUMNS TO REMAIN, TYP.
 (5) (E) MEZZANINE FRAMING TO REMAIN, TYP.
 (6) CANOPY BETWEEN THE TWO (E) BUILDINGS





GENERAL NOTES

A. CONTRACTOR TO VERIFY EXTENT OF ANY DEMOLITION BEFORE BEGINNING WORK.

WALL ADDITION FOR CNG MAINTENANCE BUILDING

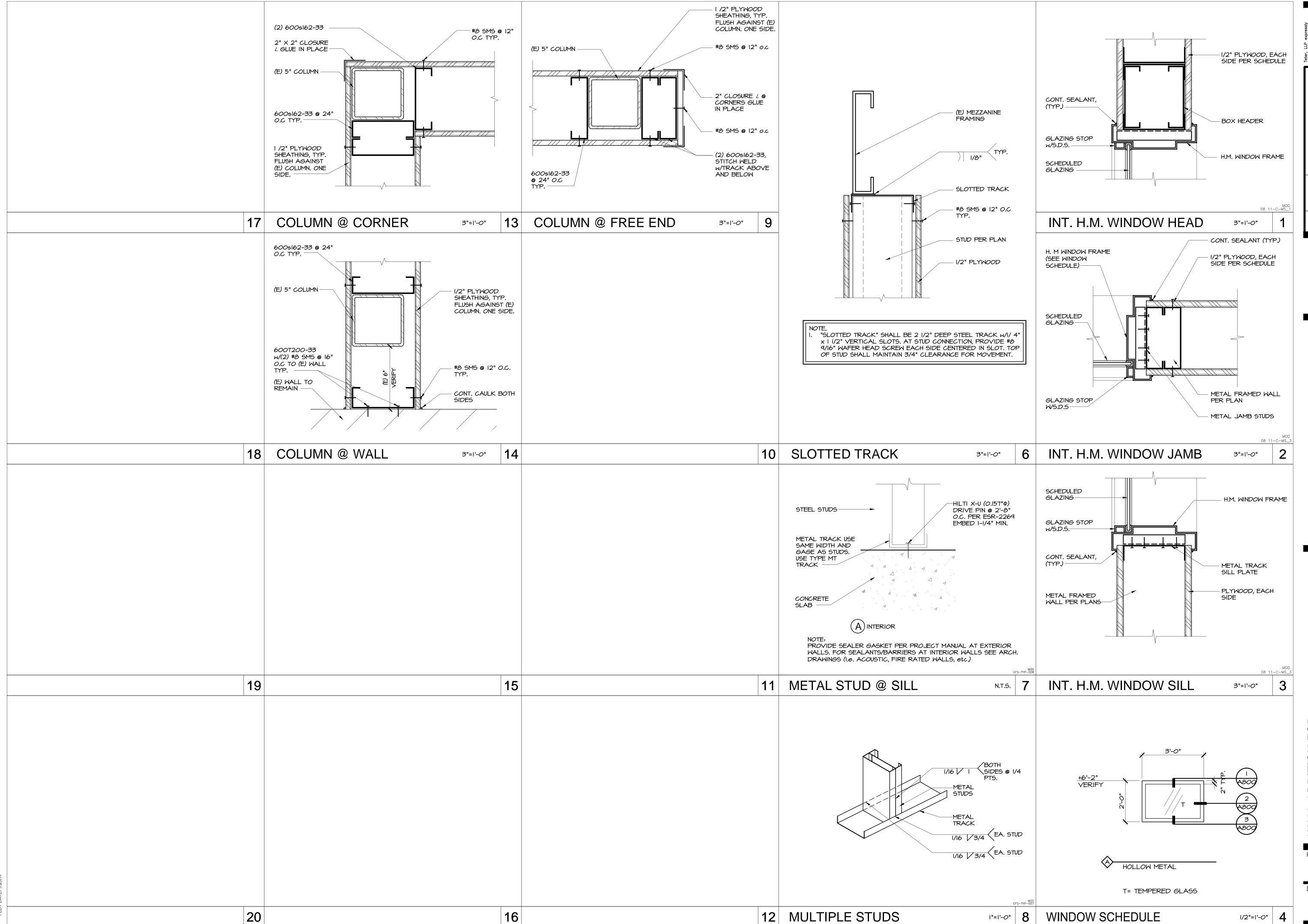
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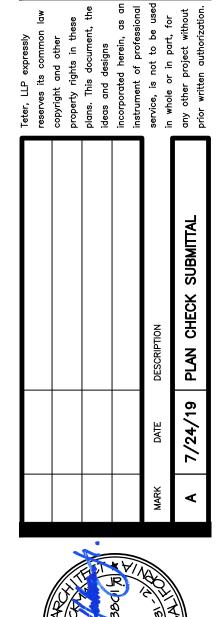
DRAWING

