

2020 Project Delivery Course

Are You Ready to Design & Build a Field Hospital in 10 Days?



**The American
Institute
of Architects**

Project Delivery

an **AIA** Knowledge Community

November 10, 2020

Moderators



GRACE C. LIN, AIA, CSI-CDT
CBRE | Healthcare

2019-2020 Chair
Project Delivery Knowledge
Community Advisory Group



ARLEN SOLOCHEK, FAIA
AIA Documents Committee

Member
Project Delivery Knowledge
Community Advisory Group

Project Delivery Case Study Series

Live Course - Are You Ready to Design & Build a Field Hospital in 10 Days?

When: Nov 10, 2020 from 2:00 PM to 3:30 PM (ET)

Community: [Project Delivery](#)

Course 1 = 1.5 LU/HSW

Live Course - Project Delivery in a Global Pandemic

When: Nov 12, 2020 from 4:00 PM to 5:30 PM (ET)

Community: [Project Delivery](#)

Course 2 = 1.5 LU/HSW

Live Course - COVID-19 Rapid Response Project Delivery

When: Nov 17, 2020 from 4:00 PM to 5:30 PM (ET)

Community: [Project Delivery](#)

Course 3 = 1.5 LU/HSW



The American
Institute
of Architects

Project Delivery

an **AIA** Knowledge Community

AIA/CES Reporting Details

Your CES credits will be automatically reported given your engaged attendance during the entire event today.

If you are watching in a group setting and have multiple people in the room, please make sure the person who registered for the course, includes your name and AIA member number in their post webinar survey.

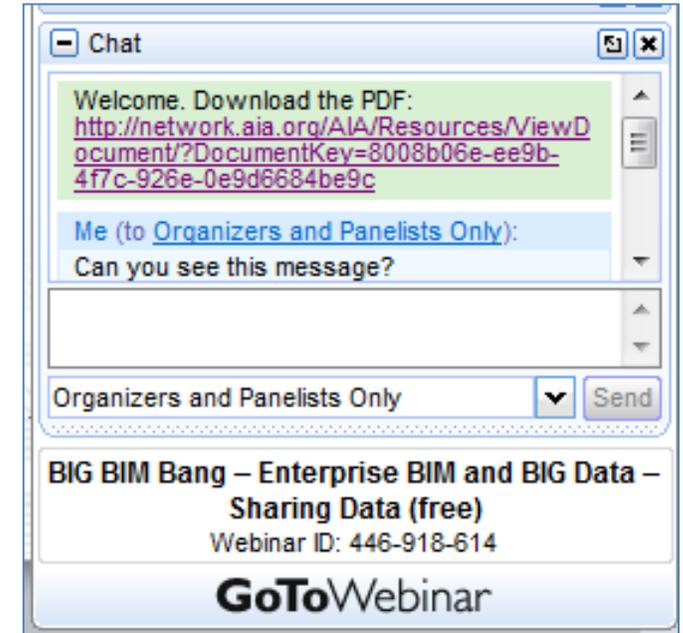
We encourage all registrants to fill out the post course survey. Your feedback is important and informs us of future course topics to better meet listener needs.

Questions?

Submit a question to the moderator via the chat box.

Content-related questions will be answered during the Q&A portion, at the end of the presentation, as time allows. Any questions not answered during Q&A, will be answered and posted online within two (2) weeks.

Tech support questions will be answered by AIA staff promptly.



Copyright notice

This presentation is protected by US and International Copyright laws. Reproduction, distribution, display and use of the presentation without written permission of the speaker is prohibited.

© The American Institute of Architects 2020



Project Delivery

an **AIA** Knowledge Community

Compliance statement

“AIA Knowledge” is a Registered Provider with The American Institute of Architects Continuing Education Systems (AIA/CES). Credit(s) earned on completion of this program will be reported to AIA/CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request.

This program is registered with AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.



Project Delivery in COVID-19 Era

“The COVID-19 pandemic is unprecedented. It has pressed on rapid design response and instant construction delivery to serve the community.

The AIA Project Delivery Knowledge Community (PDKC) gathered case studies from a number of architects who worked on the front lines during the public health emergency. These case studies share their stories, what they’ve experienced and learned in delivering essential projects during the moments of crisis. What worked, traps to avoid, how to win cooperation, and the course of actions taken to successfully deliver the projects.

