**PWS Summary of Changes: Revision 2**

**5 May, 2020**

1. **Section 2.4, Mechanical - Added requirements for patient holding area and other dirty spaces.**
2. **Section 2.5, Electrical, reorganized and condensed by subject; add 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; change temporary power plan to design submittal and add registered engineer approval; add miscellaneous clarifications and grammatical edits.**
3. **Section 2.1 Concept of Operations - Revised first sentence on logistics, supplies, waste management, etc., added language for higher acuity patient care with holding room, changed terminology from first floor to ground floor, added specific language for no patient treatment rooms on ground floor; Added description and breakdown on necessary support spaces with items A, B, C and E for clarification and more concise understanding of room placement, added paragraph to reference site specific CONOPS for more detailed information.**
4. **Section 2.2 Site Modifications - Added list of detailed site elements under item A for clarification.**
5. **Section 2.3 Architectural - Added a paragraph on elevators, added room definitions (A through R).**

**Performance Work Statement (PWS)**

**Convert a Hotel into a Temporary Alternate Care Site**

**COVID Non-Acute**

**5 May, 2020**

**Target Audience:** NFPA 99 Category 3 (Basic Care) Patient Space, which is defined as patient care “activities in which the failure of equipment or a system is not likely to cause injury to patients, staff, or visitors but can cause discomfort” (NFPA 99 para. 4.1.3).

*\*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 “sufficient of care” for non-acute infectious COVID-19 patient care based on the requirements of NFPA 99 Space Category 3 (Basic Care). Patient rooms are considered to be NFPA 99 Category 3, which is defined as patient care “activities in which the failure of equipment or a system is not likely to cause injury to patients, staff, or visitors but can cause discomfort” (NFPA 99 para. 4.1.3).  A Patient Holding Room will be provided and outfitted to stabilize patients transitioning from non-Acute to acute level of care in preparation of transport to a supporting hospital. Standard hotel layouts provide the opportunity for single patient rooms with private bathrooms and isolation by floor. Hotel infrastructure has many built-in fire protection and life safety safeguards.  An emergency generator shall be installed to serve the entire building. Centralized medical gas systems will not be provided. Communications systems will rely upon hotel WIFI infrastructure. These Alternate Care Facilities shall be supported by a nearby full service hospital to provide logistics, materials, and waste management support and nutrition care and/or through contract support.

[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 require.*

**2.0 FUNCTIONAL REQUIREMENTS**

**2.1 Concept of Operations**

**This site serving non-acute COVID patients shall act as a temporary satellite Ward (NFPA 99 Space Category 3) supported by a nearby full service hospital**. Logistics, materials and waste management support, dirty and clean supplies, and nutrition care may be provided by the Hospital or otherwise contracted. Patients are all considered ambulatory and capable of self-preservation, infectious but NOT on ventilators (i.e. the use of oxygen with either nasal tube or mask). If patients reach a higher level of acuity (more critical condition), they will be stabilized in the Patient Holding Room and be transported to local hospital (ICU) for greater level of treatment.  Clinicians will utilize the patient bathroom sink for hand washing. Family visitation capabilities will not be provided. 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/ treatment. One (1) stairwell shall be designated as clean and one (1) as dirty, with each at opposite ends of the building (distinct separation), if practicable. 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 and Hazardous Material.
2. Upper Floors - Single Patient Rooms, Nurse Station, Staff Toilet, Break Room (respite area), Satellite Clean Utility/Supply, Clean Linen, Soiled Utility and Soiled Linen, Ice Machine. 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 Non-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 a non-acute infectious COVID patient (non-isolation), NFPA Space Category 3 (Basic Care).  Site selection shall 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 Storage and Pharmacy

**2.3 Architectural**

Existing beds shall be utilized for patients.  Each room will have a single patient. Double rooms are prohibited. If double beds are in the rooms, only a single bed shall be utilized. Clinicians may use patient bathroom sinks for hand washing.

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.

Finishes throughout such as carpet, base, etc. are anticipated to remain (rooms and spaces to be used as-is with no renovation work associated).

