

SECTION 01 5100 – TEMPORARY UTILITIES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes: Temporary electric service, power distribution and lighting systems necessary for construction of Project
- B. Responsibility: All work under this section to be provided by the **Mechanical Work Contractor Contract #1**.
- C. Applicability: This section applies to all renovation and new construction work areas for each building for this Project.

1.2 RELATED SECTIONS

- A. Comply with Section 01 5000 – Temporary Facilities and Controls.

1.3 QUALITY ASSURANCE

- A. Comply with all NECA, NEMA and UL standards and regulations pertaining to temporary electrical facilities, and all applicable codes and ordinances in affect at Project Mechanical.

1.4 TEMPORARY LIGHT, POWER, AND TELEPHONE

A. GENERAL

- 1. Includes: Temporary electric service, power distribution, lighting systems and telephones necessary for construction of Project.
- 2. Responsibility: All work under this section (1.4) to be provided by the **Mechanical Work Contractor Contract #1**.
- 3. Applicability: This section applies to the Project renovation work site area.
- 4. Mechanical Work Contractor shall make arrangements with utility company for temporary and permanent services immediately after award of contract.
- 5. Temporary or permanent services for temporarily or permanently installed building equipment such as sump pumps, boilers, cabinet heating and/ or cooling units and fans shall be furnished, installed, operated and maintained so that the said equipment may be operated for drainage and temporary heat when required and/ or when so ordered by the Owner.
- 6. Mechanical Work Contractor shall maintain all parts of the electrical system (temporary or permanent) active and in-service at all times throughout the contract duration. All temporary lighting to be controlled by standard switches per code (outside of power panels).
- 7. Mechanical Work Contractor shall maintain power during the hours established by Owner.
- 8. Mechanical Work Contractor shall maintain ventilation during the house

established by Owner.

B. TEMPORARY ELECTRICAL AND TELEPHONE SERVICES

1. Temporary Power Source: At renovation area, use the existing electrical power distribution system for temporary power source.
2. Owner's Requirements: Do not disrupt the Owner's needs for continuous power at each building.
3. Mechanical Work Contractor shall provide temporary power and lighting facilities for use of contractors and Owner. All temporary light and power shall be in accordance with the required Codes and Safety Standards. The temporary light and power shall be used until permanent light and power is completed or portions of the building(s) are enclosed.
4. All contractor trailer use / connection charges for power and telephone to be paid by The Contractor.

1.5 TEMPORARY POWER DISTRIBUTION

- A. General Requirements: Provide feeders and branch circuits of adequate size and proper characteristics as required to supply temporary receptacle and lighting loads. Size service and feeder conductors to restrict voltage drop to maximum 5 percent at 80 percent power factor. Provide properly sized overcurrent protection for each temporary electrical circuit.

1.6 RECEPTACLE REQUIREMENTS

- A. General Requirements: Provide temporary receptacle outlets as required for operation of portable tools and appliances during the construction period.
- B. Minimum Requirements: Provide a minimum of one duplex 120 volt receptacle per 2500 square feet of building floor area, with maximum spacing of 50 feet on center.
- C. Branch Circuits: All temporary receptacle branch circuits to be rated 20 amps with a maximum of (3) duplex receptacles per circuit. Temporary receptacle branch circuits shall be independent of temporary lighting circuits.

1.7 LIGHTING REQUIREMENTS

- A. General Requirements: Provide both interior and exterior lighting as required to provide adequate illumination for safe and proper construction operations and Project site security.
- B. Minimum Requirements: Provide illumination levels adequate for construction operations and safe traffic conditions. As a minimum provide one 200 watt lamp per 400 square feet of building floor area, with maximum spacing of 20 feet. Any rooms in excess of 500 sf will receive one 400 watt metal halide fixture for each 1000 sf of area.
- C. Stairways: Provide one 200 watt lamp per landing at each stairway.
- D. Barricades: Provide adequate lighting for personnel safety at barricades, ladders, openings and other similar locations.

- E. Supplemental Lighting: If required, supplemental lighting beyond minimum requirements shall be provided via suitable portable lighting units with cord and plugs.
- F. Branch Circuits: All temporary lighting branch circuits to be loaded to a maximum of 1400 watts per 20 amp circuit. Temporary lighting branch circuits shall be independent of temporary receptacle circuits.
- G. Restrictions: Do not use permanent lighting systems for temporary construction lighting purposes.