These case studies highlight architects’ work that will inspire and improve the visibility and awareness of project delivery in our profession. Such leadership role demonstrates the importance of project delivery and helps architects rise to the occasion.”

Presenters



LYNN M. EWING, PE
Contracting Officer's
Representative
USACE, Chicago District



PAUL WIDLARZ, AIA
Principal
HGA



CORY POWERS
Engineering Principal
HGA



ADAM JELEN
Senior Vice President,
Midwest Division
Gilbane Building Company

Learning objectives

1. How to build a high-performing rapid response team
2. Assembling the ultimate “Big Room”
3. How to convert an expo hall into a field hospital – strategies & tactics
4. Unique considerations when designing a field hospital in a prison

Our Mission...

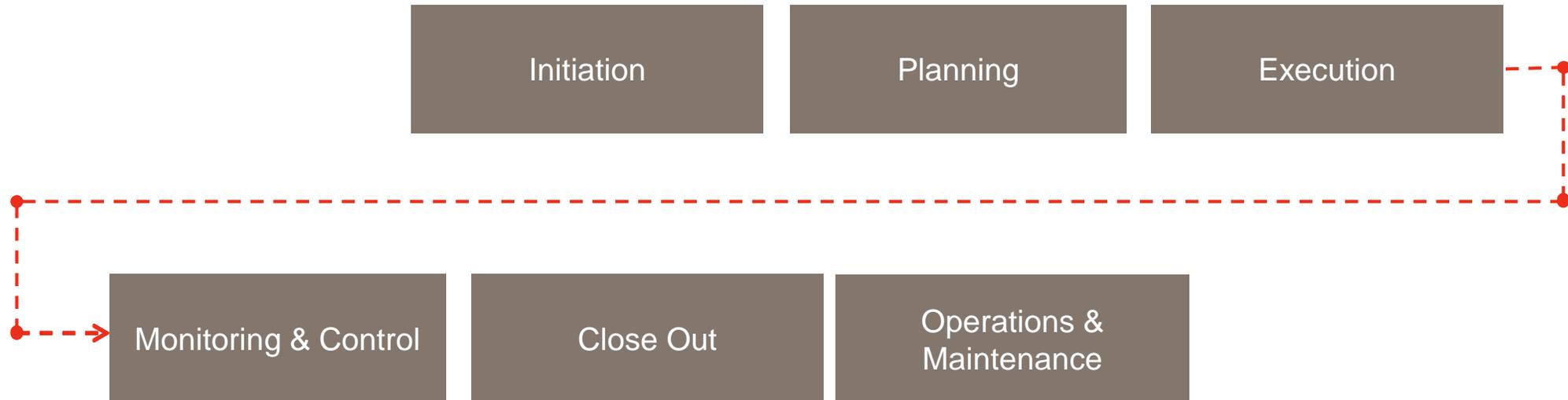
- Convert an exposition hall into an Alternate Care Site (ACS)
 - 296 Beds (in-line O2), 234 beds (bottled O2), 234 future beds
 - Temporary/portable support areas (toilets/showers/hand-washing)
 - Temporary medical gas (O2) facilities
 - Infrastructure (HVAC, Electrical, IT, Fire Protection) to support
- 10 days to complete
- Ability to demobilize without a negative impact on facility

Building the Team



Operation Enduring Health – COVID-19 Response – USACE Chicago District

Summary of project life cycle



Initiation

- Market research – determine pre-selected pool of contractors
- Survey of potential sites – as requested by the state
- State development of the resource requirements submitted to FEMA
- Awarding of the MATO (mission assignment task order) from FEMA
- Development of the PWS (performance work statement)
- Issuance of solicitation and source selection board
- Right of entry from state
- Award of undefinitized design-build letter contract
 - Durations, vision of USACE, requirements
 - Flow chart

Planning & Execution

- Planning phase began upon award
- Kickoff meeting with all stakeholders, prime contractor and subcontractors
- Execution began upon award

Assembling the Design-Build Team

- Trusted and proven partners
 - Design team
 - Subcontractor (trade partners)
- Federal experience
- Local resources and knowledge (AHJ's, supply chain, workforce, etc.)
- Ability to prefabricate
- Ability to deliver senior leadership on site to boots on the ground
- Training and set expectations for the team

Team Building & Culture

- Daily presentation and collaboration
- Starting with caring moment
- Commitments and decisions
- Team building activities and appreciation

Deliver on our Mission **TOGETHER**



Building the Design Team

“We didn’t design and build this in 10 days, we designed and built this in 25 years plus 10 days...”



