

## SECTION 01 5000 - TEMPORARY FACILITIES & CONTROLS – MULTIPLE PRIME CONTRACTS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Water service and distribution.
  - 2. Temporary electric power and light.
  - 3. Temporary heat, dehumidification and cooling facilities.
  - 4. Ventilation.
  - 5. Telephone service.
  - 6. Sanitary facilities, including drinking water.
  - 7. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
  - 1. Field offices and storage sheds.
  - 2. Temporary roads and paving.
  - 3. Dewatering facilities and drains.
  - 4. Temporary enclosures.
  - 5. Hoists and temporary elevator use.
  - 6. Temporary project identification signs and bulletin boards.
  - 7. Waste disposal services.
  - 8. Rodent and pest control.
  - 9. Construction aids and miscellaneous services and facilities.
  - 10. Temporary Stairs
  - 11. Internet/email access.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Temporary fire protection.
  - 2. Barricades, warning signs, and lights.
  - 3. Sidewalk bridge or enclosure fence for the site.
  - 4. Environmental protection.
  - 5. Covered walkways
  - 6. Tree and plant protection

7. Stormwater control.
8. Temporary enclosures and partitions.

### 1.3 DIVISION OF RESPONSIBILITIES

- A. General: These Specifications assign each prime contractor specific responsibilities for certain temporary facilities used by other prime contractors and other entities at the site. The Contractor for General Construction is responsible for providing temporary facilities and controls that are not normal construction activities of other prime contractors and are not specifically assigned otherwise by the Architect.
- B. Each contractor is responsible for the following:
  1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each facility.
  2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
  3. Its own field office, complete with necessary furniture, utilities (including internal power distribution from external disconnect box and meters), and telephone service.
  4. Its own storage and fabrication sheds.
  5. Temporary enclosure of the building and temporary heat and dehumidification. Refer to Article 3.2E for temporary heating, cooling, dehumidification and ventilation requirements for Contractors.
  6. All hoisting requirements including hoisting material or equipment into spaces below grade and hoisting requirements outside the building enclosure.
  7. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
  8. Secure lockup of its own tools, materials, and equipment.
  9. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
  10. Generators for powering welders and other equipment with loads in excess of available power supply.
  11. Progress cleaning and waste disposal of its own areas on a daily basis.
    - a. Progress cleaning shall include removal of waste as a result of demolition, new installments and packaging associated with new installation.
  12. Any specific water service and pressure needs necessary for its own construction activities.
- C. The Contractor for General Construction is responsible for but not limited to the following:
  1. Temporary facilities and controls that are not otherwise specifically assigned to the HVAC Contract, Electrical Contract, and Plumbing Contract.
  2. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.

3. Temporary enclosure for building exterior, including moving of enclosure as required by phasing. Also including enclosure of Contractor parking and storage areas, except as indicated.
4. Excavation support and protection, unless required solely for the Work of another contract.
5. Project identification signs and temporary directional and safety signs.
6. General waste disposal facilities.
7. Pest control.
8. Temporary stairs.
9. Temporary fire-protection facilities.
10. Barricades, warning signs, and lights.
11. Site enclosure fence including around Contractor parking and storage area.
12. Covered walkways.
13. Security enclosure and lockup.
14. Environmental protection.
15. Maintenance and restoration of Owner's existing facilities used as temporary facilities including cleaning and sweeping.

D. The Site Contractor is responsible but not limited to for the following:

1. N/A

E. The Plumbing Contractor is responsible but not limited to for the following:

1. Piped sewerage and drainage.
2. Piped gas service.
3. Piped water service.
4. Plumbing connections to existing systems and temporary facilities and controls furnished by other contractors.
5. Temporary water during construction

F. The Heating, Ventilating, and Air-Conditioning Contractor is responsible for but not limited to the following:

1. Temporary Heating, Cooling and Ventilation after building Permanent Enclosure and weathertight, excluding utility use charges.

G. The Electrical Contractor is responsible but not limited to for the following:

1. Electric power service and distribution as necessary for construction.
2. Lighting, including site lighting.
3. Electrical connections to existing systems and temporary facilities and controls furnished by the General Construction Contract, Plumbing Contract, HVAC Contract, and Fire Protection Contract.
4. Electrical service to all Prime Contractors trailers.