A600

REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0"





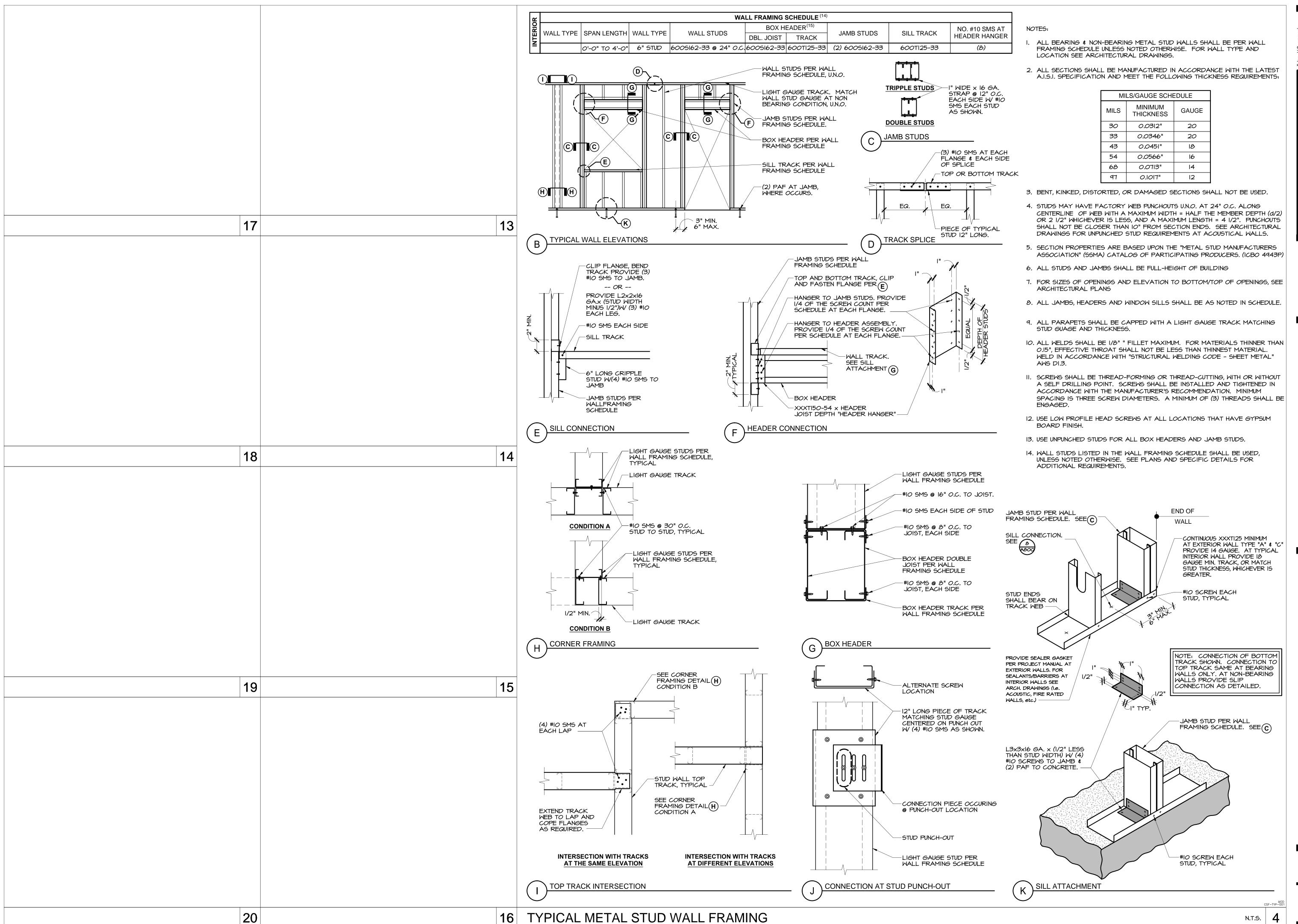


WALL ADDITION FOR CNG MAINTENANCE BUILDING

PROJECT NO.

