Huntsville Center teams up with Mobile District for Alternate Care Facility Site Assessments (ACF)
PRIVATE SECTOR
Museums, Universities, Healthcare

MEDICAL TEMPLATES
Defense Health Agency (DHA) & PPMD

BIO SECURITY
 Defense Threat Reduction Agency (DTRA)
 Cooperative Biological Engagement Program (CBEP)

COS
Center of Standardization – Huntsville
Fire Stations, CDC, SAC, YC, PFF, H2F

FEMA COVID-19
FEMA funded effort to convert Alternate Care Facilities

COVID ASSESSMENTS
FEMA funded effort to assess building sites throughout North AL.

• Programming, Planning, Design, Construction, Government Project Oversight
  • Healthcare – Baptist Hospital, HCA, Health South, Vanderbilt
  • ASCs, MOBs, Cancer Clinics, Dialysis Clinics

*RENDERING & IMAGES BY TUCK-HINTON ARCHITECTS*

NATIONAL MUSEUM OF AFRICAN AMERICAN MUSIC - NMAAM
• Three year commitment to Purple Committee - Army, Navy, Air Force

[Images: BRUN1, Inpatient Bedroom – Rendered Interior Perspective
ORNS1, Neurosurgery – Rendered Interior Perspective]
• Defense Threat Reduction Agency (DTRA) – Cooperative Biological Engagement Program (CBEP) – Meet World Health Organization (WHO) Guidelines

• Bio Safety Levels 1, 2, 3

• Vivarium Lab


• Egypt, Philippines

• Armenia, Saudi Arabia

• Turkey, Afghanistan

• Pakistan, Vietnam

• Kenya

Central Reference Laboratory (CRL)
Almaty, Kazakhstan

Bio Safety Level III Lab
• Authority Having Jurisdiction (AHJ) over 18 different facility types
• Work with all Districts and Garrisons CONUS & OCONUS
• Most Active – SME for Child Development Centers, School Age Centers, Youth Centers, Physical Fitness Facilities, Fire Stations, New Holistic Health & Fitness (H2F)
• Supporting Energy Modeling, Cybersecurity, & Furniture

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Developing the ACF Process

- Team Leads on COVID Effort – HNC & MCX
- HNC/MCX to begin exploration of converting Hotel to *Alternate Care Facility (ACF)*
- Princess Cruise – early cases quarantined in California (HHS – first unofficial conversion of hotel to ACF, “A symptomatic to mild symptoms”)
- New York identified as first official site to launch ACF – Hotel concept
- Reports of mass number of COVID patients – Quick pivot to Arena concept

**Challenge**

- “*Speed to Market Concepts*” - 30 Days till New York hits peak and hospitals completely overwhelmed (*potentially too late*)

**Challenge Accepted**

- Medical Templates – HNC developed Templates 2011 to support MCX (3 year effort) for Defense Health agency (DHA) & PPMD
- MCX develop CONOPS & HNC develop Concepts
- Less than 24 hours to brief Commander

** Huntsville Team Lead that developed Medical Templates and briefed General Semonite in 2012**
THE ACF BINDER:

Developed by HNC, MCX and other medical professionals and Agencies

- Early Concepts for conversion of Hotels, Arenas and Large open spaces, Barracks/Dormitories, and Self Contained Isolation Units or Pods
- Checklists
- Performance Work Statements
- CONOPS and Business Rules
- Points of Contacts for Boots on the Ground at District locations on the ground

Lessons Learned

- Modular Pods to stick frame construction (metal stud, sheet rock or translucent wall material)
- Donning and Doffing process to protect Healthcare providers
- Codes relaxed
- 30 days to design and construct Not 6 months
- Timeline moved up 10 to 14 days to design and construct once NTP
### PHASES- CONCEPT OF OPERATION

