

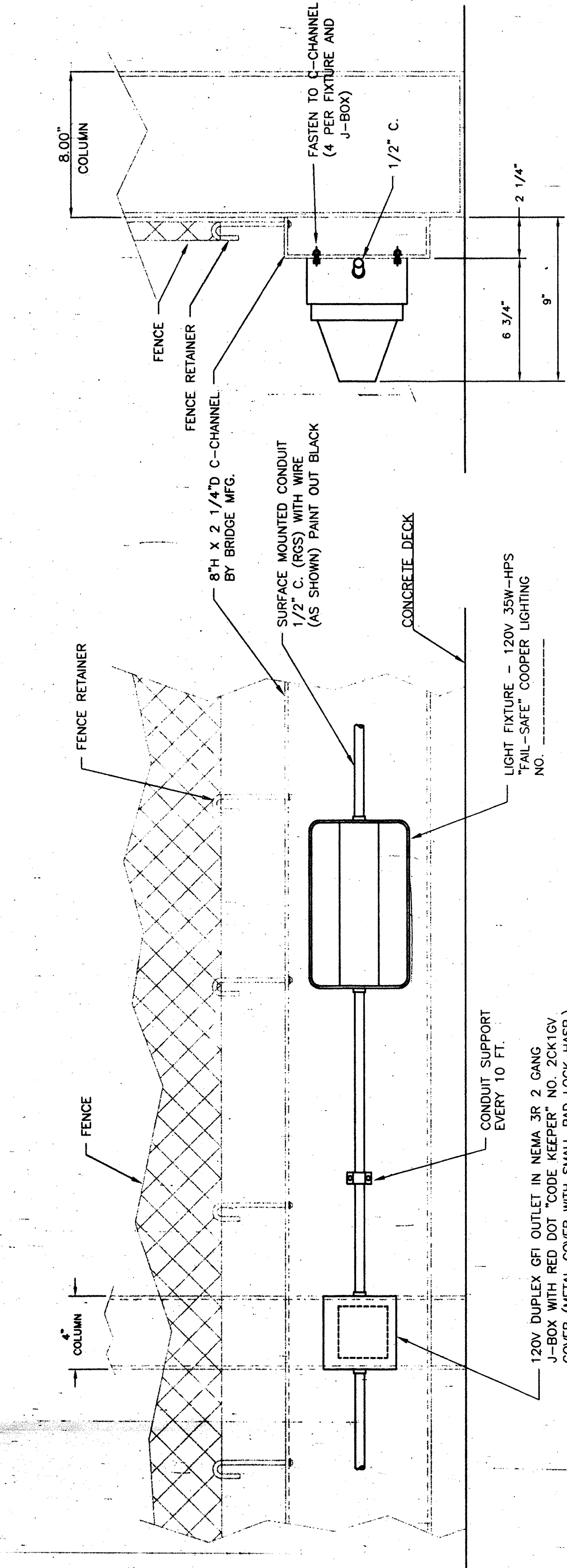
SECTION 16.000 ELECTRICAL SPECIFICATIONS

- 16.01 General
- A. Submit all bid conditions and specifications to be performed on all job site conditions and work to be performed under this contract.
- B. Contractor shall perform all verification, observation, testing, and inspection of the electrical equipment and the work of construction. He shall issue a written notice of all findings to the Engineer listing all malfunctions, faulty equipment and discrepancies.
- C. Verify heights with Owner before installation.
- D. The electrical plans are diagrammatic only, follow as closely as possible.
- E. Permanently tag each conductor of every system in each panelboard, pull box, J-box, switch box, etc., in compliance with Occupational Safety and Health Act (OSHA).
- F. Electrical contractor shall provide all labor materials, insurance, equipment, installation, construction tools, transportation, etc., for a complete and properly operative system, energized throughout and as indicated on drawings, as specified herein and/or as otherwise required.
- G. All materials and equipment shall be new and in perfect condition when installed and shall be of the best grade and of the same manufacturer throughout for each class or group of equipment. Materials shall be listed and approved by Underwriter's Laboratory and shall bear the inspection label. All work shall be subject to such approval. Materials shall meet governing bodies having jurisdiction. Materials shall be manufactured according to applicable standards established by ANSI, NEMA, and NFPA.
- H. Contractor shall carry out his work in accordance to all the latest governing state, county, local codes and OSHA.
- I. Electrical building permits and is to pay all fees.
- J. Guarantee the complete job for one (1) year after the date of job acceptance by Owner. Correct any work, material or workmanship that may be defective or deficient, without charge, upon written notification, at the expense of the electrical contractor.

