SECTION 26 05 02

GENERAL COMPLETION, ELECTRICAL

PART ONE - GENERAL:

1.01 GENERAL REQUIREMENTS FOR INSTALLATION:

A. Piping, fixtures, equipment, etc., shall be located to avoid interference with structural and architectural conditions, or with the work of different trades. Provide off-sets where necessary to avoid footings, piers, columns, beams, windows, other piping, mechanical systems, and other systems, etc., specifically inform the General Contractor as to the correct size and location of all chases, openings, supports, sleeves, etc., required for the system. Furnish and install sleeves, inserts, bolts, etc., and arrange for the cutting of walls, floors, roofs, etc., and the proper closing of all openings. Cutting of construction, where unavoidable, must be done by the General Contractor, but shall be paid for by the electrical contractor. No part of the building may be broken out, cut, burned, or permanently removed without the approval of the Architect.

PART TWO - PRODUCTS:

2.01 WORKMANSHIP AND MATERIALS:

A. Workmanship shall be of the best quality and none but competent mechanics skilled in their trades shall be employed. The Contractor shall furnish the services of an experienced superintendent, who will be constantly in charge of the erection of the work, until completed and accepted.

B. Unless otherwise hereinafter specified, all materials and equipment shall be new, of best grade, and as listed in printed catalogs of the manufacturer. Each article of its kind shall be the standard product of a single manufacturer.

C. The Architect shall have the right to accept or reject material, equipment and/or workmanship, and determine when the Contractor has complied with the requirements herein specified. Where departures from indicated arrangements are required, written approval for such changes shall be obtained from Architect's representative.

D. All manufactured materials shall be delivered and stored in their original containers. Equipment shall be clearly marked or stamped with the manufacturer's name and rating.

E. All material and equipment used on this project shall be stored in a weatherproof, bonded warehouse. Contractor shall submit insurance certificate to the Architect prior to storing any materials or equipment. No equipment or materials used on this project shall be stored outside exposed to the weather. Before final payment can be made, a notarized statement with the material invoiced to the Owner must be furnished to the Architect.

2.02 DIVISION OF WORK:

A. Coordinate all opening locations with General Contractor, see paragraph 2.03.

B. The electrical contractor shall provide concrete foundations, curbs and pads for electrical

equipment and fixtures. Unless otherwise noted, set all floor and/or ground mounted equipment on 6" high concrete pads reinforced with 6 x 6 10/10 mesh. Pads shall be approximately 6" larger than equipment base and have 1" x 1" chamfer on all edges. Pads to have carborundum brick rubbed finish. Surface finish shall be uniformly smooth.

C. General Contractor will provide flashing of conduits into roofing. The electrical contractor shall provide counterflashing.

D. Provide complete power wiring and connections for mechanical systems specified under the mechanical specifications. This work includes all raceways, conductors, outlets, and pull boxes, line voltage, on-off switches where indicated and disconnecting means as indicated and required by applicable codes. Where magnetic motor starters (controllers) are furnished by others, install and wire complete; where controllers are provided already mounted on equipment, wire complete. In all cases, provide power wiring to controller and load controlled. Wire sizes between controllers and loads shall be the same as feeder size to controller, do not reduce. Make all connections and color code per this DIVISION. Safety switch enclosures shall be NEMA Type 3R outdoors and wet locations; NEMA Type 1 elsewhere. Not included in this DIVISION are temperature control wiring, equipment control wiring and interlock wiring required to operate the mechanical system. Refer to the mechanical specifications for a summary list of types of equipment provided under that DIVISION. The electrical contractor shall provide outlet box for thermostat with 3/4" conduit to corresponding mechanical unit. The electrical contractor shall provide a 3/4" empty conduit between indoor air handling unit and exterior heat pump on split system units; this conduit is in addition to thermostat conduit noted above.

2.03 OPENINGS - CUTTING, REPAIRING:

A. The electrical contractor shall cooperate with the work to be done under other Sections in providing information as to openings required in walls, slabs, and footings for all conduits and equipment, including sleeves, where required.

B. All drilling, cutting, and patching required for the performance of work under this Section shall be performed by the General Contractor and the cost thereof shall be borne by the electrical contractor.

