**PWS Summary of Changes: Revision 2**

**5 May, 2020**

1. **Section 2.1 Concept of Operations - Revised and added updated language on type of patients, medical waste disposal, changed terminology from first floor to ground floor, added specific language for no patient treatment rooms on ground floor; Updated and added more support spaces to items A and B for clarification and more concise understanding of placement, added items C & D; added paragraph to reference site specific CONOPS for more detailed information.**
2. **Section 2.2 Site Modifications - Added list of detailed elements under items A, B and C for clarification.**
3. **Section 2.3 Architectural - Added a paragraph on elevators, updated language for removing and replacing doors, added section for free standing headboard, added room definitions (A through R).**
4. **Section 2.5, Electrical - Revised to reorganize and condense by subject; add explanation for NFPA references; add diesel, weatherproof enclosure, and emissions for generator; add redundant grounding in patient care areas, except AHJ approval for performance testing or temporary wiring in lieu; add requirements for miscellaneous rooms per CONOPS; revise and clarify LED lighting; clarify life safety wiring mechanically protected; add hospital grade receptacles and red color on generator; change temporary power plan to design submittal and add registered engineer approval; provide miscellaneous clarifications and grammatical edits.**
5. **Section 2.6, Plumbing/Medical Gas - Revised bulk oxygen requirements.**

**Performance Work Statement (PWS)**

**Convert a Hotel into a Temporary Alternate Care Site (ACS)**

**COVID Acute**

**5 May, 2020**

**Target Audience:** NFPA 99 Category 2 “Plus” Patient Space, which is defined as “activities, systems, or equipment whose failure is likely to cause minor injury of patients, staff, or visitors” (NFPA 99 para. 4.1.2) plus additional Category 1 provisions (Critical Care – risk of major injury or death) as relates to the specific needs of a COVID-positive patient on the ventilator (NFPA 99 para. 4.1.).

*\*USACE: Italicized fonts within this PWS are for directions or recommendations unique to the Government. They generally precede or follow bracketed sections or statements of the PWS. These bracketed sections can be left remaining in the PWS, or removed depending on the site specific conditions and needs. Please remove all brackets and italicized font before issuing to the Contractor.*

**1.0  GENERAL**

This PWS provides minimum criteria for “sufficiency of care” to provide a rapid response to the expected need, therefore, it is critical that local authorities and/or Area Fire Marshal are involved in the development of the design and acceptance of this site.

The Coronavirus disease 2019 (COVID-19) is a respiratory infection caused by newly emergent coronavirus first recognized in Wuhan, China in December of 2019. For the purpose of this document non-acute COVID-19 patients are defined as those patients that do not require a ventilator, but may require oxygen and do require nursing support. Acute COVID-19 patients are those with advanced respiratory distress that require enhanced oxygen and ventilator support in addition to advanced nursing support and isolation.

The Contractor shall provide all necessary labor, materials, and equipment in order to convert **HOTEL XXXXXX** to a temporary Alternate Care Site in order to achieve a “sufficiency of care” model meeting critical elements of healthcare for acute infectious COVID-19 patients. Standard hotel layouts provide the opportunity for single patient rooms with negative pressure isolation to meet infection control requirements. Hotel infrastructure has many built-in fire protection and life safety safeguards. An emergency duty generator shall be installed along with essential power circuits to ensure patient safety due to the heavy reliance on ventilators and patient telemetry.  Oxygen will be provided as indicated below either as a centrally piped system or as portable bottles. Communications systems will rely upon hotel WIFI infrastructure. Challenges will be mostly logistical as these ACS’s will need to be supported by a nearby full service hospital or dedicated contracted services to provide logistics, materials, and waste management support and nutrition care.

