

PART I – GENERAL**WORK SPECIFIED HEREIN**

- The contractor shall furnish and install a lighting fixture as scheduled on each and every outlet in accordance with the type designation shown on the drawings. If a type designation is omitted the fixture shall be of the same type as is shown for rooms of similar usage. Verify before purchase and installation.
- Fixtures are specified in the schedule by manufacturer's name and catalog number. No substitutions on **Required Vendor** items. Villa Lighting is a Required Vendor.
- It shall be the contractor's responsibility to check the architectural drawings and, regardless of the catalog number prefixes and suffixes shown, furnish fixtures with the proper trim, frames, supports and hangers and other miscellaneous appurtenances to properly coordinate with finish ceilings, etc.
- Where ceiling construction requires reinforcing to support the weight of the fixtures, it shall be furnished by the contractor.
- Where multiple voltages are used, it shall be the contractor's responsibility to verify the voltage shown connected with the voltage shown in the light fixture schedule. If there is any difference, it is the contractor's responsibility to verify the voltage with the engineer before placing an order for the fixtures.
- Furnish and install all lighting fixtures as indicated and scheduled on the drawings.

SUBMITTALS

- Unless otherwise noted, the contractor shall prepare all shop drawings, product literature, etc. only as required to properly coordinate and construct the project.
- Review of submittals by the Professional of Record is limited to specific shop drawings as called for in the Project Manual.
- Shop drawings for review by the Professional of Record are not required for this section.

PART II – PRODUCTS**GENERAL**

- Provide lighting fixtures of sizes, types, and ratings indicated; complete with, but not necessarily limited to housing, lamps, lamp holders, reflectors, ballasts, starters and wiring.
- All recessed incandescent fixtures shall have thermal protection.
- All fluorescent fixtures having flat lenses shall have a .125 (min.) thickness.
- All fixtures exposed to direct weather condition (rain) shall be wet labeled. All exterior fixtures not exposed to direct weather shall be damp labeled.

PART III – EXECUTION**FIXTURE INSTALLATION**

- Fixtures shall be recessed in furred ceiling and installed so that they can be removed from below the ceiling, unless indicated otherwise.
- Recessed fixtures installed with metal bar hangers for attaching to ceiling supports. Fixtures not supported directly from ceiling, provide galvanized steel wire as required for supporting fixtures from structure. No wood or other combustible material shall be used for supporting fixture.
- Ascertain the type of ceiling construction for each fixture and provide suitable frame and fixture accessories to suit. Furnish substantial mounting frames or plaster rings for all recessed and semi-recessed lighting fixtures where indicated or required. All frames made of galvanized steel shall be provided with extra cross members where required to insure maintenance of proper opening dimensions during installation.
- Direct connected recessed fixtures in removable ceilings shall be connected to the branch circuit with flexible conduit and branch circuit wire from an accessible junction box. Where fluorescent fixture housings are connected together, use 90°C wire for branch circuit feed through fixture channels.
- Fixtures shall be grounded to the grounding system.
- Prior to placing orders for recessed fluorescent fixtures, contractor shall verify the types of ceilings and suspension systems that have been approved for the project and shall order fixtures with flanges as required to fit in the approved ceilings.

INSTALLATION OF LIGHTING FIXTURES

- Installation of all lighting fixtures shall be done by experienced mechanics. Lighting fixtures should not be installed where finished coat of paint has been applied to ceiling and walls until paint is thoroughly dry.
- Lighting fixtures in equipment rooms shall not be installed until after all piping and ductwork is in place. Lighting fixture layout shown on the drawings is typical layout for bid purposes, but shall be modified to provide adequate lighting of the equipment space according to final construction conditions. Any relocation of fixtures due to duct or piping interference shall be as directed by the Engineer at no expense to the Owner.
- Contractor shall be responsible for proper coordination of all lighting fixture locations. Provide support for all fixtures mounted on or recessed in hung ceiling. Confer with ceiling contractors and other trades to coordinate lighting system.
- Fixtures shall be rigidly mounted to fixture stud in outlet boxes. Provide Malleable iron hickies or extension pieces where required.
- Provide suitable coverplate or canopy for each fixture outlet box where the fixture does not provide a suitable cover.

SECTION 16500: LIGHTING

- Fixtures located on exterior of building shall be installed with cadmium-plated brass screws and gasketed.
- All pendant type fixtures in the same room shall be installed at a uniform height from the floor and hung plumb.
- Verify all ceiling heights and clearances. Before proceeding with fixture installation, a schedule of mounting heights for all fixtures shall be submitted for approval.
- Recessed lay-in fixtures furnished with 7 feet No. 14 AF wire (minimum) and 6 feet Greenfield.
- Circuit wiring running through the fixtures shall be No. 12 AWG with Type XHHW or THWN/THHN insulation. No joints in the wires other than those absolutely required. Provide fixture wires of sufficient length for making approved connections at the fixture outlets and at the lamp holders or ballasts.
- Joints and splices within fixtures to be secured by wire nuts or indent type lug fasteners.
- Protect the lighting fixtures from damage during their unloading or removal, storage and installation. Any broken fixtures, glassware, etc., must be replaced with new parts, without any additional expense to the Owner, unless undue delay or inconvenience.
- Upon completion of the installation of the lighting fixtures and lighting equipment, they must be in first class operating order and in perfect condition as to finish, etc. Check for proper operation and appearance, alignment of fixtures, and proper placement of lenses, louvers, lamps, and other light-controlling or modifying appurtenances. Where special lighting effects, flood or spotlighting is involved, perform final adjustment under the direct supervision of the Professional of Record and PETSMART.
- *Cleaning:* Immediately prior to occupancy, damp clean all glass ware, fixture trims, reflectors, and clean lamps or install new lamps as directed, with glass and fixtures free of labels.
- *Use of Lighting Fixtures:* As soon as any portion of the lighting fixture work is ready for operation, the Owner shall have the right to operate the same under the supervision of the contractor. This shall in no way be interpreted to mean the acceptance of such part of the installation or relieve the contractor of his responsibility for the complete work or any part thereof.
- *Approved manufacturers:* General Electric
- Ballasts for fluorescent lamps, unless otherwise scheduled, shall be electronic, high frequency operation with super quiet operating sound level.
- *Approved ballast manufacturers:* Universal, Advance, Valmont (General Electric) or Motorola.

END OF SECTION