Section 16050 - Common Work Results for Electrical

- Provide all labor, materials, equipment and incidentals for completion of all electrical systems described herein. All electrical equipment and material shall be installed in accordance with requirements, governing authorities, and in a neat and workman like manner by skilled and competent electricians in conformance with the standard practices of the electrical industry. All electrical systems shall be complete and operational to the benefit of the owner.
- A. Good workmanship and appearance are considered equal to proper operation.
- B. The contractor shall provide all foreseeable electrical equipment and accessories necessary, whether specifically stated or not, to make the required electrical systems complete and operational.
- 2. The electrical contractor shall comply with the requirements of the general conditions, supplemental general conditions of the project specifications, any base building specifications and building criteria, and all contract specifications and documents.
- Definitions and standards:
- Provide" means contractor is responsible for the furnishing and installation of.
- B. "Exposed" means where it can be seen after the building is completed such as in equipment rooms, unfinished areas, accessible tunnels, etc. where conduit/equipment is accessible.
- C. "Concealed" means where it cannot be seen after the building is completed such as in spaces as chases, trenches, above ceilings, in walls and buried where conduit/wire is inaccessible when building is completed.
- D. Standards for materials: all materials shall be new except as otherwise stated, and shall conform with the current applicable industry standards, NEMA standards and Underwriters
- 4. Coordinate and order the progress of electrical work to conform to the owner's schedule and the progress of the work of the other trades.
- 5. Apply for and pay for all permits, fees, licenses and inspections for this division of work.
- Provide temporary lighting and power as required.
- 7. Visit the project site before submitting a bid as no extras will be allowed for lack of knowledge of
- 8. Drawings are diagrammatic in nature. Take all dimensions from architectural drawings, certified equipment drawings and from the structure itself before fabricating any work.
- 9. Comply with the latest federal, state and local codes requirements, and ordinances, with the National Electrical Code of the National Fire Protection Association, and with requirements of the power and telephone companies furnishing services to the project. The following is a brief list of
- A. NFPA No. 70 National Electrical Code, latest edition
- B. NFPA No. 72 Fire Alarm, latest edition
- C. NFPA No. 101 Life Safety Code, latest edition
- D. IBC & UBC, latest edition

obvious existing conditions.

applicable codes:

- E. Local building codes, latest edition
- 10. All equipment and materials shall be new unless noted otherwise and acceptable for installation only if labeled or listed as defined in NFPA 70, Article 100, by UL or by a recognized testing laboratory where standards have been established and acceptable to the authority having jurisdiction. Labeled or Listed equipment shall be installed in accordance with any instructions or labeling provided with the equipment.
- 11. Provide all core drilling, channeling, cutting, patching, sleeves, etc. as required for installation of electrical equipment. Seal holes, providing fireproof sealant where necessary, and refinish all repair work to original condition where damaged by electrical work.
- Coordinate core drill locations with structural prior to starting work.
- B. Coordinate underground site utilities with appropriate utility company prior to starting work.
- Make provisions for safe delivery and secure storage of all materials.
- 13. Warranties: Provide a written warranty to the owner covering the entire electrical work excluding incandescent and fluorescent lamps, to be free from defective materials, equipment and workmanship for a period of one year after date of acceptance. All equipment or materials that fail during the warranty period shall be replaced or repaired by the electrical contractor in a timely fashion at no cost to the owner.
- 14. Manufacturers: Subject to compliance with requirements, provide products by the manufacturer(s) specified on the drawings or provide products from manufacturers with similar construction and performance characteristics.
- 15. Product Alterations and Substitutions: Should the contractor wish to have products considered other than those specified, contractor must submit those items as required in Division 1. Contractor will be required to submit the total savings (anticipated savings) to the owner.
- 16. Shop Drawings: Submit shop drawings as required in Division 1 for all materials and equipment. Provide manufacturer's standard catalog pages and data sheets including detailed information on product construction, physical dimensions, ratings, listings, power consumption, finishes, mounting requirements, service conditions, and installed accessories; include model number nomenclature clearly marked with all proposed features. Provide separate product data information for each product indicated using Engineer's naming convention. If the shop drawings deviate from the contract documents, advise the engineer of the deviations via written format, accompanying the shop drawings. Include the reason for the deviation(s). Coordinate all required changes with the other trades affected. If the changes are occasioned by the contractor, the contractor shall pay
- Shop drawings shall include but are not limited to the following:
- A. Product data for lighting. B. Product data for lighting control devices.
- C. Product data for panelboards. D. Product data, calculations and drawings for fire alarm system.
- 16. Project Record Drawings: At completion of work, deliver completed project record documents to architect/engineer. Project record documents shall be in CAD and shall include any special systems (fire alarm, etc.) and "project record" shop drawings.
- 17. Operation and Maintenance Manuals: Submit number as required by Division 1, typed and hard bound to architect for approval prior to scheduling any system demonstration for the owner and fifteen (15) days prior to final observation. Books shall be arranged in sequence to match the specification sections.