[The Contractor shall be responsible for the demobilization and removal/disposal of all facilities and equipment upon completion of this work and the restoration of the permanent site as necessary in order to return it to its original state.] *– This can be edited, removed, or included as contract and site lease agreements dictate.*

**2.0      FUNCTIONAL REQUIREMENTS**

**2.1 Concept of Operations**

**This Alternate Care Site (ACS) will act as a temporary satellite Wardsupported by a nearby full service hospital**. The full service hospital and/or dedicated contracted services will provide the logistics, materials and waste management support, nutrition care etc.  All dirty clean supplies would be transported to/from the full service hospital or by contracted service delivery. Dirty and/or hazardous material will be contracted disposal services certified to handle regulated medical waste and other biological/chemical hazardous material disposal. Patients are all considered non-ambulatory and not capable of self-preservation, infectious and on ventilators. Clinicians will utilize the patient bathroom sink for hand washing. Family visitation capabilities will not be provided. Acute patient beds would need to be home-care style hospital beds that have the capability to raise/elevate head and foot of the patient on ventilators/respirators. Ground floor level will be considered a “clean zone” for staff and central support areas. Upper floor levels will be considered “Dirty (hot) zones” for infected patients and treatment. One (1) stairwell shall be designated as clean and one (1) as dirty, at opposite ends of the building (distinct separation) where practical. There should not be any patient care rooms located on the ground floor.

Building shall be free of asbestos, lead paint and mold.

Security measures shall be assessed and provided with perimeter fence, site access control, door access control and security guards.  Security guards shall be a service contract with a local security company procured by the Contractor for the duration of this project.

Patients will be referred and transported to the site via ambulance from a local hospital or clinic through the emergency medical system.  No walk-in patients allowed.

At a minimum, the conversion will contain the following support spaces (separate between clean and dirty sides of the hotel taking flow into consideration):

1. Ground Floor – Dedicated Patient Entrance, Staff Entrance, Clean Supply Entrance and Dirty Waste Exit. Patient Admin with Patient Check-In/Nurses Station, Command Center/ Security, On-Duty Staff Quarters, Break Room, Laundry Room, Dining, Kitchen, Central Clean Utility, Central Medical Storage, Central Soiled Utility, Central Clean Linen, Central Soiled Linen, Staff Shower/ Locker Room, Team Work Room, Laboratory, Patient Holding Room, Clean PPE (Donning) Area and Dirty PPE (Doffing) Area, Logistics/Shipping & Receiving, Respiratory Decontamination Room and Hazardous Material.
2. Upper Floors - Single Patient Rooms, Nurse Station, medication room, portable radiology, Staff Toilet, Break Room (respite area), Satellite Clean Utility/Supply, Clean Linen, Soiled Utility and Soiled Linen, Ice Machine and Point of Care Lab. Each floor may also have a dedicated PPE (donning/ doffing) area.
3. Dedicated Clean Stair
4. Dedicated Dirty Stair

Reference facility planning Concepts of Operation (CONOPS) for H2HC Acute COVID-19 Positive document for further information.

**2.2 Site Modifications Required**

The following are the anticipated site modifications required to convert a modern hotel to achieve ACS standards for an infectious acute isolation patient (COVID), NFPA 99 Space Category 2 “Plus”.  Site selection should be based on confirming the critical assumptions and design intent in Section 3.

The Contractor shall provide all necessary labor, equipment and materials in order to provide the following equipment, materials, and services in accordance with this PWS and all applicable guidance, codes, and regulations.

1. Site - Perimeter Fencing with access control, a dedicated space/area for a Generator, Patient Screening near front entrance, Red Bag Disposal Area, Medical Gas, Pharmacy and Refrigerated Trailer
2. If the facility has no Emergency generator, provide exterior emergency generator sized for full building medical load.
3. Planning for external building support for refrigeration storage container or refrigeration truck for expired patients.

**2.3 Architectural**

[The Contractor shall validate elevator(s) in order to confirm that an ambulance stretcher and/or patient bed could be accommodated.] *This can be removed if the elevator is validated prior to award (preferable). If the elevator cannot accommodate, then the site should not be used.*

Elevators: If a single elevator is available, then it shall be dedicated as dirty for the transport of receiving patient(s) to upper floors. Optional, second or third elevators could be used for other means such as dedicated clean or dietary services.

The Contractor shall convert a minimum of 1 hotel room(s) located on each floor to a fully functional Nurse Station. However, when patient rooms on a single floor exceeds ten (10), then additional rooms shall be converted to a Nurse Station. Further, there shall be one Nurse Station per smoke compartment/zone if the floor is divided.