#### 1.4 USE CHARGES

- A. General: Unless specifically indicated to be provided from the owner's metered system and without payment of use charges, cost or use charges for temporary facilities are not chargeable to the Owner or the Architect. The Owner will not accept a prime contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.

Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:

1. Owner's construction forces.
  2. Occupants of Project.
  3. Testing agencies.
  4. Personnel of authorities having jurisdiction.
- B. Water Service: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- C. Electric Power Service: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- D. Sewer Service Use Charges: The Owner shall pay sewer service use charges for sewer usage of the Owner's existing system by all parties engaged in construction, at the Project Site.
- E. Fuel for Temporary Heat: Fuel costs for temporary heat shall be paid as follows:
1. Renovation Construction - Temporary heat utilizing existing system currently metered by Owner: Fuel costs by Owner.
- F. Refer to Part 3 of this Specification for requirements on Temporary Heating, Cooling, Dehumidifying, and Ventilation.

## 1.5 SUBMITTALS

- A. Temporary Utilities: Each prime contractor shall submit reports of tests, inspections, meter readings, and similar procedures performed on temporary utilities.
- B. Implementation and Termination Schedule: Within 15 days of the date established for submittal of the Contractor's Construction Schedule, each prime contractor shall submit a schedule indicating implementation and termination of each temporary utility for which the Contractor is responsible.
- C. Shop Drawings and samples for verification: For temporary project identification sign, include the following information:
1. Sign design and details of construction.
  2. Include dimensioned scale drawing indicating locations of text and size and location of graphic elements.
  3. Font styles to be used, full size examples.
  4. Color samples for each sign color indicated, not less than 3 inches square.

## 1.6 QUALITY ASSURANCE

- A. Regulations: Each prime contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
  - 1. Building code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.
  - 4. Police, fire department and rescue squad rules.
  - 5. Environmental protection regulations.
- B. Standards: Each prime contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."
  - 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with the normal application of trade regulations and union jurisdictions.
  - 2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- D. Temporary heat and dehumidifying equipment supplier qualifications: Engage a supplier experienced in supplying temporary heating and dehumidifying equipment and with the engineering and testing to recommend equipment sizes, predict fuel loads, predict humidity levels and test indoor air quality.

## 1.7 PROJECT CONDITIONS

- A. Temporary Utilities: Each prime contractor shall prepare a schedule indicating dates for implementation and termination of each temporary utility for which the Contractor is responsible. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of permanent service.
  - 1. Temporary Use of Permanent Facilities: The Installer of each permanent service shall assume responsibility for its operation, maintenance, and protection during use as a construction facility prior to the Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

## 1.8 SEQUENCING

- A. Obtain permits for and install temporary project identification signs no later than 15 days after notice to proceed.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: The prime contractor shall provide new materials. If acceptable to the Architect, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
  - 1. For job-built temporary offices, shops, and sheds within the construction area, provide UL-labeled, fire-treated lumber and plywood for framing, sheathing, and siding.
  - 2. For signs and directory boards, provide exterior-type, Grade B-B high-density concrete form overlay plywood of sizes and thicknesses indicated.
  - 3. For fences and vision barriers, provide minimum 3/8-inch- (9.5-mm-) thick exterior plywood.
  - 4. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch- (16-mm-) thick exterior plywood.
- C. Gypsum Wallboard: Provide gypsum wallboard on interior walls of temporary offices.
- D. Roofing Materials: Provide UL Class A standard-weight asphalt shingles or UL Class C mineral-surfaced roll roofing on roofs of job-built temporary offices, shops, and sheds.
- E. Paint: Comply with requirements of Division 9 Section "Painting."
  - 1. For job-built temporary offices, shops, sheds, fences, and other exposed lumber and plywood, provide exterior-grade acrylic-latex emulsion over exterior primer.
  - 2. For sign panels and applied graphics, provide exterior-grade alkyd gloss enamel over exterior primer.
  - 3. For interior walls of temporary offices, provide 2 coats interior latex-flat wall paint.
- F. Tarpaulins: Provide waterproof, fire-resistant, UL-labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.
- G. Water: Provide potable water approved by local health authorities.
- H. Open-Mesh Fencing: Provide 0.12-inch- (3-mm-) thick, galvanized 2-inch (50-mm) chainlink fabric fencing 6 feet (2 m) high galvanized steel pipe posts, 1-1/2 inches

(38 mm) I.D. for line posts and 2-1/2 inches (64 mm) I.D. for corner posts. Provide concrete bases for supporting posts.