16051 - Seismic

1. All seismic requirements and design shall be through delegated design. Contractor shall be required to provide all necessary equipment seismic calculations, anchors, supports, etc. as required by A.H.J. for compliance with seismic requirements.

Section 16060 - Grounding and Bonding

- 1. Conduit systems, supports, cabinets, equipment, transformers, fixtures, the grounded circuit conductor, etc. shall be properly grounded in accordance with the current issue of the National Electrical Code. Provide all bonding jumpers and wire, grounding bushings, clamps, etc. as required for complete grounding.
- A. Connections shall be either bolted-pressure-type, compression type or exothermic-welded
- 2. Provide a separate equipment grounding conductor in all feeder and branch circuits and all flexible and nonmetallic raceways.
- Grounding Conductor Material: Copper.

Section 16070 - Hangers and Supports

- 1. Provide hangers and supports for equipment, raceways and cables, including weight of wire in raceways. All systems cabling shall be supported by bridal rings or similar means.
- 2. Use hot-dipped galvanized material or nonmetallic, U-channel systems for all damp and outdoor
- Steel material shall be used for dry locations.

Section 16075 - Electrical Identification

- 1. Provide labeling for raceways, cables and devices.
- Color Coding of Phase Conductors:
- A. Conductors No. 8 AWG and smaller shall be factory color coded. Wire No. 6 AWG and larger may be color coded by field painting or color taping a 6-inch length of exposed end.
- B. Wiring for control systems shall be color-coded in accordance with the wiring diagrams furnished with the equipment.

Phase a: Phase b: Phase c: Neutral:	277/480 volts brown orange yellow gray	120/208 volts black red blue white
Neutral:	gray	white
Ground	green	green
Travelers:	purple	pink

Section 16080 - Electrical Testing

Provide testing of all electrical systems and components as required by all applicable building codes and ordinances, UL, NEMA, ANSI, ICEA, NECA, etc., and as recommended by the electrical equipment manufacturers.

Section 16105 - Demolition for Remodeling

- 1. Field check all existing conditions prior to bidding and include an allowance for the removal and relocation of existing conduits, wires, devices, fixtures, or other equipment as indicated or as required to coordinate and adapt new and existing electrical systems to all other work required on this project. No extras will be allowed for alterations of a foreseeable nature required to achieve the end result as indicated on the drawings.
- 2. Where the reuse of existing conduits, outlets, junction boxes, etc., is permissible, make certain that the wiring for them is continuous from outlet to outlet and that all splices and insulations are in good condition. Provide modifications to assure that circuits, or system shall not pass through outlets or junction boxes which may be rendered inaccessible by changes to be made to the project. Existing conduits, wire, devices, etc., which shall be removed shall become the property of the owner unless otherwise noted.
- 3. Connect new work to existing in a manner that will assure proper raceway grounding throughout in conformance with the National Electrical Code.
- 4. Remodel Work, Cutting and Patching: Electrical contractor shall perform all cutting, channeling, chasing, drilling, etc., as required to install or remove electrical equipment in areas of remodeling. This work shall be performed so as to minimize damage to portions of wall finishes, surfaces, plastering, or the structures which are to be reused, resurfaced, plastered, or painted under other divisions of these specifications.
- 5. Carefully coordinate with the required remodeling work, cutting and patching etc., performed by other trades. Remove or relocate existing electrical conduits, wires, devices, fixtures and other
- 6. All outages on portions of existing electrical systems shall be minimized and shall be at a time and of a duration as accepted by the owner.