Converting an Expo Hall into a Field Hospital



Overall Timeline

USACE
Initiation

Design & Execution



- 1** Day 1 - 0800 Mobilize & Kick-Off
Day 1 - 1600 Layout Concept Defined
Day 1 - 2000 Partitions Released
- 2** Day 2 - For Information Set of Documents Completed
Day 2 - Critical Materials Procured
Day 2 - Construction Started
- 3** Day 3 – Sign-off for Information Documents
Day 3 – MEFP Rough-in and Distribution,
Partitions Delivered and Install Started
- 4** Day 4 – Partition Installation, Wall
Framing, MEFP Rough-in and Install
- 6** Day 6 – Major Equipment Deliveries, East Site Construction,
Closeout and Transition Process Underway
- 7** Day 7– Major Equipment Deliveries, North and East Site
construction , Closeout and Transition Process Underway
- 8** Day 8 – Technology Systems, Wrap-up construction,
Closeout-Commissioning and Testing Process Underway
- 9** Day 9 – Complete Punchlist Work, Final Cleaning, AHJ
Inspections, Deliver Closeout Documents
- 10** Day 10 – Complete Cleaning and Punchlist Items,
Demobilization, Lessons Learned and Team Appreciation



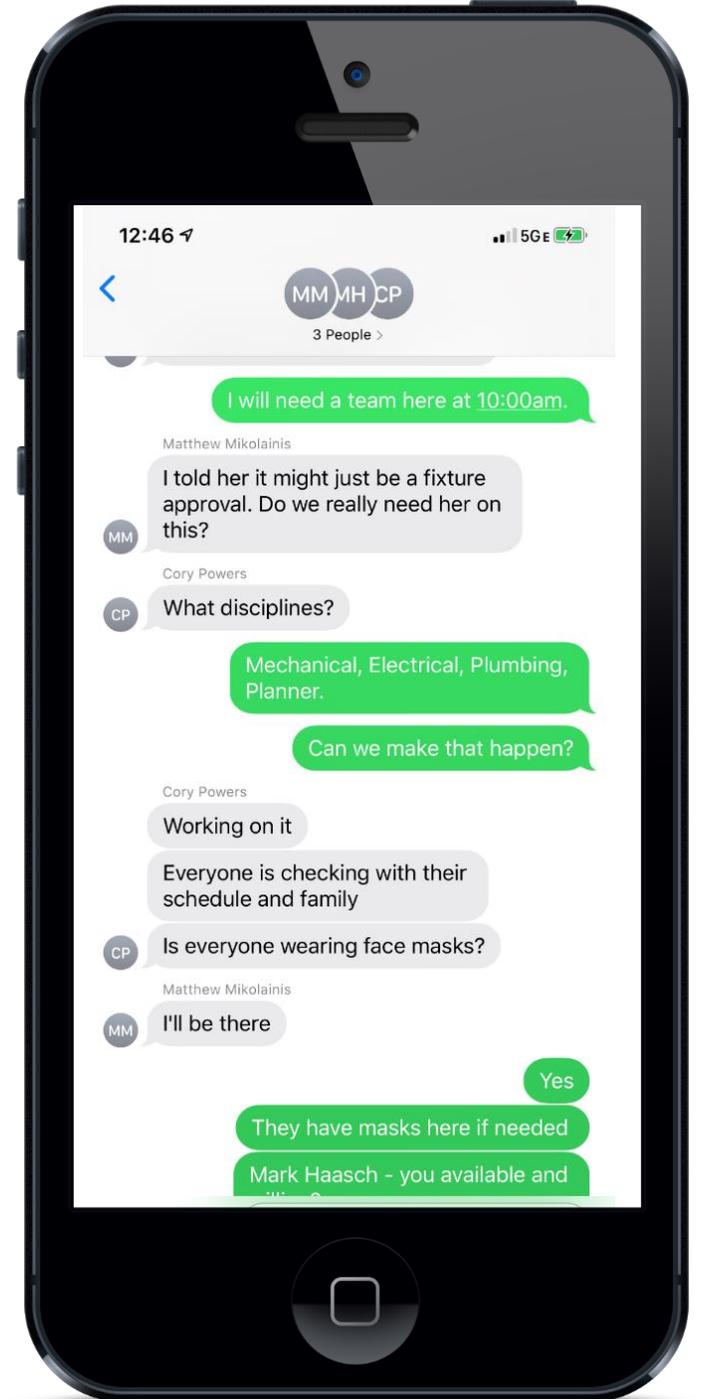
Project Delivery

an **AIA** Knowledge Community

A Video Overview...

On-Boarding...

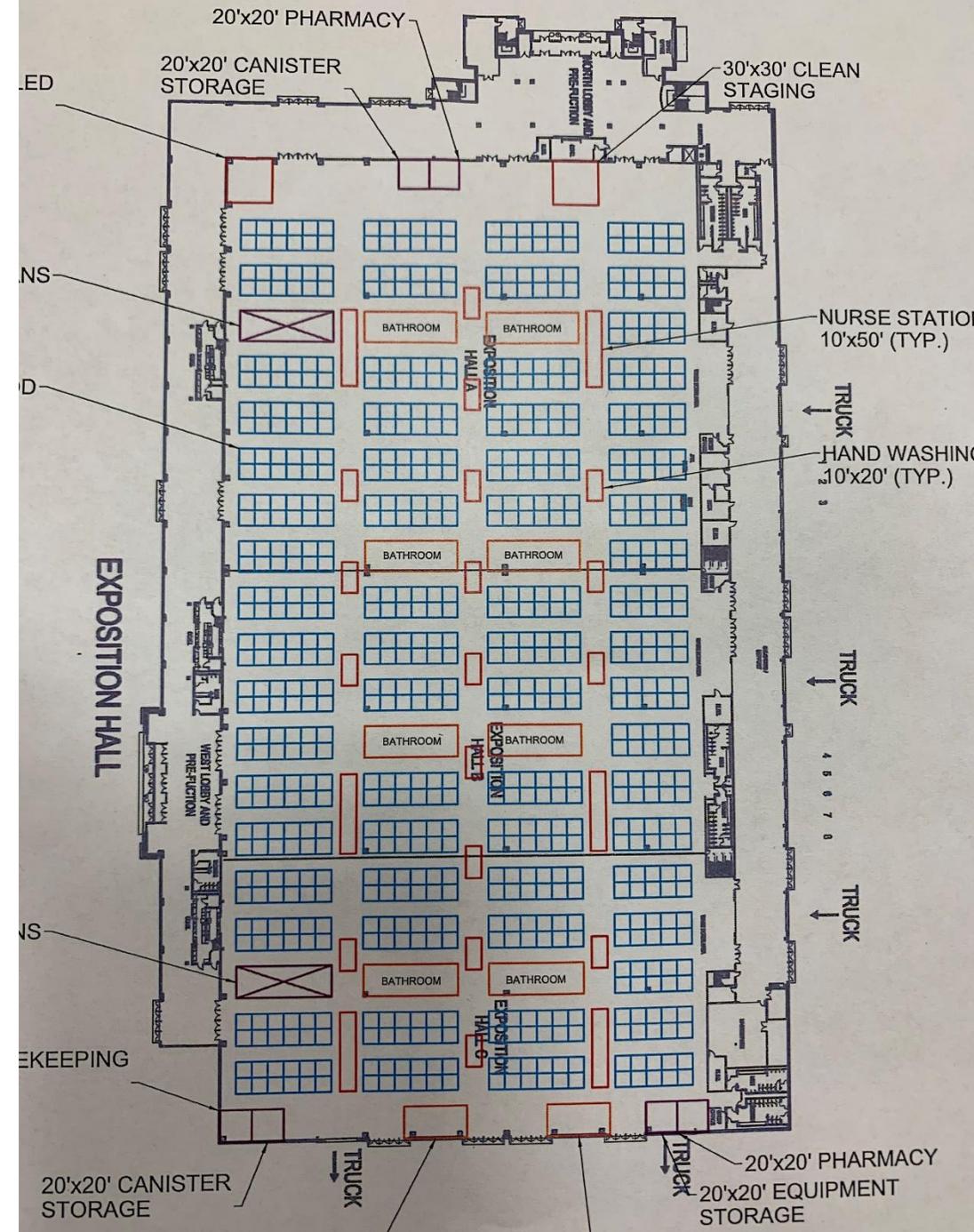
- Received meeting appointment for following morning at 0800
- Early days of the pandemic – where we were from a COVID knowledge standpoint at that time was very different from now