18-10898.00

DRAWING A800





WALL ADDITION FOR CNG MAINTENANCE

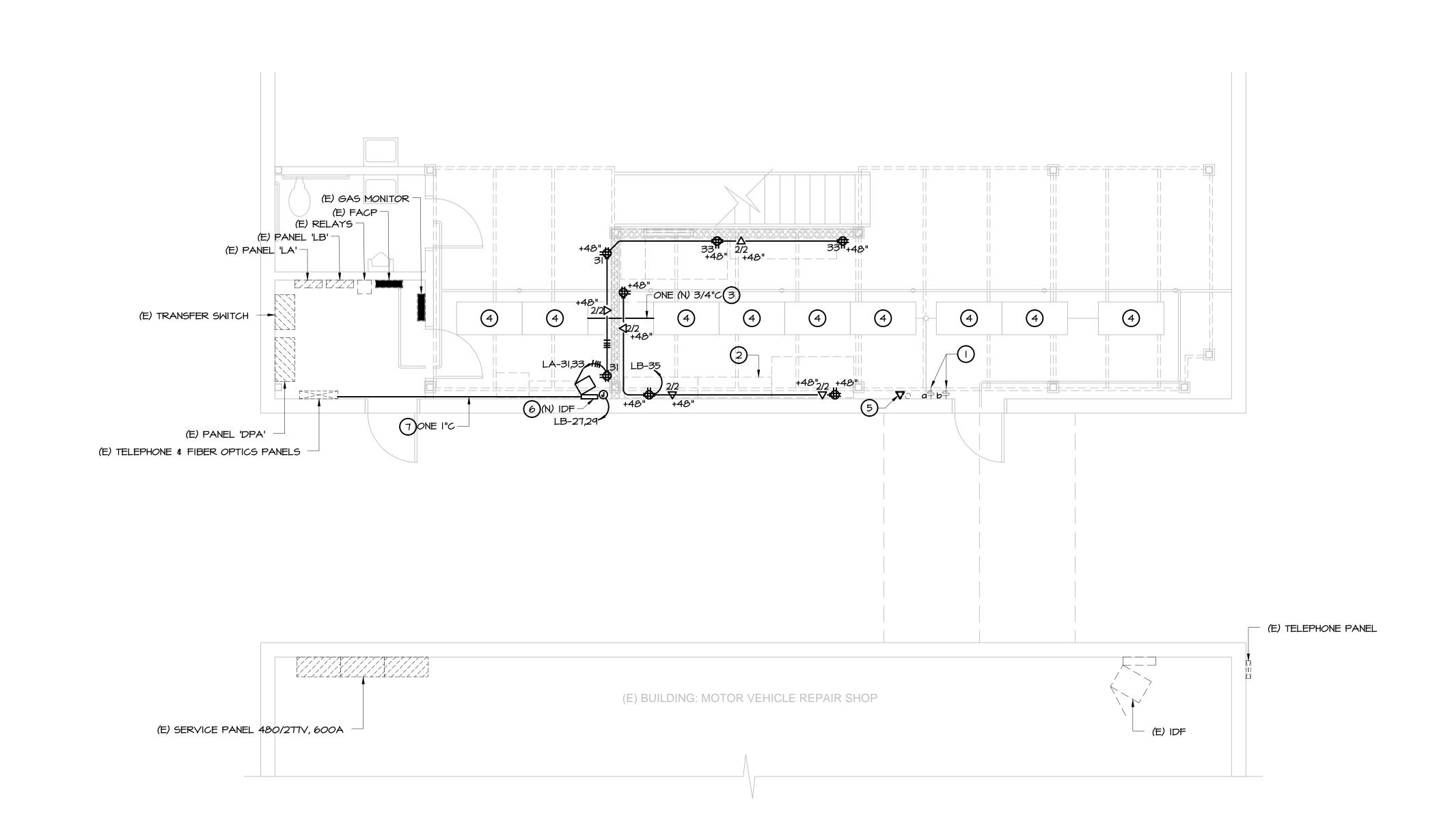
PROJECT NO.