Section 16120 - Conductors and Cables 600-V and Less

- 1. Minimum size No. 12 AWG except for control or signal circuits, which may be No. 14 AWG or smaller. Increase conductor size as necessary to limit branch circuit voltage drop to 3 percent and service/feeder voltage drop to 2 percent.
- 2. All wiring shall be as follows:
- A. Branch circuits concealed in ceilings, walls, and partitions, and concealed in concrete or below slabs-on-grade: Type THHN-THWN, single conductors in raceway.
- B. Fire alarm circuits: Type THHN-THWN, in raceway or power-limited, fire-protective, signaling circuit cable, Type NPLFP or PLFP.
- C. Class 1 control circuits: Type THHN-THWN, in raceway.
- D. Class 2 control circuits: Type THHN-THWN, in raceway or power-limited cable, concealed in building finishes.
- 3. All conductors shall be copper; solid conductor for No.12 AWG and smaller, stranded for No. 10
- 4. Splices for No. 6 AWG and smaller shall be made with twist-on wire connectors.
- 5. Splices for No. 4 AWG and larger shall be made with solderless or compression type CU/ALR lugs.
- 6. Wiring for control systems shall be installed in conjunction with mechanical and miscellaneous
- 7. Install conductor at each outlet, with at least 6 inches of slack to allow for connection to device.
- 8. Testing: Perform the following field quality-control testing:
- A. Torque test conductor connections and terminations to manufacturer's recommended values.
- B. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.
- C. Insulation Test: Measure the insulation of feeder conductors. Measurements shall be taken between conductors, and conductors and ground. Resistance shall be 1,000,000 Ohms or more when tested at 500 Volts by megger without circuit loads.

Section 16130 - Raceways

- 1. All conductors shall be enclosed by conduit sized in accordance with Chapter 9, Table 4 of the National Electrical Code. Minimum size 1/2 inch. All conduits shall be concealed in finished areas.
- 2. Galvanized Rigid Metal Conduit (RMC) and Intermediate Metal Conduit (IMC) shall be utilized for above and below grade applications in accordance with Articles 344 and 342 of the National Electrical Code. All couplings shall be threaded.
- 3. Electrical Metallic Tubing (EMT) shall be utilized for all dry, above grade or above floor feeders and branch circuit homerun applications in accordance with Article 358 of the National Electrical Code. Couplings shall be steel set screw type.
- 4. Metal-Clad Cable (MC) with separate ground conductor shall be permitted for all concealed, above grade or above floor branch circuit applications excluding homeruns in accordance with Article 330 of the National Electrical Code. Connectors shall be listed for application of service indicated.
- 5. Flexible Metal Conduit (FMC) shall be utilized for all connections to vibrating equipment such as motors (minimum of 2'-0", maximum of 6'-0"), connections to lay-in type light fixtures or in remodel areas specifically noted for "fishing" in existing walls or non-accessible ceilings.
- 6. Surface metallic raceways shall be limited to only areas specifically noted and of size and type specified on the drawings.
- 7. All exposed conduits shall be installed parallel with or perpendicular to building lines. 8. Provide expansion type fittings for all conduits that cross expansion joints.
- 9. Conduits and/or circuits that penetrate fire-rated construction shall be sealed fire and smoke tight at the penetration in a manner that maintains the fire-resistance rating.
- Section 16137 Boxes, Enclosures and Cabinets
- Outlet boxes:
- A. Four inch square or octagonal, zinc-coated sheet steel type. B. Outlet boxes shall be located so that transmission of sound through common walls will not
- C. Enclosures exposed to weather or damp locations shall be weatherproof type.
- Provide covers set to be flush with finished walls.
- 3. Pull Boxes and Junction Boxes: Junction boxes and pull boxes shall be provided as required. Size of boxes shall be in accordance with the current National Electrical Code requirements.
- A. Enclosures shall be NEMA type suitable for the surrounding area and conditions.
- 4. Floor Boxes: Floor boxes shall be cast metal, fully adjustable, or as specified on the drawings.

Section 16140 - Wiring Devices

- Receptacles shall be 20 Amp Hubbell HBL5352 series specification grade, or acceptable. GFCI and exterior receptacles shall be Hubbell GF5352 series, or acceptable and if required provide weatherproof in-use metal type cover, or acceptable. Provide device color as directed by the architect, or to match base building standards, whichever is applicable.
- 2. Quiet operating type switches shall be 120/277-V, 20 Amp Hubbell 1221 series, or acceptable. 3. Provide special purpose outlets as required for equipment provided by others.
- 4. Device plates shall be high abuse nylon, color as directed by the architect, or to match base
- building standards, whichever is applicable. Mount devices in accordance with the following schedule except where otherwise noted on the drawings or in areas with counters, baseboard heaters or in areas of block or brick construction:
- Convenience receptacles: long axis vertical at 1'-6" AFF to center * latch side of door at 4'-0" AFF to center long axis vertical at 1'-6" AFF to center * Telephone outlets:
- Except in areas with counters, baseboard heaters, or in areas of block or brick construction.