## 2.2 EQUIPMENT

- A. General: The prime contractor shall provide new equipment. If acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Water Hoses: Provide 3/4-inch (19-mm) heavy-duty, abrasion-resistant, flexible rubber hoses 100 feet (30 m) long, with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.
- C. Electrical Outlets: Provide properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button, and pilot light for connection of power tools and equipment.
- D. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered-glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.
- F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM, or another recognized trade association related to the type of fuel being consumed.
- G. Power Distribution System Circuits: Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.
- H. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- I. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

- J. Internet/Email Access: Provide at least one member of contractors' management team actively working on this project with e-mail and Internet access.
  - 1. The lead contractor shall make available a list of important e-mail addresses to prime contractors, the Owner, Architect, and Architect's consultants. Each contractor shall post e-mail list at each point of e-mail access, General Contractor shall post e-mail list at Common Use Field Office.
- K. Field Offices: Mobile units sized and equipped at the discretion of the Contractor. Units shall be kept clean, orderly and in good services.
  - 1. Each Contractor shall equip and maintain its own field office with the following:
    - a. Telephone service with automated answering capabilities. Superintendents cellular phone service may serve this purpose.
    - b. Internal electrical distribution system terminating at an exterior mounted weatherproof heavy duty NEMA 3R disconnect.
- C. Temporary Field Offices for Owner: No field office required. Job meetings will occur in existing West End Fire Company building.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Each prime contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

### 3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.
  - 1. Arrange with the company and existing users for a time when service can be interrupted, if necessary, to make connections for temporary services.
  - 2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.
  - 3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.



- B. Water Service: Install water service and distribution piping of sizes and pressures adequate for construction until permanent water service is in use. Contractors to provide specific water service and pressure needs necessary for its own construction activities.
1. Sterilization: Sterilize temporary water piping prior to use.
  2. Provide rubber hoses as necessary to serve Project site.
  3. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- C. Temporary Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnects, automatic ground-fault interrupters, and main distribution switchgear.
1. Install electric power service underground, except where overhead service must be used.
  2. Power Distribution System: Install wiring overhead and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 V, ac 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
  3. Extend service to locations that serve all Contractors and all project construction areas. Provide for up to 4 field office trailer connections.
  4. Connect temporary service to Owner's existing power source, as directed by electric company officials, or to temporary or new service as it becomes available. Use of Owner's new electric power service will be permitted, as long as equipment is maintained in a condition acceptable to Owner and all warranties are extended as required from the contract completion date.
- Electrical Contractor shall changeover from temporary to permanent at earliest feasible time and when acceptable to Owner. Contractor must operate, maintain and protect the permanent systems through final completion of the project and provide full project warranty from the contract completion date of the project.
- D. Temporary Lighting: When an overhead floor or roof deck has been installed, provide temporary lighting with local switching.
1. Install and operate temporary lighting that will fulfill security and protection requirements without operating the entire system. Provide temporary lighting that will provide adequate illumination for construction operations and traffic conditions.
  2. Provide one 100-w incandescent (or equivalent) lamp per 500 sq. ft., uniformly distributed, for general lighting, or equivalent illumination.
  3. Provide one 100-w incandescent (or equivalent) lamp every 50 feet in traffic areas.
  4. Provide one 100-w incandescent (or equivalent) lamp per story in stairways and ladder runs, located to illuminate each landing and flight.

5. Install exterior site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

At earliest feasible time, provide permanent lighting systems both inside the building and on the site for use in completing construction and lighting the project site. Contractor must operate, maintain and protect the permanent systems through final completion of the project and provide full project warranty from the contract completion date of the project.

