

## SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 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 facilities.
- B. Temporary utilities include, but are not limited to, the following:
  - 1. Sewers and drainage.
  - 2. Water service and distribution.
  - 3. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
  - 4. Heating and cooling facilities.
  - 5. Ventilation.
  - 6. Electric power service.
  - 7. Lighting.
  - 8. Telephone service.
- C. Support facilities include, but are not limited to, the following:
  - 1. Temporary roads and paving.
  - 2. Dewatering facilities and drains.
  - 3. Project identification and temporary signs.
  - 4. Waste disposal facilities.
  - 5. Field offices.
  - 6. Storage and fabrication sheds.
  - 7. Lifts and hoists.
  - 8. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
  - 1. Environmental protection.
  - 2. Stormwater control.
  - 3. Tree and plant protection.
  - 4. Pest control.
  - 5. Security enclosure and lockup.
  - 6. Barricades, warning signs, and lights.
  - 7. Covered walkways.
  - 8. Temporary enclosures.
  - 9. Fire protection.
- E. Related Sections include the following:
  - 1. Division 1 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
  - 2. Division 1 Section "Execution Requirements" for progress cleaning requirements.

3. Divisions 2 through 16 for temporary heat, ventilation, and humidity requirements for products in those Sections.

### 1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

### 1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Architect and shall be included in the Contract Sum. 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. Architect.
  4. Testing agencies.
  5. Personnel of authorities having jurisdiction.
- B. Sewer Service: Pay sewer service use charges for sewer usage, by all parties engaged in construction, at Project site.
- C. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.
- D. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site. Pay utility costs for field office for the duration of the project.
- E. Fuel, power and other utility charges incurred for testing and start-up of equipment shall be paid for by the Contractor as part of the work.

### 1.5 SUBMITTALS

- A. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements to protect install concrete and masonry.

### 1.6 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
  1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
  2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. The Contractor is responsible for the implementation, monitoring, and maintenance of job site safety program for the duration of the contract.

## 1.7 PROJECT CONDITIONS

- 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 service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- 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. Frost Protection: Protect footings from freezing temperatures and prevent frost from occurring beneath footings and slabs. Frozen water found on soil or concrete surface will be reason for rejection of protection method. Provide corrective measures within 24 hours after notice of condition is given. Evidence of frost at these locations will be reason for rejection, removal, and replacement at no additional cost to the Owner.
- D. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site. Construction noise from machinery, equipment, construction traffic, hammering and similar loud noises shall be restricted to the hours of 6:30 a.m. to 7:00 p.m. Obey State and local noise ordinances.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.
- B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
- C. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
- D. Water: Potable.

### 2.2 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Field Offices: Prefabricated, mobile units with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- C. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
  - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

- D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- E. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- F. Heating Equipment: Unless Owner authorizes use of permanent heating system, provide gas/oil fired space heaters that are UL labeled and approved for construction space heating by appropriate agency. Provide adequate ventilation and thermostatic control. Heaters shall be located outside the building and combustion gases shall be vented outside the building. Maintain observation of units in operation.
  - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
- G. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- H. 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.
- I. 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.
- J. Security Fence: Perimeter security fencing shall be minimum 4 feet high, tensar fence and supports to maintain position. Provide access and entry control gates for vehicle traffic and workers as necessary.

## PART 3 - EXECUTION

### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. 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 appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
  2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
  3. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
- B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction until permanent water service is in use. Sterilize temporary water piping before use.
1. Provide rubber hoses as necessary to serve Project site.
  2. 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. Sanitary Facilities: Provide temporary toilets and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
  2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
  3. Drinking-Water Facilities: Provide bottled-water, drinking-water units.
  4. Locate toilets and drinking-water fixtures so personnel need not walk more than two stories vertically or 200 feet (60 m) horizontally to facilities.
- D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
1. 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. Maintain higher minimum temperatures before, during, and after installations of materials and finishes as specified in the individual Sections of Divisions 2 through 16.
  2. Provide temporary heat protect all concrete and masonry work during installation as well as other trades needing specific heat requirements to perform and protect their work. See individual specification sections for detailed information. Select safe equipment that will not have a harmful effect on completed installations or elements being installed, including carbonation of concrete surfaces and discoloration of coatings and paints.
  3. All concrete slabs on grade, footings and foundations not below the frost line shall be protected from freezing either by heating or protecting with insulation until substantial completion.
  4. Permanent air heating systems may be used to provide heat only when finishes are complete enough to eliminate construction dust and with the prior approval of the Architect and Owner. Cover diffuser and grilles with filter cloth to protect from dust. Pay of operating costs resulting from the use of the permanent heating system prior to "substantial completion" unless otherwise agreed to by the Owner. Extend warranty periods for such systems at the Contractor's expense so that the Owner gets the fully intended warranty period effective the day of "Substantial Completion".

5. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and replacement of filters and worn or consumed parts.
- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from 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 requirements to produce ambient condition required and minimize energy consumption.
  - F. 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 switch gear.
    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 Volts, ac 20 Ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
  - G. Temporary Lighting: When 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. A minimum of 80 foot candles shall be supplied at mid-height of surfaces for taping, painting and finish work.
  - H. Telephone Service: Provide temporary telephone service throughout construction period for use by contractor.
    1. Provide additional telephone lines for the following:
      - a. Provide two separate telephone lines for Clerk of the Work's use.
      - b. Provide internet/e-mail connection for exclusive Clerk of the Work's use.
    2. At each telephone, post a list of important telephone numbers.
      - a. Police and fire departments.
      - b. Ambulance service.
      - c. Contractor's home office.
      - d. Architect's office.
      - e. Engineers' offices.
      - f. Owner's office.
      - g. Principal subcontractors' field and home offices.
    3. Provide an answering machine on superintendent's telephone.

### 3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
  3. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Temporary Roads and Parking Areas: Construct and maintain temporary roads and parking areas adequate to support loads and to withstand exposure to traffic during construction period. Locate temporary roads and parking areas within construction limits indicated on Drawings.
1. Provide a reasonably level, graded, well-drained subgrade of satisfactory soil material, compacted to not less than 95 percent of maximum dry density in the top 6 inches.
  2. Provide gravel paving course of subbase material not less than 3 inches thick; roller compacted to a level, smooth, dense surface.
  3. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.
- D. Dewatering Facilities and Drains: Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining property nor endanger permanent Work or temporary facilities.
  2. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.
  3. Remove snow and ice as required to minimize accumulations.
- E. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
1. Engage an experienced sign painter to apply graphics for Project identification signs. Comply with details indicated. Include name of project, and names of Owner, Architect and Contractor.
  2. Prepare temporary signs to provide directional information to construction personnel and visitors.
  3. Construct signs of exterior-type Grade B-B high-density concrete form overlay plywood in size of 4 by 8 feet and 3/4 inch thickness, unless otherwise indicated. Support on posts or framing of preservative-treated wood or steel.
  4. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.
  5. See sign criteria attached at the end of this section.
- F. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section "Execution Requirements" for progress cleaning requirements.
1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

2. Develop a waste management plan for Work performed on Project. Indicate types of waste materials Project will produce and estimate quantities of each type. Provide detailed information for on-site waste storage and separation of recyclable materials. Provide information on destination of each type of waste material and means to be used to dispose of all waste materials.

- G. Contractor's Field Office: Provide an insulated, weathertight, air-conditioned field office for use as a common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 10 persons at Project site. Keep office clean and orderly. Pay utility costs for field office for the duration of the project.
1. Furnish and equip office as follows:
    - a. Desk and four chairs, four-drawer file cabinet, a plan table, a plan rack, and bookcase.
    - b. Provide a room of not less than 200 sq. ft. for Project meetings. Furnish room with conference table, 12 folding chairs, and 4-foot- square tack board.
- H. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.
- I. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
- B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- C. 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, and erosion.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- E. 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 public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.



- F. 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 weathertight 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. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
  3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
  4. Install tarpaulins securely using wood framing and other materials.
  5. Provide temporary enclosures for exterior concrete, masonry, and other trades requiring heat, so as to properly protect Work and maintain specified temperatures.
  6. Provide enclosures for artificial shade and wind breaks as required for hot weather protection of concrete placements and masonry. Coordinate with the subcontractors.
- G. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
    - a. Field Offices: Class A stored-pressure water-type extinguishers.
    - b. Other Locations: Class ABC dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for exposures.
    - c. Locate fire extinguishers where convenient and effective for their intended purpose; provide 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 firefighting. Prohibit smoking in hazardous fire-exposure areas.
  4. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
  5. Permanent Fire Protection: At earliest feasible date in each area of Project, complete installation of permanent fire-protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.
  6. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  7. Provide hoses for fire protection of sufficient length to reach construction areas. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
- H. Covered Walkway: Erect a structurally adequate, protective covered walkway for passage of persons at exits from the building with potential danger from falling objects. Comply with regulations of authorities having jurisdiction.

### 3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused 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. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.
  3. Snow removal: Provide snow removal necessary to do the work and maintain access to materials, temporary facilities and offices.
- C. Flooring Protection: Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during construction period. Use protection methods indicated or recommended by flooring manufacturer.
1. Cover flooring with undyed, untreated building paper at high traffic areas until inspection for Substantial Completion.
  2. Do not move heavy and sharp objects directly over flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.
- D. Restoration of Roadways and Pavement: Roadways, pavements and curbs that are broken, damaged, settled, or otherwise defective as a result of receiving, handling, storage of materials or the performance of any work under this Contract, shall be fully restored to the satisfaction of the authorities having jurisdiction.
- E. 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.
- F. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been 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 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 Contractor. Owner reserves right to take possession of Project identification signs.
  2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. 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 temporary entrances, as required by authorities having jurisdiction.
  3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION 01500