18-10898.00

DRAWING

PANEL: EXISTING PANELBOARD		LB	125 AMP BUS 120/208V, 3 PH, 4 W 100% RATED NEUTRAL		MAIN: TRIP: A.I.C.:	LUG ONLY THERMAL-MAGNETIC 22000 A			LOCATION: ELECTRICAL ROC MOUNTING: SURFACE ENCLOSURE: NEMA 1	OM				
	CIRCUIT BREA		(ER			V	OLT-AMPERES				BREAKER		CIRCUIT	
CKT NO.	PNL SPACE	AMP	POLE	SERVES	LOAD	Α	В	С	LOAD	SERVES	AMP	POLE	PNL SPACE	CKT NO.
1	1		3	GEF - 4	1440	2880			1440		15		2	2
3	3	15			1440		2880		1440	GEF - 4		3	4	4
5	5				1440			2880	1440				6	6
7	7			GEF - 5	1440	2880			1440		15	3	8	8
9	9	15	3		1440		2880		1440	GEF - 4			10	10
11	11				1440			2880	1440				12	12
13	13			GEF - 6	1440	2880			1440		15	3	14	14
15	15	15	3		1440		2880		1440	GEF - 4			16	16
17	17				1440			2880	1440				18	18
19	19	20	2	1/2 HP DOOR # 1+2	1120	2240			1120	1/2 HP DOOR # 4	20	2	20	20
21	21				1120		2240		1120	1/2111 BOOK # 4			22	22
23	23	20	2	1/2 HP DOOR # 3	1120			2240	1120	1/2 HP DOOR # 5+6	20	2	24	24
25	25				1120	2240			1120	1/2111 BOOK # 010			26	26
27	27	20	1	(N) IDF	800		800		0	SPARE	20	1	28	28
29	29	20	'		800			800	0	SPARE	20	1	30	30
31	31	20	1	(N) QUAD RECEPTS.	720	720			0	SPARE	20	1	32	32
33	33	20	1	(N) QUAD RECEPTS.	720		720		0	SPARE	20	1	34	34
35	35	20	1	(N) QUAD RECEPTS.	720			720	0	SPARE	20	1	36	36
37	37	20	1	SPARE	0	0			0	SPARE	20	1	38	38
39	39	20	1	SPARE	0		0		0	SPARE	20	1	40	40
41	41	20	1	SPARE	0			0	0	SPARE	20	1	42	42
				TOTAL CONNECTED LOAD (VA):		13840	12400	12400						
				25% LCL/LML (VA) :		360	360	360						
				TOTAL CALCULATED LOAD (VA):		14200				ALCULATED LOAD FOR PANEL:				
				TOTAL CALCULATED LOAD (AMPS):		118.3	106.3	106.3		39720 VA				

PANEL SCHEDULE



KEYNOTES

- (E) LIGHT SWITCH SHALL REMAIN.
- (N) ONE I 1/2"C WITH ONE (N) 25-STRAND CABLE.
- REMOVE (E) LIGHT FIXTURE AND RECONNECT ADJOINING FIXTURES WITH ONE 3/4"C, 3#12 THWN CU, AND I#12 CU GND.
- (4) (E) LIGHT FIXTURES TO REMAIN (9 TOTAL).
- DISCONNECT AND REMOVE (E) DATA OUTLET. REMOVE (E) WIRING BACK TO SOURCE.
- 6 INSTALL NEW IDF AT +80" PER DETAIL I/EI00.
- ONE I'C WITH ONE FIBER OPTIC CABLE.

LEGEND

- PROVIDE 4-PLEX RECEPTACLE WITH FOUR CAT6 PORTS (TWO DATA AND TWO VOICE)
- QUADRUPLEX RECEPTACLE
- (E) LIGHT SWITCH
- DENOTES EXISTING TO REMAIN, NO WORK U.O.N.
- DENOTES NEW
- CONDUIT IN ATTIC/WALL: DENOTES 3/4"C-I#I2 AWG CUTHWN, I#I2 CU GND, U.O.N.
- CONDUIT RUN: DENOTES 3/4"C 4 #12 AWG CU THWN + 1 #12 CU GND, U.O.N.