Section 16145 - Lighting Control Devices

- 2. Occupancy Sensors: As specified on the drawings.
- 3. Multiple Contactors and Relays: Electrically operated and mechanically held, complying with UL 508 and NEMA ICS 2, with current rating for switching as required and control coil voltage to match control power source.
- 4. Testing: Set and operate devices to demonstrate their functions and capabilities in a methodical sequence that cues and reproduces actual operating functions.

Section 16180 - Equipment Wiring Systems

- 1. Provide branch circuits to equipment provided by others and to mechanical equipment and make all connections. Temperature control equipment wiring and connections shall be provided by the mechanical contractor.
- Provide safety switches and/or thermal overload switches as required.
- Heater units in all motor starters shall be sized for approximately one hundred fifteen percent (115%) of full load motor current. Check and coordinate all thermal protective devices with the equipment they protect.
- 4. Provide for each motor, one-half (1/2) horsepower and below, a horsepower rated disconnect switch and thermal overload protection unless internally provided with the motor. Thermal overload switches for single phase motors shall be Allen-Bradley Bulletin 600 or acceptable.
- Carefully coordinate all electrical work with all other applicable divisions.

Section 16442 - Panelboards

- 1. Provide dead-front, circuit breaker type panels, size, voltage, amperage and number of branches as indicated on the drawings. Breakers shall be thermal magnetic type (bolted) employing quick-make and quick-break mechanism for manual operation as well as automatic operation. Automatic tripping shall be indicated by the breaker handle assuming a distinctive position from the manual "on" and "off" multi-pole breakers shall have a common trip. Tie handles will not be permitted.
- All spaces shall be fully bussed.

cover on inside of door panel.

- 3. Panelboards shall have a grounding bus for the equipment grounding system.
- 4. Circuit breakers shall have a minimum interrupting capacity as follows, unless otherwise noted:

10,000 amperes 120/208 Volts: 277/480 Volts: 14,000 amperes

- 5. Panelboards shall be a minimum twenty inches (20") wide.
- 6. All bussing shall be tin-plated, high strength, electrical grade aluminum alloy and extend entire
- length of the panelboard.
- 7. Distribution panelboards shall be provided with a hinged lockable door. 8. Lighting and appliance panelboards shall be provided with front cover screwed to the box.
- 9. Each panelboard shall be provided with a typed directory card installed in a transparent protective

- 10. Enclosure: NEMA type suitable for the surrounding area and conditions.
- 11. Install floor-mounted panelboards on 4 inch high concrete base extending a minimum of 2 inches beyond enclosure.
- 12. Testing: Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit. test continuity of each circuit. after installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- 13. Upon completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots, dirt and debris. Vacuum dirt and debris; do not use compressed air to assist cleaning. Touch up scratched and marred finishes to match original finish.
- 14. Panelboards shall be as manufactured by Eaton Corp.; Cutler Hammer, General Electric Co., Siemens Energy and Automation, Inc., or Square D Co.
- Section 16460 Transformers (Low Voltage)
- Transformers rated 15kVA and larger
- A. Comply with 10 CFR 431 (DOE 2016) efficiency levels. B. Marked as compliant with DOE 2016 efficiency levels by an NRTL.
- 2. Cores: Electrical grade, non-aging silicon steel with high permeability and low hysteresis losses.
- A. One leg per phase. B. Core volume shall allow efficient transformer operation at 10 percent above the nominal tap
- C. Grounded to enclosure.
- 3. Coils: Continuous windings without splices except for taps.
- A. Coil material: Aluminum or Copper
- B. Internal coil connections: Brazed or pressure type.
- C. Terminal connections: welded or bolted.
- 4. Encapsulation: Transformers smaller than 30kVA shall have core and coils completely resin encapsulated.
- Enclosure: Ventilated. A. NEMA 250, Type 2: Core and coil shall be encapsulated within resin compound to seal out
- B. KVA Ratings: Based on convection cooling only and not relying on auxiliary fans.
- C. Wiring Compartment: Sized for conduit entry and wiring installation.

a maximum of 115 deg C rise above 40 deg C ambient temperature.