The Contractor shall remove existing carpet and base within each room and corridors on each designated patient floor level and dispose of. The Contractor shall replace with epoxy coating with non‐slip surface with integral epoxy base OR sheet vinyl flooring with welded seams and integral cove base. [Alternate Approach: If keeping the existing carpet and base, install 3/4 inch marine grade plywood or 1/2 inch cement board (seal seams) over carpet of entire room areas with a sheet vinyl aseptic flooring material.] The Contractor shall submit for approval to the Government the flooring material to be utilized.

The Contractor shall remove and replace the existing solid room door with a door that has a half window (must be either rated or smoke tight for LS Code).

The Contractor shall seal all utility and other wall penetrations to prevent the transfer of air between rooms and corridor.

The Contractor shall provide a free-standing headboard or temporary wall (non-combustible) in each patient room for the installation of receptacles, med gas outlets, nurse call and any other devices necessary for patient care.

1. **Nurse’s Stations:** The hotel concept shall provide centralized nurse’s stations on each patient care floor to support staff, located within minimal travel distance from elevator and patient rooms, be fully equipped with necessary work stations, monitors for cameras for visualization in each patient room.
2. **Staff Toilet Room:** The hotel concept shall provide dedicated staff toilets either located adjacent to the nurse stations for each patient floor level or in close proximity to patient care areas.
3. **Hand washing sinks:** The hotel concept shall provide within patient care areas the means for hand-washing. This can be accommodated through the use of each patient bathroom upon entry into the patient care/ hotel room.
4. **Staff Quarters / Showers:** The hotel concept shall provide overnight quarters for staff to sleep and take showers, located on the ground floor level.
5. **Laundry:** The hotel concept shall provide a centralized laundry facilities on the ground level. Or at least a central holding area if laundry services are provided elsewhere on site, offsite or contracted service.
6. **Soiled Linen:** The hotel concept shall provide a soiled linen storage for the temporary holding of dirty/ soiled bedding, sheets, towels and other contaminated room materials. To be located on the designated dirty side of the facility.
7. **Clean Linen:** The hotel concept shall provide a clean linen storage dedicated to clean bedding, sheets, towels and other materials. To be located on the designated clean side of the facility.
8. **Soiled Utility:** The hotel concept shall provide a soiled utility for the temporary holding of waste, bio-hazardous, used equipment, trash and medical waste generated by this ACS. To be located on the designated dirty side of the facility.
9. **Clean Utility/Clean Supply:** The hotel concept shall provide a clean utility for the temporary holding of clean supplies such as toilet paper, to be located inside the treatment space in close proximity to the patient areas.
10. **Gas Cylinder Storage (Optional - Coordinate with Mechanical):** The hotel concept shall provide a temporary medical gas (Oxygen) as with ether cylinder storage room with E size portable tanks or central piped system to support the patient areas, when necessary or the need arises. To be located on the clean side of the facility or even possibly joined with Clean utility with a limited number of tanks.
11. **Radiology Storage**: The hotel concept shall provide mobile radiology equipment storage on each patient floor.
12. **Ice Machines:** The hotel concept shall provide or reuse existing ice machine(s) located on each floor in order to provide ice at a rate of 5 lbs./day per patient, not to exceed 3,100 lbs./day. Vending machines would not be utilized.
13. **Medication Room:** The hotel concept shall provide an area/room or alcove located in or near the nurse station for an automatic medication dispensing unit (pyxis) and crash cart.
14. **Laboratory:** The hotel concept shall provide a small laboratory for the testing of patient’s blood, cultures, vital diagnostics, rapid tests, etc.. To be located on the ground floor designated clean side of the facility.
15. **Break Area:** The hotel concept shall provide a designated area for nurses and doctors to take breaks located directly behind or in close proximity to the nurse station on each floor level.
16. **Team Work Room:** The hotel concept shall provide a designated area for nurses and doctors to have meetings to be located on the ground floor.
17. **Admin Supply:** The hotel concept shall provide a room dedicated for administration/ nurse station office supplies (paper, pens, etc.). To be located adjacent to the nurse station.
18. **Janitor Closet:** The hotel concept shall provide a janitor’s closet with mop sink, shelf and custodial equipment rack or use the existing. Should be located on the dirty side of the facility.