1.8 MAXIMUM LOADS

- A. General: Lighting and power loads connected to the temporary power distribution system shall be limited to the following maximum individual loads:

<u>Load Type</u>	<u>Maximum Size</u>
120 volt, 1-phase	1.5 KVA
208 volt, 1-phase	2.5 KVA
208 volt, 3-phase	5.0 KVA

- B. General: The temporary power distribution system shall be sufficiently sized to provide temporary power as required within this section. Meter and Meter connections to be part of Mechanical Work Contractor.

1.9 ELECTRIC WELDERS

- A. Separate Power Sources Required: Power for electric welders and for other loads larger than the maximum allowable sizes shall be taken from portable power sources provided. Remove such power sources when no longer needed.

1.10 ELECTRICAL ENERGY COSTS

- A. Paid By Owner: Charges for electrical energy usage for temporary power and lighting will be paid by the Owner, when taken from the Owner's electrical services. Contractor and Sub-Contractors shall exercise measures to conserve energy usage. Use of owner electric for items not specific to project (e.g. heating or cooling construction shanties, etc.) will not be permitted.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Electrical Materials: New or used UL listed materials in good condition and of quality to assure adequate safety to personnel and proper operation of equipment.

2.2 RECEPTACLES

- A. General Requirements: 120 volt, 15 or 20 amp, duplex grounding type with ground fault circuit interrupter and suitable outlet box and coverplate. Power cords to be grounded and suitable for hard service usage, with heavy duty plugs.

2.3 LAMP HOLDERS AND LIGHT FIXTURES

- A. General Requirements: Medium base pigtail type lampholders with approved lamp guard protectors. Provide weatherproof light fixtures where exposed to moisture.
- B. Restrictions: Do not suspend temporary lampholders by their electric cords unless cords and holders are specifically designed for that purpose.

2.4 CONDUCTORS

- A. General Requirements: Insulated copper or aluminum, with conductor insulation rated for applied voltage, and insulation and jacketing suitable for the conditions of use. Branch circuit conductors to be minimum size #12 AWG copper, and #10 AWG copper for circuits longer than 100 feet.

2.5 CONDUITS AND RACEWAYS

- A. General Requirements: Types as required and as permitted by code.

PART 3 – EXECUTION

3.1 GENERAL

- A. Installation Schedule: Install the temporary power and lighting and telephone systems within 14 days of contract award.
- B. Code Compliance: Comply with applicable codes relating to permanent work for temporary electric services, and for circuits installed where accessible from streets, sidewalks or other thoroughfares of public access.
- C. Wiring Routes: Route temporary wiring to minimize conflicts with other work. In general, run wiring within building overhead at or above ceiling height and supported on insulators spaced no more than 10 feet apart. Rise vertically through building where wiring will be least exposed to damage from construction operations.
- D. Protection of Wiring: Provide metal conduit, tubing or armored cable for protection of temporary wiring where exposed to possible damage during construction operations. Non-metallic sheathed cable may be used elsewhere. Do not use plain, exposed insulated or bare conductors.
- E. Electrical Boxes: Provide suitable boxes or enclosures for all electrical equipment and wiring devices.
- F. Use of Permanent Raceways: Installed raceways for the permanent installation may be used for the installation of temporary wiring. Do not use permanent wiring for temporary construction purposes.

3.2 SPLICES AND CONNECTIONS

- A. Methods: Solder all conductor splices or use approved mechanical connectors. Insulate all splices and connections by taping or other approved method.

3.3 SYSTEM OPERATION

- A. Responsibility: Temporary power and lighting system shall be maintained by the Mechanical Work Contractor for use at any time of day as directed by Owner.
- B. Loading: Coordinate use of the system so that the electrical demand does not exceed the capacity available.
- C. Maintenance: Maintain all equipment for satisfactory and safe operation. Replace burned-out lamps, and provide necessary repairs.
- D. Repairs: the party responsible for the damage shall pay for Repairs of any damage to system.

3.4 REMOVAL

- A. Schedule: Remove temporary power and lighting system there is no longer any need for it. Temporary power or lighting may not be permanently abandoned or concealed in place. All temporary wiring, equipment and devices, etc. shall be removed prior to Final Completion.

3.5 PERMANENT POWER SYSTEM

- A. Transition To: When scheduled and as job conditions and progress permits, make permanent electrical service and distribution system available for use for testing and operation of required heating and ventilating equipment, etc. that are installed in permanent position. All permanent enclosures and partitions must be in place around major electrical equipment prior to energizing such equipment.

END OF SECTION 01 5100