Kick-Off Meeting

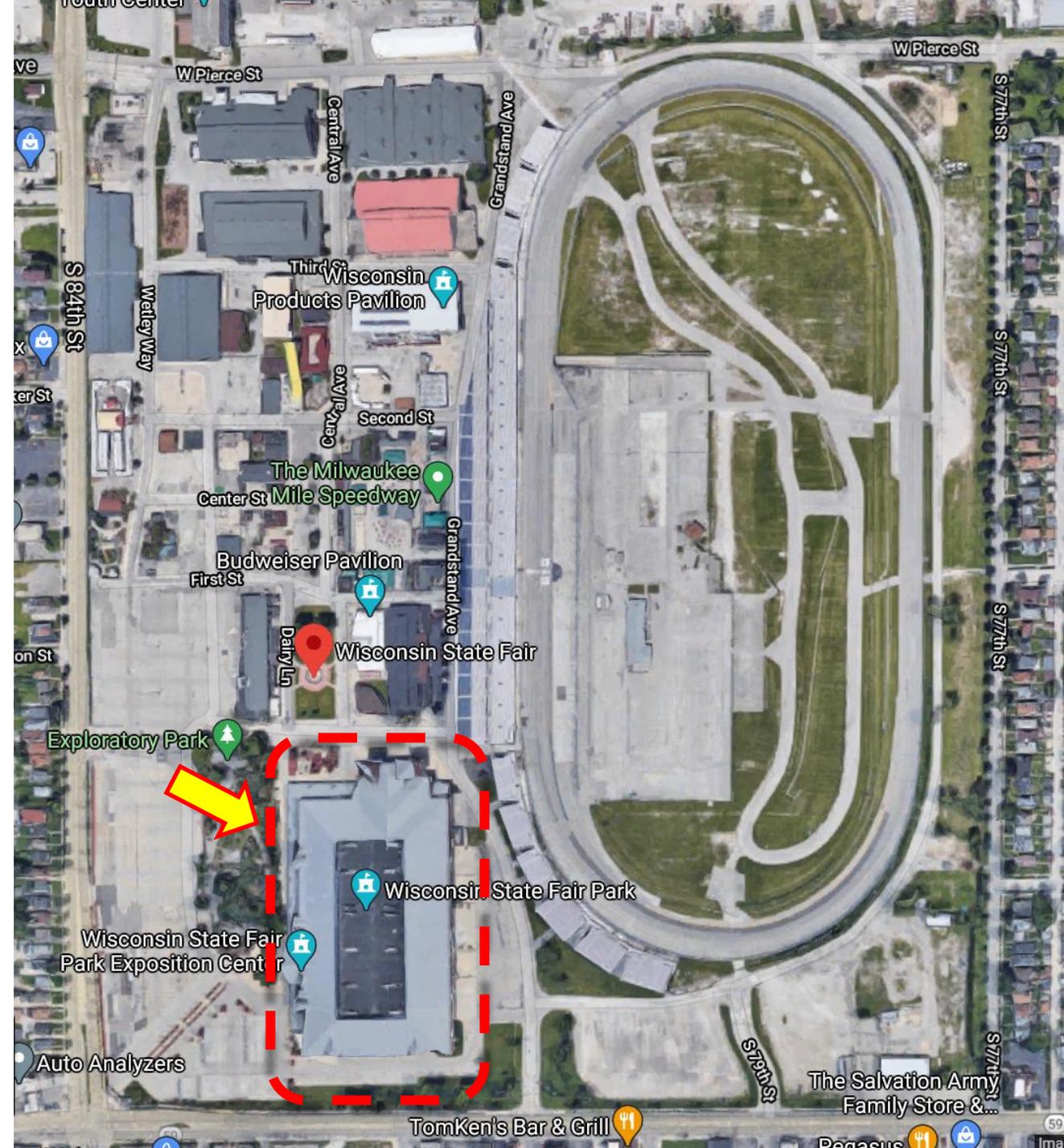
- Work Scope (PWS)
- Preliminary floor plan
- Facility tour
- 1st deadline – final floor plan 1600 hrs