<table>
<thead>
<tr>
<th>Plan</th>
<th>Build: USACE (w/ MA) / State / Municipalities</th>
<th>Supply: FEMA / HHS / State / Municipality / Other</th>
<th>Staff</th>
<th>Lead: State / Municipality</th>
</tr>
</thead>
<tbody>
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<td>Lead: State / Municipality</td>
<td></td>
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</table>
| - Identify existing available facilities | - Convert/Retro-fit existing structure  
  ✓ Hotel, dorm, or apartment building  
  ✓ Arena or convention center  
  ✓ Closed Hospital | - Procure, Install, and Configure medically unique equipment | - Clearly a state function with available staff | |
| - Assess for suitability | - Enable conversion of facility to support identified facility type | - Meets end-state requirements | - Expect to be critical path | |
| - USACE provides technical advice/assistance under FEMA Mission Assignment (MA) – Critical Public Facilities PRT | - Main Functions - supply & auxiliary power, washable floors & walls, negative pressure HVAC, nurse’s station, IT infrastructure | - FEMA would task to either HHS or DLA to procure and install | | |
| - Existing utilities and infrastructure (electric, power, water, HVAC, IT,...) | - Stafford Act – emergency contracting authorities, utilizing local, capable business(es); Construction contracts. | | | |
| - Obtain rights / ownership (i.e. Lease facility) | | | | |
| - Transfer authority to USACE to convert and retrofit facility | | | | |
HEALTHCARE CONVERSIONS – BUSINESS RULES

All Facility Conversions
- Proximity to existing, permanent medical hospital (10 mile/30 min)
- Readily available (10 mile/30 min) HazWaste disposal, linen/laundry, pharmacy
- Will not be fully ADA compliant; only to extent of existing facility
- Cost estimates do not include real estate or lease acquisition nor restoration costs post-medical use.
- USACE costs for renovation/construction work and IO&T are minimum costs. Actual cost must be developed when site adapting actual facility
- Facility templates and standards are adapted from DoD UFC criteria.
- Local municipality/county/state standards should be discussed and agreed upon by municipality and the Construction Agent.
- State or City Owned Property Preferred...eases leasing and permitting.
- Already has redundant power or emergency power

Hotel to Healthcare (H2HC) Specific
- Built/Renovated after 1990 to mitigate lead paint/asbestos
- Should be Single Room with attached Bathroom
- Utilize exterior wall to install exhaust if needed
- Building is provided with Sprinkler and Fire Alarm.
- Meet Modern Power 3-Phase, 3-Wire

Arena to Healthcare (A2HC) Specific
- Already has redundant power or emergency power
- Building is provided with Sprinkler and Fire Alarm.
- Temp Facilities will be staged on perimeter, includes med waste, sanitary, soiled linen, hand washing, med supply/pharmacy
- Meet Modern Power 3-Phase, 3-Wire – Temp Power supplemented to patient care areas on floor
Hotel – Hotel to Healthcare ACF (H2HC)

• BRUN1 Template similar layout to Standard Hotel Room
**Hotel – Hotel to Healthcare ACF (H2HC)**

- **Room Modification** - Modify standard hotel room to support Non-COVID or COVID Patients.

---

**Hotel PROVIDED**

- **H1. Hotel Bed** *with medical linens*
- **H2. Hotel Reclining Chair/Desk Chair**
- **H3. Hotel Wardrobe**
- **H4. Hotel Desk**
- **H5. Hotel Plumbing Fixtures**

**Engineering Changes**

- **Remove Carpet**
- **Install Vinyl Flooring or Epoxy**
- **Revise HVAC Ducting and HEPA Filtering**
- **Add Emergency Back-up Power & UPS**
- **Add Electrical Outlets**
- **Add Privacy Curtain**

**Special Medical Equipment – to be provided by others (non-USACE)**

- **E1. Ventilator Capable; Storage Cabinet**
- **E2. Telemetry/Pump on IV Stand**
- **E3. Stool**
- **E4. Over Bed Table**
- **E5. Mobile Work Station**
- **E6. Linen Hamper**
- **E7. Sharps/Gloves**
- **E8. Hand Sanitizer Station**
- **E9. Infectious Waste**
- **E10. Cubicle Curtain**

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**FEMA COVID-19**

FEMA funded effort to convert Alternate Care Facilities

**COVID Assessments**

FEMA funded effort to assess building sites throughout North AL.
Hotel – Hotel to Healthcare ACF (H2HC)

- Room Modification - Modify standard hotel room to support Non-COVID or COVID Patients.