- E. Temporary Heating, Cooling, Dehumidifying and Ventilation (hereafter referred to as HVAC): The General Contractor shall provide temporary HVAC required by construction activities, for curing or drying of completed installations, or protection of installed construction from adverse effects of low temperatures or high humidity except as noted below. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate requirements to produce the conditions required under "Temporary Facilities and Controls" and minimize consumption of energy.
  1. The General Contractor shall not be responsible for providing temporary heat in permanently unconditioned areas or in areas not scheduled for work to begin, unless the approved schedule is modified and accepted by the Owner and all Prime Contractors.
  2. The General Contractor shall provide all other Prime Contractors with the Project schedule and the minimum HVAC requirements to protect the Work as scheduled. If through no fault of any other Prime Contractor, the General Contractor does not maintain the original approved schedule, the General Contractor shall continue to provide temporary HVAC to other Prime Contractors when required.
  3. Prime Contractors are responsible to protect their work in unconditioned or unscheduled work areas at no additional expense to the Owner.
  4. Prior to the permanent HVAC system being operational, and when necessary for the proper execution of the work, the General Contractor shall provide, maintain, operate and pay all cost including fuel for sufficient required temporary HVAC to construct the building.
  5. New Construction Temporary/Permanent HVAC: The HVAC Contractor shall properly protect all HVAC equipment systems from construction air dust and debris beginning from initial installation. At 3 months before substantial completion of each phase of the building and as long as the building is enclosed (complete building envelope) in accordance with the project schedule with permanent roof, windows, walls, doors, etc., the HVAC Contractor shall provide, maintain and operate sufficient permanent heating/cooling. When the permanent heating or cooling system is used during this period, the HVAC Contractor shall professionally clean all HVAC systems. If the building is not enclosed, General Contractor shall continue to provide HVAC.
    - a. Fuel and power requirements for temporary heating, dehumidification and cooling in areas of new construction shall remain responsibility of the GC until HVAC permanent system is utilized as noted above.

6. Renovation Areas Temporary/Permanent HVAC: In the existing building areas the HVAC Contractor shall operate and maintain existing systems at all times, as long as the building is enclosed as noted above, or furnish temporary HVAC or use new HVAC system for the entire construction period. HVAC Contractor must comply with all requirements for use of new systems to maintain and extend warranty as listed below. If building is not enclosed as noted above, General Contractor is responsible for HVAC system.
  - a. Power requirements for temporary heating/cooling in areas of renovations shall be paid by the Owner.
    1. Electrical power demand for temporary heating/cooling in areas of renovations in excess of existing facilities capacity shall be provided by generators supplied, fueled and paid for by the HVAC Contractor.
    2. Fuel requirements for temporary heating/cooling in areas of renovations shall remain the responsibility of the GC until building is enclosed.
7. Portable heaters will not be acceptable during final finishing operations.
8. The permanent heating and exhaust system or any portion thereof may be used by the HVAC Contractor to provide temporary heat and exhaust as required for the proper prosecution of the work only when outside air is supplied directly to the system. The HVAC Contractor shall, when operating the permanent system do all servicing and adjusting to maintain the system in proper running order to prevent damage to the building or its equipment during the construction period.
9. When the HVAC Contractor performs startup and begins using the permanent HVAC systems, the Contractor must provide pre-filters and or other modifications to the systems necessary to prevent dirt, dust and other contaminants from entering the system. If measures implemented do not prevent dust from entering the systems, the HVAC Contractor shall perform cleaning of duct, coil and other HVAC components necessary to provide clean HVAC systems at Substantial Completion of the project.
10. Prior to turning over the permanent heating and ventilating system to the Owner, the HVAC Contractor shall thoroughly clean the system, provide new filters, make re-adjustments as required and bear all cost to place the system in first class operation condition. The warranty period of individual pieces of equipment of the permanent system used during the construction period shall be extended during the use period and the starting date used for determination of expiration for such warranties shall begin upon final acceptance of the project by the Owner.
  - a. Maintain a minimum temperature of 50 deg F in permanently enclosed portions of building for normal construction activities, and 65 deg F for finishing activities and areas where finished Work has been installed.

F. Heating Facilities: Except where the Owner authorizes use of the permanent system, provide vented, self-contained, LP-gas or fuel oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander-type heating units is prohibited.