Project Delivery
an **AIA** Knowledge Community

Wisconsin State Fair Grounds

West Allis, Wisconsin



The American
Institute
of Architects

Project Delivery

an **AIA** Knowledge Community

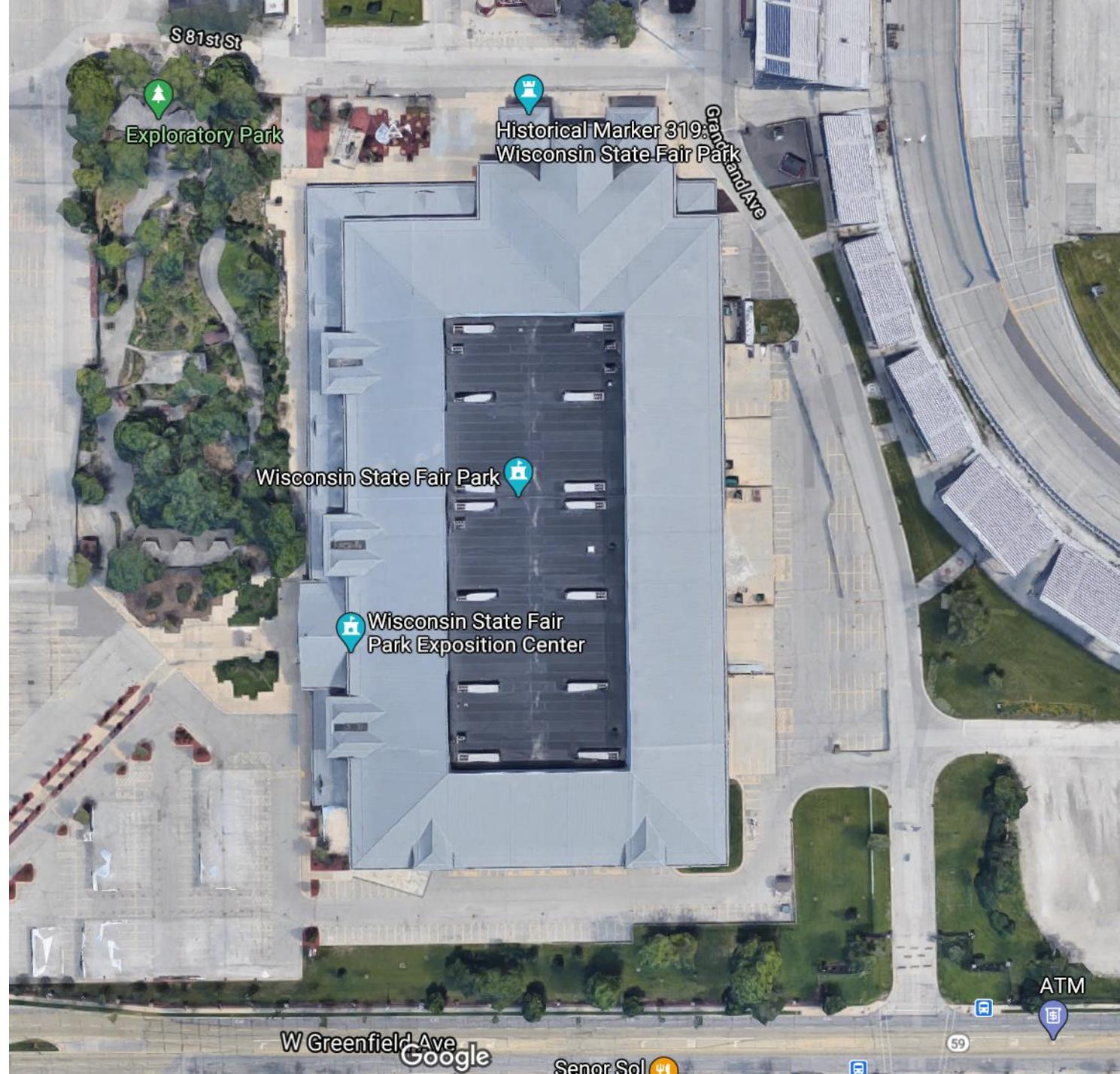
Key Stats

- Exposition Hall
- Built in 2002
- Multiple entries – all sides
- Loading dock
- Columns – 90' on center
- Utility boxes – 30' O.C.