**Non-COVID**

```
EA Riser
SA Riser

Bathroom

Typical Guest Room Airflow
Equal to or Less Than 2 Air Changes Per Hour (ACH)
```

**“PROCESS”**

- Packaged, Through-the-wall, Air for patient comfort
- Exhaust air through bathroom
- Supply air from roof
- Replace/Modify Exhaust fans to pull more air – Negative pressure scenario
- Critical Power Outlets
- Increase air flow to room
- Provide HEPA – Recirc. or along line of exhaust
- UVGI – infection control (need more research)

**COVID**

```
EA Riser
SA Riser

Bathroom

Guest Room

Scenario 3: Guest Room Airflow
Minimal changes
```

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Museums, Universities, Healthcare

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H2HC – SITE IMPROVEMENT PLAN

ENGINEERING CHANGES

- ADD PERIMETER FENCING
- ADD GENERATOR
- ADD PATIENT SCREENING TENT
- ADD EXTERIOR PHARMACY
- ADD MED GAS STORAGE
- ADD ACCESS CONTROL POINT (ACP)
- ADD RED BAG DISPOSAL AREA
H2HC - GROUND FLOOR PLAN

STANDARD DESIGN
*COVID
Non-COVID
Scalable, Tailorable,
Site Adaptable

ENGINEERING CHANGES
• ALL TYPICAL FLOOR PLAN
  ADDITIONS
• PLUS GENERATOR

REUSE
• HOTEL FURNITURE FOR STAFF QUARTERS
• HOTEL KITCHEN
• HOTEL DINING
• HOTEL VESTIBULE
• HOTEL CCTV FOR SECURITY
• HOTEL CARD READERS

NEW EQUIPMENT
• METAL DETECTOR
• VTC FOR COMMAND CENTER
• CONTROLLED ACCESS
• INFECTIOUS CLEAN
• REMINDER GATES
• EYE HANDWASH STATIONS
Typical Floor

**STANDARD DESIGN**
- *COVID*
- Non-COVID
- Scalable, Tailorable, Site Adaptable

**ENGINEERING CHANGES**
- INSTALL PRESSURE MONITORING
- MODIFY HVAC TO ACHIEVE NEGATIVE PRESSURE (BY FLOOR)
- MODIFIED ELEVATOR CONTROLS

**REUSE**
- HOTEL WIFI
- HOTEL PHONE SYSTEM
- HOTEL INHOUSE NETWORK/TVS
- HOTEL ICE MACHINE/VENDING
- HOTEL PACKAGED HVAC

**NEW EQUIPMENT**
- NURSE CALL
- STORAGE SHELVING
- WORKSTATIONS
- MED DISPENSING UNITS
- #TBD VENTILATORS / FLOOR
- "CRASH" CART / FLOOR
- REMINDER GATES
- EYE HANDWASH STATIONS

CONCEPT:
CLEAN ONE SIDE / DIRTY OTHER SIDE

**H2HC - TYPICAL FLOOR PLAN**
ARENA TO HEALTHCARE CONCEPT (A2HC)
ALTERNATE HEALTHCARE FACILITY

28 March 2020
A2HC - BUILT IN PLACE STRUCTURES

- Materials are readily available nationwide
- Fabricated in a local warehouse and transported to the final location
- Units can be fabricated and organized in the warehouse for efficient setup.
- This method allows for an assembly line approach increasing productivity.
- This allows for continuous fabrication with simultaneous setup
- Delivered and setup with the use of flat bed truck with hoist/crane to reduce manhandling of panels.

NEW EQUIPMENT: Same as Container concept
A2HC TYPICAL LAYOUT

FACILITY PROVIDED
- FIELD HOUSE ICE MACHINE

ENGINEERING CHANGES
- ALL TYPICAL FLOOR PLAN ADDITIONS
- ADD GENERATOR

MEDICAL EQUIPMENT
- ALL TYPICAL FLOOR PLAN ADDITIONS
- NURSE CALL
- STORAGE
- WORKSTATIONS
- MED DISPENSING UNITS

- 1 NURSE STATION FOR EACH 15 PATIENTS
- TOTAL OF 120 PODS
LESSONS LEARNED FROM THE FIELD

Nurses call setup with soap dispenser, hands free paper towel dispenser, instantaneous hot water heater under cabinet, sump well to pump sanitary water up with back flow preventer and valve if backflow fails.