**2.4 Mechanical**

Patient rooms must maintain negative pressure of 0.01 inches water column (per ASHRAE 170) relative to the corridor to ensure clean to dirty air flow. It is anticipated that approximately 200 cfm flow differential between room supply and exhaust/return will be needed to establish the required differential pressure. Provide visual negative pressure indicators, mechanical style (e.g. ball in tube style) at each patient room. Methods to achieve the air flow differentials and space pressurization will vary widely depending on the HVAC system configuration of the building.

For buildings with centralized bathroom exhaust, alternatives include increasing exhaust to establish each room negative to the corridor, increasing corridor make-up air to establish the corridor positive to the patient rooms, or some combination. For buildings without centralized exhaust or corridor make-up air, alternatives include the use of negative air machines or fan filter units for each room (or group of rooms).

Additional make-up air supply (whether served directly to a room, corridor or through a PTAC) must be addressed to achieve the necessary room pressure differential and to maintain the overall building pressure as positive. This may include replacement or upgrading of the supply air handling units or fans and/or adjustment of the existing systems. Penetrations between the patient rooms and corridors should be inspected and sealed as needed to achieve the pressurization requirements. In addition, any outside air intakes at Packaged Terminal Air Conditioners (PTAC’s) or other unitary equipment may need to be sealed.

Exhaust from the rooms shall be either directly discharged to the outside (preferred method) or filtered through a HEPA filter before being returned to the building. Various HEPA filter and fan configurations may be utilized including fan filter units (FFU’s), negative air machines or centralized exhaust. HEPA filters are required to meet IEST RP-CC-001. Consider the supply chain for filter replacements in the selection of the product. Provide pre-filters upstream of the HEPA filters where feasible to minimize HEPA filter replacement. Provide one full set of HEPA replacement filters.

If exhaust air is to be discharged to the outside (without HEPA filtering), the exhaust fan should be located as close to the building exterior as possible to minimize any positively pressurized duct within the building and the discharge must be a minimum of 25 feet away from air intakes, doors, operable windows, other building openings and any areas normally accessible to the staff or public. Where short runs of positively pressurized duct need to be within the building, they must be sealed in accordance with SMACNA duct leakage Seal Class A.

Schemes which make the patient rooms negative to the building envelope must carefully consider the climate and potential for moisture infiltration and implement design features to maintain overall building pressure to minimize infiltration.

Schemes which increase bathroom exhaust must validate existing exhaust duct static pressure class is sufficient for the higher static pressures. Reference Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) Duct Construction Standards.

New air handling units augmenting supply or make-up air should include a pre-filter (MERV 7) and intermediate filter (MERV 14) and may require upgrading of the building’s central systems.

Any dirty spaces (e.g. soiled utility, mortuary affairs holding area) must be provided with clean to dirty airflow in order to maintain the remainder of the space as clean. There is no minimum pressurization requirement for these spaces but only ensure that exhaust/return air is 10% greater than supply air. It is the intent to utilize existing bathroom exhaust where feasible to meet the functional intent. No air from these dirty spaces should be recirculated to other areas of the facility unless HEPA filtered.

The first floor is intended to be a clean zone and therefore return air from the patient floors must not be recirculated to the first floor. If the return system cannot be isolated, install a HEPA filter in the return air path or supply AHU’s (filtering both return and outside air). Testing, adjusting and balancing must be performed by a qualified HVAC specialist and a certified and accredited TAB specialist.

[The Contractor shall investigate, validate, and provide if required, additional roof framing and support structures to support new larger roof top units (supply and exhaust).] *Substantial level of effort. If not required, or already known that no additional structural support is required, this can be removed. Additional structural support will endanger target site readiness of 30 days.*

**2.5 Electrical** [*This section must be revised if an NFPA 99, Type 1, essential electrical system is provided. A Type 1 essential electrical system has life safety, critical, and equipment branches. With a Type 1 system, patient care circuits will use the critical branch and wiring must be mechanically protected per NFPA 70 article 517.31C3, generally requiring rigid metallic raceway*].