- K. Provide the Owner with one set of complete electrical drawings, including all changes, at the job, showing actual dimensions, circuits and changes.
- L. All brochures, operating manuals, catalogs, shop drawings, etc., will be turned over to Owner at job completion.
- M. Use T-tap connections on all multi-circuits with common neutral conductor for lighting fixture.
- N. The entire electrical installation shall be grounded as required by all applicable codes.
- O. Patch, repair and paint any area that has been damaged in the course of the electrical work.
- 16.02 Wire and Cable
- A. Conductors shall be copper #12 AWG (THHN/THWN rated) minimum unless specifically noted otherwise on drawings.
- 16.03 Conduit
- A. Rigid conduit shall be UL Listed, galvanized zinc coated with zinc interior and shall be used when installed in earth shall be wrapped with approved 40 mil plastic tape or PVC coated conduit.
- B. Electrical metallic tubing shall have UL Label. Use set screw or gland ring compression type for all fittings. Use EMT only for interior runs not subject to damage.
- C. Flexible metallic conduit shall have UL Listed label and can be used where permitted by code. Fittings shall be "joke" or "squeeze" type. Seal Tight flexible conduit. All conduit more than six feet in length shall have code size ground wire or approved as ground.
- D. All underground conduit shall be PVC schedule 40 (unless noted otherwise) at a minimum depth of 24" below grade. Under slab conduit may be 6" below slab.
- E. All street crossings and risers shall be PVC schedule 80 (unless noted otherwise) at a minimum depth of 24" below grade. Under slab conduit may be 6" below slab.

- F. Conceal all conduit installed unless otherwise noted.
- G. All conduit only (C.O.) shall have a pull wire or rope.
- 16.04 Lighting Fixtures and or Controls
- A. Low power factor ballasts not approved. Use high power factor ballasts only when available. Normal power factor is standard.
- B. No substitutions allowed without prior approval.
- C. All adjustable exterior lighting after dark and per Owner request.
- D. Mount all time clocks and relays in approved NEMA cabinets as indicated on plans.
- 16.05 Other Equipment
- A. Provide lead schedule in all panelboards listing circuits and identifying type and size of load, type/weight and protected by a transparent plastic cover.
- B. All circuit breakers, fuses, and electrical equipment shall have an interrupting rating not less than the maximum short circuit current available at the location and a minimum of 10,000 A.I.C.
- 16.06 Electrical Utility Box Installation
- A. Pull boxes in grade to be Quikset no. E-17 (or Brooks no. 19B) or as indicated on plans, concrete type set on 12" compacted gravel base for drainage. Provide concrete top and concrete base for concrete top in landscape areas and steel traffic lids in vehicle drive areas. Engrave all lids "electrical."
- B. Install utility boxes with 12" (minimum) crushed rock base and concrete slab surrounding and flush with the top of the pull box. Concrete slab shall extend 6" minimum, from the pull box in all directions, including when in concrete pored concrete, and shall be 12" above paving, the paving to meet the slab, to minimize water intrusion.
- C. Waterproof all connections or splices located in a pull box or other space below grade or where moisture can collect. The connections or splices shall be made with approved equal connectors and to embed the connectors within a "Unipak" of 3M "Scotchcast" epoxy type resin. Make all connections and splices necessary to properly install and complete the work, and tape all underground splices. All tape shall be 3M "Scotch" #33 plastic electrical tape. All connections and splices shall be electrically and mechanically perfect, and in strict accordance with all code requirements.

- 16.07 Execution
- A. Connectors terminal lugs shall be used for terminating stranded conductors #8 and larger.
- B. All branch circuit and fixture wiring joints, splices and taps for conductors #10 and smaller with UL approved connectors listed for 600 volts. Connector bodies shall consist of a cone shape expandable coil spring insert, insulated with teflon or plastic shell.
- C. Remove all debris and moisture from the conduits, boxes, cabinets and light fixtures.
- D. No oil, grease, or similar substances shall be used to lubricate conductors or equipment. Use a light coat of linseed soap or specifically approved wire pulling compound.
- E. Wire in panel cabinets, pull boxes and wiring gutters shall be neatly grouped, taped together with 3M "Scotch" plastic electrical tape, T&B Model 17-Rop cable stop or the faced with #12 standard facing time and fanned out to the terminals.
- F. No splice shall be allowed in any cast iron or concrete pull box, unless it is specifically called for on the drawings or it is with the specific written approval of the Architect. When splices are allowed a Thomas & Betts No. HS-1 series "weatheright" heat shrink process jacket over the splice shall be used.



FRONT VIEW
SCALE: 3" = 1'-0"

SIDE VIEW
SCALE: 3" = 1'-0"

Light Fixture Mounting Detail
1" = 5'-0"