Overhead Utilities

Bathroom and shower trailer area with ADA showers framed in.
Physical Assessments in North Alabama

- Customer Stakeholder Meeting (Identify possible sites for conversion to ACF)
  - Hospital officials – Municipal Leaders – Fire Department & Emergency Operations Personnel – USACE Mobile District Lead and Huntsville Team (Architects and Engineers)

“COVID vs. NON-COVID” / “ACUTE vs. NON-ACUTE

- Governor Cuomo changes direction of Javits Center in New York from Non-COVID to COVID

- Number of available beds in hospital system
- Proximity of identified sites to hospital and resources (within 10 miles)
- Available Staff to support alternate care location
- Population Density
Facilities Checklist

- Governor Kay Ivy of Alabama – Locate potential Hot Spots within State and Deploy team to identify potential ACFs
- Mobile District Lead on effort with Huntsville supporting northern areas of Alabama
Facilities Checklist

- Governor Kay Ivey of Alabama – Locate potential Hot Spots within State and Deploy team to identify potential ACFs
- Mobile District Lead on effort with Huntsville supporting northern areas of Alabama
- Mandatory Requirements

### COVID ASSESSMENTS
FEMA funded effort to assess building sites throughout North AL

<table>
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<tr>
<td>Fire Alarm System</td>
</tr>
<tr>
<td>Asbestos/Mold/Lead</td>
</tr>
<tr>
<td>Elevator Size</td>
</tr>
<tr>
<td>Accessibility</td>
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<tr>
<th>Business Rule</th>
<th>What does this mean?</th>
<th>Mission Impact</th>
<th>Schedule Impact</th>
<th>Impact if not provided?</th>
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<tbody>
<tr>
<td>Sprinkler System</td>
<td>Big must have complete operational sprinkler system compliant with local fire codes</td>
<td>H</td>
<td>H</td>
<td>COVID-19 (General Care)* -Nonnegotiable - must be fully sprinklered</td>
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<tr>
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### Facilities Checklist

- Fire Sprinkler System
- Fire Alarm System
- Asbestos/Mold/Lead
- Elevator Size
- Accessibility
### Checklists – Preferred Features

**H2HC ACUTE SITE SELECTION BUSINESS RULES**
(Hotel/Dorm/Compartmentalized Space to Health Care)

<table>
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<th>Schedule Impact</th>
<th>Impact if not provided?</th>
<th>Meets Reqmt?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power - Capacity and Flexibility</td>
<td>Floor panel capacity to supply one 20 ampere normal circuit per bedroom. Service panel and transformer flexibility to connect roll-up generator.</td>
<td>M M</td>
<td></td>
<td>COVID-19 (General Care)*</td>
<td>COVID-19 (General Care)*</td>
</tr>
<tr>
<td>Proximity to Existing Hospital (&lt;30 minutes)</td>
<td>Needed for logistics and support, materials, dirty/clean utilities, nutrition care.</td>
<td>M M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access to Hazardous Disposal</td>
<td>Access to permanent/temporary facilities for med waste, sanitary, soiled linen.</td>
<td>M M</td>
<td></td>
<td>COVID-19 (General Care)*</td>
<td></td>
</tr>
<tr>
<td>Medical Gas Systems</td>
<td>Existing Piped Oxygen and/or Medical Air could be re-visited in order to meet the patient demands.</td>
<td>M M</td>
<td></td>
<td>COVID-19 (General Care)*</td>
<td></td>
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**“PREFERRED”**

- Available Space
- Room Supply and Exhaust air
- Power – Capacity & Flexibility
- Backup Power
- Proximity to Hospital
- Med Gas
- Hazardous Disposal
- Wifi capability
### Building/Site Assessment Checklist

**SITE INFORMATION**

- **County:** Tuscaloosa County
- **City/State:** Tuscaloosa, Alabama
- **Address:** 1701 McFarland Blvd, Tuscaloosa, AL 35404
- **Coordinates:** 33°11'40"N 87°31'24"W
- **Facility Type:** Retail Store
- **Patient Care:** Non COVID, Non Acute Care
- **Site Area:** Sears Store University Mall
- **POC Info:** Morgan Murphree, Lead Architect, Jelani Ingram, Lead Architect
- **Flood Zone:** No

**SITE DESCRIPTION**

- The retail box has been occupied for approximately 105,000 SF and will support approximately 400 patient beds with hard wall partitions.