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. To be 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:** The hotel concept shall provide a temporary medical gas cylinder storage room with E size portable(Oxygen) tanks 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. **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.
12. **Medication Room:** The hotel concept shall provide and area/room or alcove located in or near the nurse station for an automatic medication dispensing unit (pyxis) and crash cart.
13. **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.
14. **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.
15. **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.
16. **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.
17. **Patient Holding Room:** The hotel concept shall provide a dedicated patient holding room or urgent response room equipped with a portable ventilator, portable oxygen tank and necessary patient care room arrangement/supplies to care for a patient that has transpired into the higher acuity level. This room is used as a staging area for the patient to stabilize and prepare them for transport to the local hospital ICU for the proper emergency acute care. To be located on the dirty side of the facility ground floor as close to an exterior exit as possible.
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**

Ensure that return air from the patient floors is not being recirculated to the first floor to maintain the first floor as a clean zone. If feasible, positively pressurize the first floor relative to the patient floors to achieve a clean to dirty air flow. If the return from the patient floors cannot be isolated from the first floor, provide a HEPA filter in the return air path or supply AHU’s (filtering all return and outside air). Recirculation between the patient floors is permissible. Modify and adjust systems as needed to achieve the functional intent.

Any dirty spaces (e.g. soiled utility, mortuary affairs holding area) which for operations must be located on the first floor must be provided with clean to dirty airflow in order to maintain the remainder of the floor 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 Patient Holding Room (provided for patients in transition to a hospital for higher level care) must maintain a negative pressure of 0.01 inches water column relative to the corridor and other adjacent spaces to ensure clean to dirty air flow. Recommend utilizing a negative pressure machine in the space exhausted through a HEPA filter to the exterior to achieve the required pressure differential. In addition, provide a recirculating fan unit with HEPA filter (e.g. Fan Filter Unit) within the holding room to achieve a minimum 12 air changes per hour. Provide visual negative pressure indicators, mechanical style (e.g. ball in tube style) for each holding room. All HEPA filters are required to meet IEST RP-CC-001. Provide one full set of HEPA replacement filters.

All testing, adjusting and balancing shall be performed by a qualified HVAC specialist and a certified and accredited TAB specialist.

**2.5 Electrical**

General. The Contractor shall comply with all national/state/municipal codes; including NFPA 70, 99, and 110. If conflicts occur with this PWS, the codes shall govern. The Contractor shall provide an emergency generator 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 switch(s); and connect switch board to generator power and site normal power for 100 percent back up with 10 seconds start-transfer. Consider relocating pad mount transformer and using old pad as splice point to allow restoration after the emergency. The electrical system is required for the COVID19 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. The generator may be configured as an Optional System by NFPA 70 article 702; no life safety loads shall be connected to it; existing building emergency systems (emergency egress, fire detection and alarm, etc.) must have battery backup.

Life safety. Contractor shall verify that Hotel has existing egress and emergency lighting meeting NFPA 101, including fire detection and alarm meeting NFPA 72. Upgrade of these systems is not within the scope of this project; notify the Contracting Officer if work is necessary.

Normal power branch panels. Contractor shall verify that Hotel has existing power panels on floors, for at least one circuit each room, to supply bed receptacles. If a sufficient quantity of circuits do not exist, extend circuits to fulfill this requirement. Circuits may be mixed by patient rooms to make up this requirement. Receptacles must be provided with an equipment grounding conductor; older facilities without grounded receptacles shall not be considered. See paragraph Wiring in Patient Care below and comply with redundant grounding.

Bedrooms. It is assumed receptacles within the room are adequate for the care required, however, if receptacles are not within the reach of beds, they must be added; including provisions for a task light to provide ambient lighting (300 lux) and a night light.

Patient Holding Room. It is assumed the receptacles within the designated room is adequate for support of medical equipment required to support patient stabilization for transport. If insufficient receptacles are not available or functionally inaccessible they must be added to include dedicated outlets for charging equipment such as ventilators and physiological monitor equipment.

Other rooms. It is assumed lighting and receptacles within the rooms are adequate for the work required, however if not they must be added. Nurse stations must have task lights (700 lux), receptacles at work stations, and receptacles for crash cart and medication unit. Medication rooms must have task lights (1100 lux) and receptacles. Clean utility and equipment rooms must have receptacles for charging of medical equipment. Central operations area must have task lights and receptacles.

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 (for new work). Receptacles shall be duplex 20 ampere. Provide hospital grade in patient care areas. Branch circuits shall be minimum size #12. There shall be no more than 6 receptacles in patient care areas connected to a single circuit. 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 (for new work). 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).

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 shall provide and install water and sanitary connections as needed to serve medical equipment and nutrition care.] *Based on site, existing bathrooms may be sufficient for patient care.*

No centralized medical gas is to be provided.  Provide dedicated hazardous storage spaces IAW NFPA 99 for bottled oxygen usage. Patient medical oxygen demand is estimated at 8,600 liters per patient per day.

**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.

Hazardous areas in accordance with NFPA 101 shall be separated from adjacent areas via 1- hour fire rated barrier 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).