General. The Contractor shall comply with all national/state/municipal codes; including NFPA 70, 99, 110. If conflicts occur with this PWS, the codes shall govern. The Contractor shall provide an NFPA 110, Type 10, Level 1, diesel generator (life safety rated, 10 second start-transfer) on a flatbed or on pad with skid mounted tank and weatherproof enclosure. Contractor to provide fuel supply in order to maintain continuous operation of generator for 24 hours before refueling. Contractor must meet state and local fuel containment and emissions requirements. The Contractor shall provide exterior switch board with automatic transfer switches; and connect switch board to generator power and site normal power to create an NFPA 99, Type 2, essential electrical system. The Type 2 essential electrical system has a life safety and equipment branch, but does not have a critical branch. Both the life safety and equipment branch must be restored within 10 seconds of an outage per NFPA 99 paragraph 6.7.6.4. If the site does not have normal power, normal power has insufficient capacity, or normal power does not have the required versatility; upgrade normal power as required, including the service transformer and medium voltage service to the service transformer. Depending upon existing, a separate normal power switch board may be required. The electrical system is required for the COVID-19 emergency and may be installed under NFPA 70 article 590, Temporary Installations, noting article 517, Health Care, must be met. The generator may be configured as a second service as allowed by NFPA 70 article 230.2A, for special conditions.

Life safety. Egress and emergency illumination shall be provided as required by NFPA 101. The Contractor shall intercept emergency lighting circuits on each floor and extend to life safety panels.  The Contractor shall perform the same for fire alarm, plus other alarm and altering systems required by NFPA 70. If the site contains elevator(s), one shall be connected to the life safety branch.

Normal power branch panels. Site shall have existing power panels on floors, for at least one circuit each room, to supply bed receptacles described below.  If not existing, a circuit shall be extended to each room in order to supply bed receptacles. Circuits may be mixed by patient rooms, but no more than 6 receptacles per circuit at the bed. Older hotels without grounded receptacles shall not be considered. See paragraph Wiring in Patient Care below for redundant grounding.

Essential power branch panels. The Contractor shall provide equipment branch and life safety branch panels on each floor.  Contractor may consider corridor location for panels. Provide feeders to panels from the exterior switch board. The Contractor may consider exterior risers and feed through panels to reduce cost. Use the existing normal branch power panel with the new equipment branch power panel to supply patient beds in accordance with NFPA 70 article 517.18. Provide a connection between ground busses in the normal and equipment branch panels serving patient care areas, as required by NFPA 70 article 517.14.

Branch circuits for patient beds: For NFPA 99 category 3, basic care, patient beds, a circuit from the normal branch panel must be provided and it need not be dedicated. For NFPA 99 category 2, general care, patient beds, a dedicated circuit from the normal branch panel and the equipment branch panel must be provided. See paragraph Wiring in Patient Care below and comply with redundant grounding

Bed receptacles: Head boards shall be provided at beds for mounting of receptacles, switches, and boxes. For each category 3, basic care, patient bed, provide 4 receptacles connected to normal power circuit. For each category 2, basic care, patient bed, provide 8 receptacles; connect 4 to the normal power circuit and 4 to equipment power circuit.

Bed lighting: For category 3, basic care, provide portable task lights as equipment. For each category 2, general care, provide three light fixtures connected to equipment branch; one fixture shall be a night light, one a task light (300 lux), and one an examination light (1100 lux).

Other locations. All room conversions shall be provided with power and lighting commensurate with function. Nurse stations shall be provided with surface mounted light fixtures (700 lux), strip receptacles at work stations, crash cart and medication unit receptacles; all circuited to the equipment branch. Medication rooms shall be provided with surface mounted lighting (1100 lux) and receptacles circuited to the equipment branch. Clean utility and equipment rooms shall be provided with receptacles for charging of ventilators and other equipment circuited to the equipment branch. Central operations area shall be provided with lighting, strip receptacles at work stations; all connected to the equipment branch,

Equipment connections. Provide electrical connections to equipment in place and mechanical equipment, including heating and cooling equipment, and isolation exhaust AHU’s. Connect isolation exhaust AHU’s to the equipment branch. Connect other mechanical equipment to the normal branch.