**INGRESS/EGRESS**

- The facility is in full compliance with all NFPA 101 chapter 19 ingress/egress requirements except that travel distance will exceed that allowed.

**UTILITIES**

- **Sanitary:** Yes
- **Water:** Yes
- **Electric:** Yes
- **Fire Hydrant:** Yes
- **Gas:** Yes
- **TeleComm:** Yes
- **Wi-Fi:** Yes
- **Natural Gas:** Yes

**ASSessment NOTES**

- **Architectural Assessment Notes:**
  The Sears Retail Box has approximately 105,000 SF and will support approximately 400 patient beds with hard wall partitions.

- **Non COVID, Non Acute Care Option:** The Sears Retail box will be used for Non COVID, Non Acute patient step down area. The space plan (see Attachments) illustrate the bed locations, nurse stations and support spaces throughout the facility. Modular/portable
Building/Site Assessment Report

- Building/Site Overview

- Overall Building/Site Assessment
  - Architectural – Mechanical – Electrical – Fire Protection
  - ROM Costs for converting ACS

- Huntsville – Von Braun Center, Homewood Suites, Junior High School
- Tuscaloosa – Druid City Hospital Tower (Same Day Surgery, Presidential Village, Belk Activity Center, Hotel Capstone, Sears Retail Box
- Oxford/Anniston – Old Jackson Hospital, Anniston City Meeting Center
  - Regional Medical Center – only enact Disaster Relief Plan
  - Pete Mathews Coliseum – not sprinklered
  - Nursing Home – exposed asbestos and lead paint
  - Oxford Civic Center – too far from RMC

(Averaging 48 hour turnaround on reports – Day at site + Day for Report)
VON BRAUN CENTER

Assessment Date: 3 April 2020
Location: 700 Monroe Street SW, Huntsville, AL 35801
Local POC: Jarred Cassidy (City of Huntsville EMA)
          Rudy Hornsby (HH Senior Vice President, Operations)

Proximity to nearest Hospital: 1 mile (Huntsville Hospital)

Building: South Hall - Approx. 100,000 SF (Primary)
          - 354 Beds
          North Hall - Approx. 23,000 SF (Secondary)
          - 198 Beds

Intended use: Non-COVID, Non-Acute Care Facility

Scope: Minor renovations to include: temporary nurse stations, patient bed partitions, portable sinks, portable showers, and electrical outlets

Cost: $7.2 M (includes costs for USACE to award contract and manage)

Estimated Time to convert: 10-14 days once contract is awarded
VBC – OVERALL PLAN

SOUTH HALL
PRIMARY SITE

ENTRY

ENTRY

KITCHEN

ENTRY

NORTH HALL
SECONDARY/
OVERFLOW SITE

VON
BRAUN
CENTER

0.9 MILES

HUNTSVILLE
HOSPITAL

SOUTH HALL
SHOWER
FACILITIES

NO
AGREEMENT/
DISCUSSIONS
WITH HOTEL
OWNER

FOR OFFICIAL USE ONLY (FOUO)
SOUTH HALL TO CARE BEDS

- TOTAL OF 354 BEDS
- TOTAL OF 6 NURSE STATIONS

- NURSE STATION
- PATIENT BED AREA
- SUPPORT
- ADMIN/STAFF SUPPORT
- EXISTING TOILETS
- MECHANICAL/SERVICE CHASE
- EXISTING CONSESSIONS

SECOND FLOOR ACCESS TO EMBASSY SUITES

TO REST OF VBC
NORTH HALL TO CARE BEDS

- TOTAL OF 100 BEDS
- NURSE STATIONS ON SALON LEVEL ABOVE WITH 360 DEGREE VIEWS

Legend:
- SUPPORT
- PATIENT BED AREA
- MECHANICAL/SERVICE CHASE
- EXISTING TOILETS
- EXISTING CONSESSIONS
CONTACT INFORMATION & LINKS

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O: 256-895-1674
E: Brian.C.Roden@usace.army.mil
QUESTIONS

WARNING:
RESPONSES MAY BE DELAYED DUE TO EXTENDED TELEWORK...
LEAVE A MESSAGE WE’LL CALL YOU BACK