

SECTION 16000 CONDENSED SPECIFICATION

1. GENERAL REQUIREMENTS:

- A. **GENERAL CONDITIONS:** The bidders will examine a complete set of construction documents to avoid omissions, duplications and to ensure complete and working execution of the work for electrical construction.
- B. **GENERAL:** The work under this section shall include labor, materials and equipment and incidental costs necessary to furnish and install electrical work, equipment, lamps, etc. indicated on drawings, as specified herein, or both.
- C. **SCOPE:** Furnish labor, materials, tools, equipment, etc., required for a complete installation of electrical systems and work, in accordance with federal, state, and local codes, and governing bodies having jurisdiction.

2. PERMITS, TESTS AND INSPECTIONS:

- A. Apply for, secure and pay for required permits, fees, licenses and royalties to accomplish the work.

3. CODES, RULES, AND REGULATIONS:

- A. The contractor shall furnish, without extra charge, any additional materials and labor that may be required for compliance with governing laws, rules and regulations even though the work is not mentioned in these specifications or shown on the drawings. Nothing in plans or specifications shall be deemed as authority to violate any governing code.
- B. Product shall be UL and CSA certified and labeled. Meet listed NEMA standards and be suitable for the intended use/service required for the device.

4. CLEAN-UP:

- A. Remove surplus material, equipment and debris incidental to this work and leave the premises in a condition acceptable to the owner and tenant (if applicable).

5. GUARANTEE:

- A. Furnish a written certified guarantee, in acceptable form to owner, against any defective workmanship, material and operating equipment. This guarantee shall be in force and effective for a period of (1) year after acceptance of the installation.

6. BASIC MATERIALS AND METHODS:

A. RACEWAYS AND BOXES:

1. Where size of raceway or boxes is not indicated, the electrical sub-contractor shall size these items as required by code.
2. Raceways shall be electrical metallic conduit unless otherwise indicated or required by code.
3. Intermediate metal conduit may be used wherever rigid conduit is required except for raceways embedded in concrete slabs, in contact with the earth, underground not encased in concrete and in corrosive locations.
4. Schedule 40 PVC may be used underground or in areas indicated on drawings.
7. Elbows shall be of the same materials as the conduit except for PVC installations. All PVC conduit systems shall have rigid metal elbows unless otherwise noted. Elbows in EMT and small rigid conduits may be job-fabricated with a bender made specifically for the purpose.
8. Conduits shall be sized as indicated on the drawings and as required to accommodate the wires to be pulled into the conduit. Conduit shall not be less than one-half inch (1/2).
9. MC cable may be used where concealed in walls and ceiling spaces as allowed by local AHJ.

7. GROUNDING:

- A. Non-current equipment, including the following items, shall be properly grounded:

1. Secondary feeder conduit and equipment enclosures.
2. Panel board enclosures, pull and junction boxes, cable troughs.
3. Conduits, metal molding and outlet boxes.
4. Equipment housings exposed on the structure or on grade.

8. WIRING DEVICES:

- A. Devices shall be UL and CSA certified, listed NEMA Standard, and suitable for the service required for the intended use of the device in this installation.
- B. Where devices manufactured by, Hubbell, P & S, Leviton, Walker/Wiremold, Thomas & Betts, Square D, or Sierra are named, only equivalent devices by the other of these manufacturers will be acceptable. Unless otherwise indicated, devices shall be as follows:
 1. Wall Switches: 20 ampere, 120/277 volt AC, Federal Spec grade.
 3. Pilot Lighted Switches: 20 ampere, 120/277volt AC, Federal Spec grade with red handle (glow when on).
 4. Dimmer Switches: 20 amperes, 120/277 volt AC, Federal Spec grade, slide digital touch type with indicator lights.
 5. Convenience Outlets: Duplex receptacles Federal Spec grade 20 ampere, 125-volt side and back wired with a pair of NEMA 5-20R Standard 3 contact grounded parallel slot contacts. Ivory finish in light colored walls, brown finish in dark colored walls, or as designated by the Architect or Owner.
 6. Ground Fault Circuit Interrupter Convenience Outlets: Side wired 20 ampere, 120 volt with appropriate wall plate.
 7. Manual Motor Starters: Overload heater sized to the motor nameplate rating.
 8. Other receptacles: Other receptacles shall be of type and characteristics and NEMA configuration to provide service as indicated for the