- D. Finish: Comply with NEMA 250, gray weather-resistant enamel. 6. Insulation Class, Smaller Than 30kVA: 180 deg C, UL-component-recognized insulation system
- with a maximum of 115 deg C rise above 40 deg C ambient temperature. 7. Insulation Class, 30kVA and Larger: 220 deg C, UL-component-recognized insulation system with

9. Electrostatic Shielding: Each winding shall have an independent, single, full-width copper

- 8. Grounding: Provide ground-bar kit or a ground bar installed on the inside of the transformer
- electrostatic shield arranged to minimize interwinding capacitance. A. Arrange coil leads and terminal strips to minimize capacitive coupling between input and
- B. Include special terminal for grounding the shield.
- 10. Transformers shall be as manufactured by Eaton Corp.; Cutler Hammer, General Electric Co., Siemens Energy and Automation, Inc., or Square D Co.

Section 16511 - Interior Lighting

- 1. Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified on the drawings or provide products from manufacturers with similar construction and photometric characteristics.
- 2. Fluorescent ballasts shall be electronic programmed rapid start type with less than 10 percent of total harmonic distortion, with input power factor above 97 percent, and provided with internal protection in case operating temperatures exceed a safe level of operation. Fluorescent ballasts
- shall be as manufactured by Advance, Universal, General Electric or Osram/Sylvania.

components and retest until luminaire operates properly.

- 3. Exit lights shall conform to local code requirements. Interior emergency fluorescent power supply units shall be self-contained, modular,
- battery-inverter unit, factory mounted within luminaire body, and shall comply with UL 924.
- 5. Lamps shall be as manufactured by Osram/Sylvania, Phillips, or General Electric.
- 6. Color temperature for fluorescent lamps shall be as specified in the drawings. 9. Set luminaires level, plumb, and square with ceiling and walls, and secure according to manufacturer's written instructions and approved submittal materials. Install lamps in each luminaire. Do not support luminaries to the work of other trades unless otherwise specified or noted. All luminaires shall be independently supported from structure. Provide all necessary
- additional supports and hangers to securely fasten and support all luminaires to structure. 10. Inspect each installed luminaire for damage. Replace damaged luminaires and components. Verify normal operation of each luminaire after installation. Interrupt the electrical supply to verify

proper operation of the emergency lighting. If luminaires are malfunctioning, then repair or replace

Clean luminaires internally and externally after installation per manufacturer's Recommendations.

12. Replace any failed lamps in existing fixtures with matching lamp type and CCT. Section 16620 - Standby Power Generator Systems

- Performance Requirements
- A. Seismic Performance: Engine generator housing, tank, engine generator, batteries, battery racks, silencers, sound attenuating equipment, accessories, and components shall withstand
- the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Comply with B11.19.
- C. Comply with NFPA 37, NFPA 70, NFPA 99, and NFPA 110.
- D. Comply with UL 2200. E. Engine Exhaust Emissions: Comply with EPA requirements and applicable state and local
- government requirements based upon intended usage Tier. F. Noise Emission: Comply with applicable state and local government requirements for
- maximum noise level at adjacent property boundaries. G. Environmental Conditions: Engine generator system shall be rated to withstand the normal

electrical damage or degradation of performance capability. This includes, but is not limited to ambient temperature, relative humidity, and altitude.

Section 16714 - Communication Raceway Systems

- Provide empty conduit systems with No. 14 AWG pull wire and back boxes. Back boxes shall be 4 inch square galvanized pressed steel with single gang plaster ring. Provide 3/4 inch conduit with
- pull wire from each back box to 6 inches above nearest accessible ceiling.