Wiring in patient care. Wiring in patient care areas must be provided with redundant grounding per NFPA 70 article 517.13. Redundant grounding requires both an insulated equipment grounding conductor routed with the branch circuit and a metal raceway or armor qualifying as same, for example EMT or medical grade armored cable. Patient care areas include all category 2 and 3 spaces. [*This paragraph should be edited after consultation with the customer and AHJ to define the wiring method to be used in patient care areas if code cannot be met. Many facilities have existing distribution panels and wiring which can be easily used for patient areas. Where the redundant grounding conductor is not existing, NFPA 99 paragraph 6.3.2.5.1.3, allows use of the system provided that voltage and impedance measurements are performed to confirm effectiveness of the grounding system. The AHJ should consider circuit tests to confirm existing grounding only where the emergency does not allow replacement. The AHJ should consider other temporary wiring methods, for example flexible cables, only when the emergency precludes providing redundant grounding (EMT or medical grade armored cable). The AHJ should first consider redundant grounding in category 2 areas and temporary methods in category 3 areas, before temporary methods (flexible cables) in all areas.*]

Power design. Receptacles shall be duplex 20 ampere. Provide hospital grade in patient care areas and red bodies or plates where connected to the generator. Branch circuits shall be minimum size #12. There shall be no more than 6 receptacles in patient care areas connected to a single circuit. Panels and disconnects must be lockable to comply with NFPA 99 paragraph 6.3.2.4.3. Life safety and equipment branch wiring must be separated from all other wiring per NFPA 99 paragraph 6.7.6.3.1. Life safety branch wiring must be mechanically protected per NFPA 70 article 517.31C3. Raceway and wiring shall not be installed in a manner in which it is a trip hazard or subject to damage; provide overhead support as required, using methods in conformance with NFPA 70.

Lighting design. Critical spaces require a high level of color discrimination to reduce medical errors and allow true color rendition for medical evaluation. Light fixtures shall be 80 CRI minimum, except fixtures for medication preparation areas shall be 90 CRI for LED and 85 CRI for other types of sources (due to spectral power density). Illumination levels shall comply with IESNA unless more stringent levels are specified herein. Avoid placing non-exam lighting directly over a location where a patient lying in a bed or gurney will be. Provide independent switching for general, task, and night lights.

Modularity. Provide boxes on headwalls to allow disconnection of branch circuits when headwall placed in storage.

Electrical design submittal. The Contractor shall prepare a design submittal before beginning work and submit to the Government for action as determined by the AHJ. Contractor is responsible for design, selection, and sizing of equipment to meet this PWS and all codes. Contractor shall prepare drawing(s) showing locations of all new equipment, connections to existing equipment, one-line diagrams with sizes, supporting calculations, proposed installation methods for wiring and equipment, and specifications as applicable. The design submittal shall be stamped and signed by a registered electrical engineer.

**2.6 Plumbing / Medical Gas**

The Contractor should adjust domestic hot water supply to 140 deg. F at generation where feasible with minimum 124 deg. F at return to meet Legionella prevention standards.  Contractor shall provide and take measures to ensure scald prevention devices are in place.

Provide water and sanitary connections as needed to serve medical equipment and nutrition care.

*For oxygen supply, select either the first paragraph if only portable oxygen bottles will be utilized or select the following paragraphs for a centrally piped oxygen system. Centrally piped oxygen should be provided unless the number of patients spaces is very low. Coordinate the acquisition strategy for bulk oxygen supply. These tanks, vaporizers and ancillary equipment are typically provided as leased equipment from a bulk supplier.*

[No centralized medical gas shall be provided.  Bottled oxygen will be utilized and stored in dedicated hazardous storage room(s). Patient daily oxygen demands for storage and logistics is estimated at 25,000 liters per patient per day.]

[Medical oxygen demands will be initially met with portable bottles and therefore hazardous storage areas must be provided. Patient daily oxygen demands for storage and logistics is estimated at 25,000 liters per patient per day.

Provide a piped oxygen system(s) to all patient rooms compliant with NFPA 99 as a Category 1 System. Provide one oxygen outlet per patient bed with the connection style to be coordinated with the State Health department. Design the piping system to deliver a minimum 20 lpm per patient with no diversity applied to the pipe sizing. Valves and pressure control devices must be in accordance with NFPA 99. A zone valve box with area alarm must be provided for each floor or wing. Master alarm must be provided at the main Nurse Station or a location coordinated with clinical staff responsible for operating the site. Area alarms shall be both at the local nurses station (if on the floor) and at the master alarm panel.