9. WIRE AND CABLES:

- A. Wire for light and power installations shall be high conductivity copper 600 volt "THHN" wiring, except as noted on the drawings or otherwise specified herein.
- B. No wire shall be smaller than No. 12 AWG except #14 may be used for control wiring. All wire No. 8 and larger shall be stranded.
- C. Wire and cable shall be factory color-coded. Colors for each phase and neutral shall be used consistently throughout each system. The following color codes shall be used and maintained throughout the system:

CITY OF AUSTIN COLOR CODING OF CUSTOMER'S SERVICE CONDUCTORS				
SERVICE TYPE	PHASE			
	A	B	C	N
120/240V, Single-phase, 3-Wire	RED	BLACK		WHITE
120/240V, 3-Phase, 4-Wire, DELTA				
Through Metering Equipment	RED	BLACK	ORANGE (High-Leg)	WHITE
In Service Equipment	RED	ORANGE (High-Leg)	BLACK	WHITE
120/208V, Single-phase, 3-Wire	(Note 1)	(Note 1)	(Note 1)	WHITE
120/208V, 3-Phase, 4-Wire, Wye	RED	BLACK	BLUE	WHITE
277/480V, 3-Phase, 4-Wire, Wye	BROWN	YELLOW	PURPLE	NATURAL GRAY

Green shall be used for the grounding conductor only.
Marking of conductors at all termination points will be approved for size #6 AWG and Larger.
NOTE: Per the City Code, Section 25-12-114, Provision 200.6(D) Color Coding of Conductors- ALL COLORS SHALL BE CONSISTENT THROUGHOUT EACH SYSTEM. (Four-wire wye secondary services from AE to multiple occupancy buildings require that the Customer install wiring to each occupant that satisfies the color consistency requirements of this section. (Contact COA Electric Inspection.) For all other jurisdictions, verify color coding with the local Inspection Department.

- D. Homeruns more than 100 feet shall be minimum #10 wire unless noted otherwise. Homeruns more than 225 feet shall be minimum #8 wire unless noted otherwise. Contractor shall adjust the wire size accordingly.

10. LIGHTING AND POWER PANELS:

- A. Panels shall be circuit breaker type installed in code gauge galvanized sheet steel cabinets, flush or surface mounted as indicated on the drawings. Each cabinet shall be complete with hinged doors, cylinder lock, directory frame and neatly typed directory charts. All panels shall be keyed alike.
- B. The branch circuit breakers, in general, shall be molded case, bolt-on type, rated 10,000 AIC for 120/240V, 14,000 AIC for 480/277 Volt Systems or larger interrupting capacity as may be indicated on plans. Thermal magnetic trip, single, two or three pole as shown on drawings. Multiple pole breakers for panels where indicated on the drawing schedules. Main breaker characteristics shall be as indicated on the drawings. Main bus work of all panels shall, as a minimum, be designed to carry the full rating of the feeder switch supplying the panel, at a current density of 800 amperes per square inch of cross section. Bus work shall be high conductivity copper.
- C. Panel sections shall be such that no live parts are exposed after installation. They shall be so arranged that each breaker is readily removable from the panel without disturbing adjacent breakers.
- D. Phase legs shall be alternately bussed to each circuit breaker in a manner to affect balancing the branch circuit connections as nearly as possible over each phase.
- E. Branch panel boards on 240/120V systems shall be equipped with GE type THQB; square D type QOB; or Westinghouse type BAB bolt-in circuit breakers with a minimum interrupting capacity of 10,000 amperes symmetrical on 120 VAC, 60 Hertz. Where indicated on panel board schedules higher interrupting capacities shall be furnished.
- F. Install spare conduits from each panel board. Where ceiling above is furred down, stub three 3/4" conduits from each panel to an accessible space above the ceiling. Where ceiling is exposed, stub three 3/4" conduits up and turn out at the ceiling.

11. DISCONNECT SWITCHES:

- A. All disconnect switches shall be Type HD, heavy duty rated, and lockable.
- B. All disconnect switches must be horsepower rated for the motors being served, and with suitable enclosures for the application.



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KENEDY RETAIL

**131 BUSINESS
PARK DRIVE
KENEDY, TEXAS
78119**

project no.

167.1201

date

11/19/12

scale:

NO SCALE

revisions



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**ELECTRICAL
SPECIFICATIONS**

sheet no.

E4.0