C. Holes in Concrete: Sleeves shall be furnished, accurately located and installed in form before pouring of concrete. The electrical contractor shall pay all additional costs for cutting of holes as the result of the incorrect location of sleeves. All holes through existing concrete shall be either core drilled or saw cut. All holes required shall have the approval of the Structural Engineer prior to cutting or drilling.

2.04 EXCAVATION AND BACKFILL:

A. General: The Contractor shall do all excavating and backfilling necessary to receive the work shown on the drawings.

Excavations shall be made to the proper depth, and the trenches shall be graded uniformly to provide solid bearing along the entire length of the conduit. All trenches shall be excavated so that conduits will have at least (6) inches clearance on each side. Conduits in fill or loose sand shall have trench bottom tamped to 95% maximum density compaction prior to laying conduits.

B. Backfilling: Do not fill any trenches until all conduits have been inspected. After the work is

installed, tested, inspected, and approved, the trenches shall be refilled in six-inch layers with clean, damp earth, with each layer thoroughly tamped before proceeding with additional layers. Remove from site all excess earth, rock and other debris resulting from excavation and backfill work.

2.05 NAMEPLATES:

A. On all panelboards, disconnect switches, transformers, and enclosures provide engraved phenolic plastic nameplates. Unless otherwise noted, nameplates to be 1/16" thick plastic with 1/4" high white letters on black background. Hand lettering, typing under tape, embossed letters on plastic, etc., will not be acceptable

B. Attach nameplates with two rivets.

2.06 CLEANING EQUIPMENT AND MATERIALS:

A. Provide for the safety and good condition of all materials and equipment until final acceptance by the Owner. Protect all materials and equipment from damage. Provide adequate and proper storage facilities during the progress of the work.

B. All fixtures, conduits, finished surfaces, and equipment shall have all grease, adhesive labels, and foreign materials removed.

2.07 CLEANING UP:

A. Remove from the premises all unused material and debris resulting from the performance of work under this Section.

2.08 DAMAGES:

A. Cost of repairing damage to building, building contents, and site during construction and guarantee period resulting from this work is a part of this contract.

2.09 TEST PERFORMANCE:

A. Upon completion of the work, the system shall be free of faults, including short circuits, grounds, and open circuits, and loads balanced across phases to obtain minimum neutral current in all feeders and branch circuits. All communications systems shall operate at a standard representative of the best state of the art for the particular system involved. All life safety systems shall be demonstrated and certified as to operation in compliance with the codes and the intent of these Specifications. Test system in the presence of the Engineer or his representative, and operate to comply with the true intent of Plans and Specifications. Defray cost of all adjustments required to correct deficiencies; replace defective material and equipment, do not repair.

2.10 FINISHED PLANS:

A. As-built Drawings: Upon completion of the work, the Contractor shall furnish and deliver to the Owner two (2) sets of as-built drawings to correspond in size to the tracings, showing among other things, layouts of utility systems and functional systems (such as public address, fire alarm and telephone). All pertinent dimensions and elevations of buried work shall be given.

2.11 INSTRUCTIONS:

A. Provide a hard back, three-ring file folder containing all warranties, catalog data and the manufacturer's recommendations and the frequency with which each is to be done. Each sheet shall be initialed by the manufacturer's agent as being correct. Provide columns on each sheet so that they may be dated by maintenance personnel when each individual function is performed. Contractor shall furnish a typed maintenance manual in a hard back, three-ring binder explaining all maintenance functions. The Contractor shall instruct and demonstrate each maintenance function to the Owner's Representative. The Owner's Representative shall in turn sign the maintenance sheets indicating his under-standing of the instructions. Coordinate all equipment start-ups with the Owner, so that they may be present.

B. The Contractor shall instruct the Owner's Representative in complete detail as to the proper operation of the overall systems. Advise the Owner as to where to order common replacement items. Deliver to the Owner the manufacturers' agent's name, address, and the telephone number of each piece of equipment.

2.12 GUARANTEE:

The Contractor agrees:

A. To correct defects in workmanship, materials, controls, equipment, and operation of the system for a period of one (1) year from the date of acceptance.

B. To remove any item not specified or given written approval and replace it with the specified item.

C. That the systems installed will safely, quietly, and efficiently perform their respective functions in accordance with the design.

END OF SECTION