Section 16721 - Fire Alarm System, Non-coded Addressable

- 1. Fire alarm device layouts and if applicable one-line diagram are for information only to indicate possible system configuration. The information shown is intended to be used as a guide by the contractor to complete their design and does not include all the necessary items for installation. The contractor shall be responsible for the design and installation of the fire alarm system in compliance with these specifications, NFPA 72, and local codes. The contractor shall prepare fire
- jurisdiction and to be used for construction as part of their scope of work.
- B. Provide all necessary conduit and wiring to extend existing base building fire alarm system as
- 2. The fire alarm system installation shall comply with NFPA 72, all other code requirements and local
- module shall be provided to communicate with the FACP and if applicable a remote annunciator.
- A. Install such that handle is 48 inches above finished floor.
- Smoke detectors: photoelectric type with integral led light to match existing. 5. Duct smoke detectors: photoelectric type with air sampling tubes extending the full length of the
- 6. Combination devices: factory-integrated audible and visual devices in a single-mounting assembly
- B. Visual alarm devices to match existing shall be listed under UL 1971 with clear polycarbonate lens. The word "fire" shall be engraved in minimum 1 inch high letters on faceplate. Strobes shall comply with NFPA 72 requirements for flash frequency and shall be synchronized.
- C. Visual devices shall be mounted not less than 80 inches above the finished floor or 6 inches below ceiling, whichever is lower.
- visible. Light shall be connected to turn on steady when the associated device is in an alarm or trouble mode. Device shall mount in a single gang stainless steel plate. A red, laminated, phenolic-resin identification plate at the indicating light shall identify, in engraved white letters, device initiating the signal and room where the device is located.
- B. Revise FAAP configuration and information to reflect remodel changes.
- authority having jurisdiction. 10. Provide control and/or monitor modules for devices such as fire/smoke dampers, etc. as required.
- Addressable modules shall be located within 3'-0" of the monitored switch or circuit.
- 12. Functional description of system.

installed in conduits.

- wiring for initiating devices, signaling line, and notification appliance circuits.
- D. Performance of initiating device circuits: NFPA 72, Style B circuits. Circuits shall be installed
- 13. Basic alarm performance requirements: unless otherwise indicated, operation of a manual station,
- Notification appliance operation.
- B. Identification at the FACP of the device address originating the alarm.

C. Provide mechanical unit shut down and control of dampers, etc. as required.

14. Testing: test the system according to procedures outline in NFPA 72. 15. Provide certificate of operation at completion of testing and after any malfunctions have been

2. All equipment, wiring/cable, devices and coverplates shall be provided and installed by the owner.

- alarm system drawings sealed by a fire protection engineer for submittal to the authority having
- A. Relocate existing fire alarm devices and provide new devices as shown.
- necessary.
- authority requirements. Manual pull stations: double-action with station reset to match existing. An integral addressable
- duct to match existing. Detectors shall be provided with an interface to the air handling unit control for shut down of the unit when smoke is detected.
- to match existing. A. Horns to match existing. Horns shall produce the ANSI temporal pattern at a sound-pressure level of 85 db, measured 10 feet from the horn per UL 464. Temporal pattern shall be synchronized.
- Provide candela level as required to suite the space in which it is installed.
- LED indicating lights with integral test switch shall be provided for detectors that may not be readily
- 8. The fire alarm control panel (FACP) and annunciator panel (FAAP): existing to remain.
- A. Upgrade and reprogram existing FACP software to reflect remodel conditions as required through a subcontractor to a factory authorized installer.
- 9. Emergency power supply system existing to remain.
- A. Provide new battery calculations as part of the shop drawing submittal as required by the
- 11. Digital alarm communicator transmitter existing to remain.
- A. Control of system: by the FACP. B. System supervision: automatically detect and report open circuits, shorts, and grounds of
- C. Transmission to remote alarm receiving station.
- E. Performance of notification appliance circuits: NFPA 72, Style Y. Circuits shall be installed in F. Performance of device monitoring signaling line circuits: NFPA 72, Style 4. circuits shall be
- automatic alarm operation of a heat detector, operation of a sprinkler flow device, or verified automatic alarm operation of a smoke detector shall initiate the following:

D. Provide control of door hold-opens or other doors as required.

Released doors locked by security system.

CORTLAND MORGAN ARCHITECT

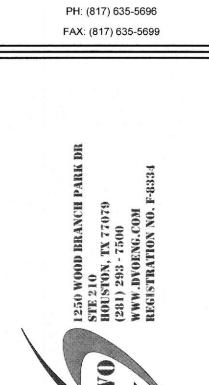
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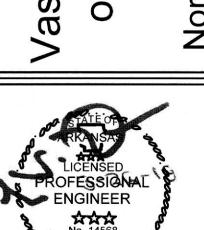
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REVISIONS ISSUE FOR CONSTRUCTION 'B'-ISSUE 'C'-ISSUE

> **ELECTRICAL SPECIFICATIONS**

> > E0.01