- G. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
  - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
  - 1. Provide separate facilities for male and female personnel.
- I. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.
  - 1. Provide safety showers, eyewash fountains, and similar facilities for convenience, safety, and sanitation of personnel.
- J. Drinking-Water Facilities: The Contractor for General Construction shall provide containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
  - 1. Where power is accessible, the Electrical Contractor shall provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F (7 to 13 deg C).
- K. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.
  - 1. Filter out excessive amounts of soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
  - 2. Connect temporary sewers to the municipal system as directed by sewer department officials.
  - 3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.
- L. Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.
- O. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment:

1. Include distribution of power, including final connection, to exterior disconnect at each Contractor's temporary office. Distribution of power includes connection to Contractor's Field Trailers when located at interim locations and the relocation of power to final locations for these facilities.
  2. Provide power as needed to serve each separate area of project.
  3. Provide waterproof connectors to connect separate area lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
  4. Provide warning signs at power outlets other than 110 to 120v.
  5. Provide metal conduit, tubing or metallic cable for wiring exposed to possible damage.
  6. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.
  7. Provide metal conduit enclosures or boxes for wiring devices.
  8. Provide 4-gang outlets, spaced so 100-foot extension cord can reach area for power hand tools and task lighting. Provide a separate 125-v ac, 20-A circuit for each outlet.
- P. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction for adverse effects of high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation and dehumidification requirements to produce ambient condition required and minimize energy consumption.
1. Humidity Range: Beginning from the earliest time of installation of casework, architectural woodwork or finishes, maintain between 25 and 55 percent relative humidity.
    - a. Maintain interior relative humidity levels before this time as required to promote drying of concrete and concrete masonry substrates to produce moisture content and vapor emission levels that permit timely installation of finishes.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
  1. Maintain support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Provide incombustible construction for offices, shops, and sheds located within the construction area or within 30 feet (9 m) of building lines. Comply with requirements of NFPA 241.
- C. Storage and Fabrication Sheds: Install storage and fabrication sheds sized, furnished, and equipped to accommodate materials and equipment involved,

including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.

- D. Temporary Paving: Construct and maintain temporary roads and paving to support the indicated loading adequately and to withstand exposure to traffic during the construction period. Locate temporary paving for roads, storage areas, and parking where the same permanent facilities will be located. Review proposed modifications to permanent paving with the Architect.
1. Coordinate temporary paving development with subgrade grading, compaction, installation and stabilization of subbase, and installation of base and finish courses of permanent paving.
  2. Install temporary paving to minimize the need to rework the installations and result in permanent roads and paved areas without damage or deterioration when occupied by the Owner.
  3. Delay installation of the final course of permanent asphalt concrete paving until immediately before Substantial Completion. Coordinate with weather conditions to avoid unsatisfactory results.
  4. Extend temporary paving in and around the construction area as necessary to accommodate delivery and storage of materials, equipment usage, administration, and supervision.
- E. Dewatering Facilities and Drains: For temporary drainage and dewatering facilities and operations not directly associated with construction activities included under individual Sections, comply with dewatering requirements of applicable Division 32 Sections. Where feasible, use the same facilities. Maintain the site, excavations, and construction free of water.
1. Comply with regulations and responsibilities defined by the Erosion and Sedimentation Pollution Control permit. Fines associated with violations of permit shall be paid by the Contractor, and shall be at no cost to the Owner.
  2. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
  3. Before connection and operation of permanent drainage piping system, the Plumbing Contractor shall provide temporary drainage where roofing or similar waterproof deck construction is completed to a point 5 feet outside the building.
  4. Remove snow and ice as required to minimize accumulations.
- F. Temporary Enclosures: Provide temporary enclosure for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25-sq. ft. (2.3 sq. m) or less with plywood or similar materials.
  3. Close openings through floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.