DEMOLITION NOTES

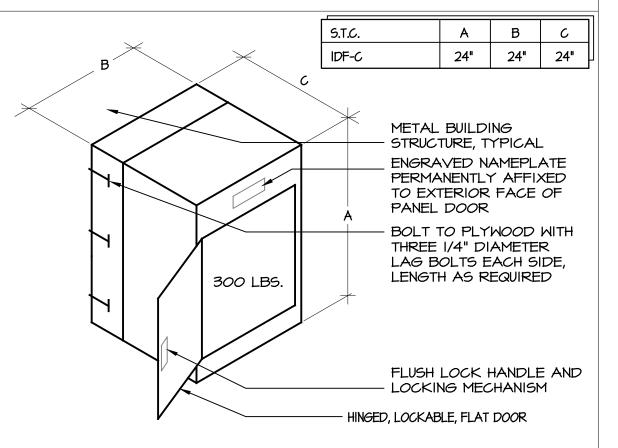
- A. ELECTRICAL FACILITIES SHOWN DASHED ARE EXISTING:
 - I. THOSE SHOWN LIGHTWEIGHT (FADED) SHALL REMAIN AND REQUIRE MODIFICATION AS NOTED.
 - 2. THOSE SHOWN HEAVYWEIGHT (DARK) REQUIRE REMOVAL OR RELOCATION AS NOTED.
- B. EXISTING ELECTRICAL FACILITIES AND CIRCUITING SHOWN ARE BASED ON LIMITED RECORD DRAWINGS AND LIMITED SITE VISITS. THE DRAWINGS MAY NOT ACCURATELY REPRESENT ACTUAL EXISTING CONDITIONS IN THE FIELD. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND RING OUT EXISTING CIRCUITS TO DETERMINE EXACT ROUTING.
- C. EXISTING RECEPTACLES AND SWITCHES IN WALLS THAT ARE TO BE DEMOLISHED SHALL BE REMOVED AND WIRING SHALL BE PULLED BACK TO THE SOURCE PANEL.

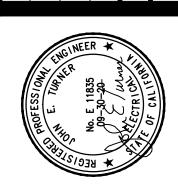
TELECOM. PATHWAY NOTES

- A. CONDUIT AND CABLES FOR TELECOMMUNICATION OUTLETS SHALL BE CONCEALED WITHIN WALLS AND ABOVE CEILINGS.
- B. TELECOMMUNICATION OUTLET BOXES SHALL BE 5" SQUARE BY 2-7/8" DEEP WITH A SINGLE-GANG BOX EXTENSION THAT IS MOUNTED FLUSH WITH THE FINISHED WALL.
- C. PROVIDE AND INSTALL ONE I"C STUBBED FROM EACH TELECOMMUNICATION OUTLET BOX INTO THE ACCESSIBLE ATTIC SPACE TO FACILITATE TELECOMMUNICATION CABLE INSTALLATION.
- D. PROVIDE AND INSTALL THREADED SET SCREW CONNECTORS WITH POLYPROPYLENE BUSHINGS AT EACH END OF CONDUIT SYSTEMS USED FOR TELECOMMUNICATION CABLE INSTALLATION. BUSHINGS SHALL BE INSTALLED AND INSPECTED PRIOR TO CABLE INSTALLATION.

TELECOM. CABLING NOTES

- A. EACH TELECOMMUNICATION CABLE SHALL BE HOMERUN FROM THE TELECOMMUNICATION OUTLET TO A PATCH PANEL LOCATED IN THE TELECOMMUNICATION ROOM.
- B. TELECOMMUNICATION CABLES SHALL BE NEATLY BUNDLED WITH VELCRO STRAPS AT 36"O.C.
- C. TELECOMMUNICATION CABLES SHALL BE INDEPENDENTLY SUPPORTED FROM J-HOOKS WITHIN THE ACCESSIBLE ATTIC SPACE WHERE THEY ARE NOT WITHIN CONDUIT OR SUPPORTED ON CABLE TRAY.
- D. TELECOMMUNICATION CABLES SHALL BE TERMINATED WITH MODULAR JACKS ON PATCH PANELS IN THE TELECOMMUNICATION ENCLOSURE AND ON MODULAR JACKS AT THE TELECOMMUNICATION OUTLETS.





BUILDING WALL ADDITION FOR CNG MAINTENANCE

PROJECT NO. 18-10898.00

DRAWING

E100