Provide bulk oxygen supply in accordance with NFPA 55. The oxygen system(s) must be piped to an outside connection point, coordinated with the bulk oxygen supplier, where the bulk liquid tanks with vaporizers will be sited. Bulk storage sizing must be based on the estimated daily demand of 25,000 liters per patient per day (i.e. 17.4 lpm per patient). Bulk storage tank sizing must be coordinated with the supplier but not be less than two days storage for the primary tank and one day for the reserve tank. Provide an emergency oxygen supply connection on the building exterior near a loading dock or other connection point coordinated with the supplier. For liquid oxygen bulk storage, provide appropriate off-loading provisions per NFPA 55 including concrete off-loading pad.

The ASSE 6030/6035 medical gas verifier shall be hired directly by the prime contractor and not by the installing contractor.]

**2.7 Fire Protection / Life Safety**

This is a conceptual design, therefore, it is critical the local Authority Having Jurisdiction (state/county/city/municipality) and/or area Fire Marshal must be involved in the development of the final design and acceptance of this ACS facility.

Fire Protection Engineer qualification: The contractor shall provide the services of a qualified registered fire protection engineer (FPE) who holds a current valid professional engineer license (P.E) in the field of fire protection issued by the state/territory in which the ACS is located. A qualified registered fire protection engineer (FPE) shall be a registered professional engineer (P.E.) who has passed the National Council of Examiners for Engineering and Surveys (NCEES) fire protection engineering written examination and has relevant fire protection engineering experience. The FPE shall be an integral part of the design team and shall be involved in all aspects of the design of the fire protection system. The Fire Protection Engineer of Record shall witness all final tests for the fire protection systems. The contractor FPE shall perform Fire Protection and Life Safety Code Review and submit a life safety plan to the local Authority Having Jurisdiction (AHJ) (state/county/city/municipality) for review, acceptance, coordination, and document all Interim Life Safety Measures (ILSM’s). The FPE (and their employer) shall also hold any licenses/certifications required by the state/county/city/municipal government of the ACS location. [*For ACS facilities located on property owned by the United States Government, or located in states/territories which do not issue P.E. licenses in the field of fire protection, the FPE’s current valid P.E. license in the field of fire protection may be issued by any United States state/territory*]

The Contractors Fire Protection Engineer must assist the ACS Safety Officer and/or Fire Marshal in the development of the following items listed below prior to the acceptance of the ACS site.

* The ACS Safety Officer on site shall develop a Fire Safety Plan in compliance with NFPA 101 and/or local state/county/city/municipality regulations.
* Dedicated fire watch must be provided 24/7 on-site. This fire watch person cannot be part of the medical staff.
* Medical staff and fire watch personnel must be trained to the Fire Safety Plan.
* Permit applications and/or documentation required by the local Fire Department.

When not existing, the Contractor shall provide non-combustible partitions with 1 ¾ inch thick solid-bonded wood core doors within the corridor to divide every story used for sleeping rooms for more than 30 patients into not less than two compartments. This feature will provide safeguards for the horizontal relocation of patients while waiting for evacuation by emergency services. Contractor shall, where feasible, locate these non-combustible partitions near elevator lobby areas. *Optional upon site selection, existing conditions may be deemed adequate. Adjust language as necessary.*

Contractor shall properly firestop all penetrations within the floor/ceiling assemblies and the corridor walls.

Hazardous areas in accordance with NFPA 101 shall be separated from adjacent areas via 1- hour fire resistance rating and provided with a ¾ hour fire rated door assembly.

Medical gas storage shall comply with NFPA 99.

**2.8 Communications**

Utilize existing broadband capabilities for clinicians to VPN into their regional center for health record accessibility and other needs. This VPN connection will enable leveraging the main hospital's cybersecurity posture. Existing outside plant cabling shall consist of 12 strand fiber optic cabling upgradable to at least 1 Gbps otherwise it shall be provided as part of the contract.

Beds intended for acute patients outside the immediate line of site from the nursing stations shall provide [wired/wireless] camera infrastructure if identified lacking from the site survey. Patient cameras shall display in real time (not recorded) at the nursing stations. The Contractor shall provide and install a simplified nurse call system that allows each patient to communicate with/signal to the nurse’s station and allows the nurse’s station to identify the specific patient/location of the call.

**3.0 Schedule**

The Contractor shall submit a schedule to the Government within 24 hours of Notice-To-Proceed (NTP).