4. Where temporary wood or plywood enclosure exceeds 100-sq. ft. (9.2 sq. m) in area, use UL labeled fire-retardant-treated material for framing and main sheathing.
- G. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- H. Project Identification and Temporary Signs: The General Contractor shall provide an 8 feet by 4 feet by  $\frac{3}{4}$  inch thick paint grade exterior plywood project identification sign and five 4 feet by 4 feet by  $\frac{3}{4}$  inch thick temporary directional signs. The project identification sign shall contain the name of the project, Contractors, and the design team including the Architect name and logo. **Per DCNR Grant requirements, County ARP Grant requirements, and LSA-DCEP grant requirements, the sign will state "This project is a site provided by Hampden Township with financial assistance / grants from: the Pennsylvania Department of Conservation and Natural Resources; the County of Cumberland (Gary Eichelberger, Commissioner Chairman; Jean Foschi, Commissioner Vice Chair; Vincent T. DiFilippo, Commissioner Secretary); and the Commonwealth of Pennsylvania, Commonwealth Financing Authority." It will also identify the source of funding as well as the bureau or office of the DEPARTMENT that issued the grant.** Signs shall be painted and lettered in four colors by a professional sign painter. Sign shall have Owner name. Project signs shall be located on the site where directed by Architect. Sign design, including text, layout and sign colors shall be provided by Architect. Exterior signs shall be in accordance with Township requirements. Erection shall not take place until an application, if required, is duly filed by the General Contractor and approved by the Township. No other signs or advertisements will be allowed on the premises.
- I. Temporary Site Lighting: Install exterior yard and sign lights so signs are visible when Work is being performed.
- J. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.
- K. Rodent and Pest Control: Before deep foundation work has been completed, retain a local exterminator or pest control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Employ this service to perform extermination and control procedures at regular intervals so the Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- L. Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate. Cover finished, permanent stairs with a protective covering of

plywood or similar material so finishes will be undamaged at the time of acceptance.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect.
- B. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10, "Standard for Portable Fire Extinguishers," and NFPA 241, "Standard for Safeguarding Construction, Alterations, and Demolition Operations."
  - 1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
  - 2. Store combustible materials in containers in fire-safe locations.
  - 3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for fighting fires. Prohibit smoking in hazardous fire-exposure areas.
  - 4. Provide supervision of welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
- D. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- E. Enclosure Fence: When excavation begins, install an enclosure fence with lockable entrance gates. Locate where indicated, or enclose the entire site or the portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering the site, except by the entrance gates.
  - 1. Provide open-mesh, chainlink fencing with posts set in a compacted mixture of gravel and earth.
  - 2. Provide plywood fence, 8 feet high, framed with four 2-by-4-inch rails, and preservative-treated wood posts spaced not more than 8 feet apart.



- F. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- G. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways, and subsoil might be contaminated or polluted or that other undesirable effects might result. Avoid using tools and equipment that produce harmful noise. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.
- I. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding or erosion.
- J. Temporary Enclosures: Provide temporary enclosures for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities. Provide temporary weather-tight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
  2. Install temporary enclosures before time frames stated above when necessary to maintain interior relative humidity levels and temperatures as required to promote drying of concrete and concrete masonry substrates so that they achieve low enough moisture content and vapor emission levels to permit timely installation of finishes.
  3. Vertical openings: Close opening of 25 sq. ft. or less with plywood or similar materials.
  4. Horizontal openings: Close openings in floor or roof decks and horizontal surfaces with load bearing, wood-framed construction.
  5. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
- K. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
1. Construct dustproof partitions of not less than nominal 4-inch studs, 5/8-inch gypsum wallboard with joints taped on occupied side, and 1/2 -inch fire-retardant plywood on construction side.
  2. Insulate partitions to provide noise protection to occupied areas.
  3. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.

4. Protect air-handling equipment.
5. Weatherproof openings.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Temporary Utilities: At earliest feasible time, when acceptable to Owner, change over from use of temporary service to use of permanent service.
  1. Temporary Use of Permanent Facilities: Installer of each permanent system and service shall assume responsibility for operation, maintenance, and protection of each permanent system and service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities. Contractor must operate, maintain and protect the permanent systems through final completion of the project and provide full project warranty from the contract completion date of the project.
- B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
  1. Keep temporary services and facilities clean and neat.
  2. Relocate temporary services and facilities as required by progress of the Work.
- C. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- D. Maintenance: Maintain facilities and good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
  1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
  2. Protection: Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
- E. Termination and Removal: Unless the Architect requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  1. Materials and facilities that constitute temporary facilities are the property of each prime contractor. The Owner reserves the right to take possession of project identification signs.
  2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and

other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at the temporary entrances, as required by the governing authority.

3. At Substantial Completion, clean and renovate permanent facilities used during the construction period including, but not limited to, the following:
  - a. Replace air filters and clean inside of ductwork and housings.
  - b. Replace significantly worn parts and parts subject to unusual operating conditions.
  - c. Replace lamps burned out or noticeably dimmed by hours of use.

END OF SECTION 01 5000