Project Delivery

an **AIA** Knowledge Community

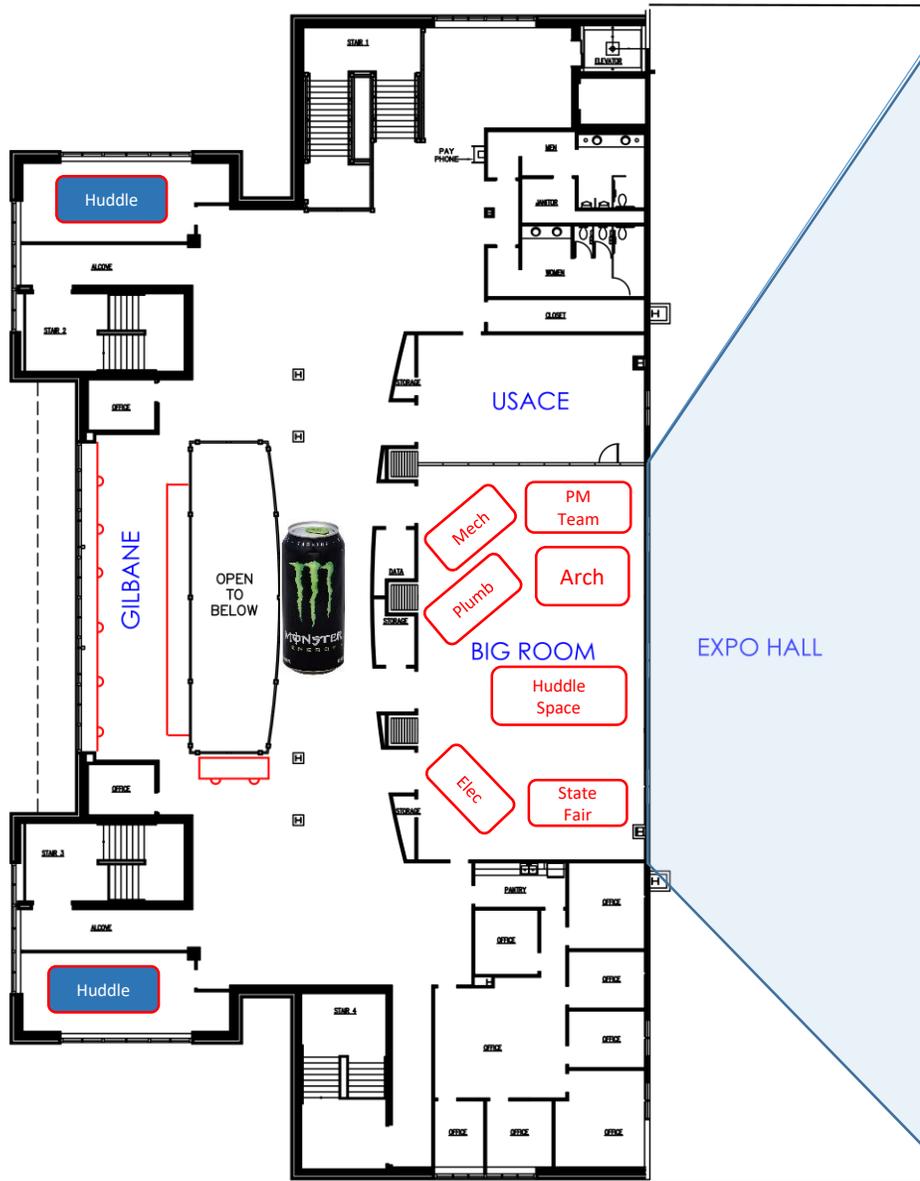




State of Wisconsin Dept. of Transportation, State Fair Park, Col. Reisinger, ACE Support Team, TGA Electrical, Johnson Controls, JE Ahaus, USACE, Plumbing Trade, Ewing Co, Arch & Planning Team



The Ultimate Big Room



SECOND FLOOR

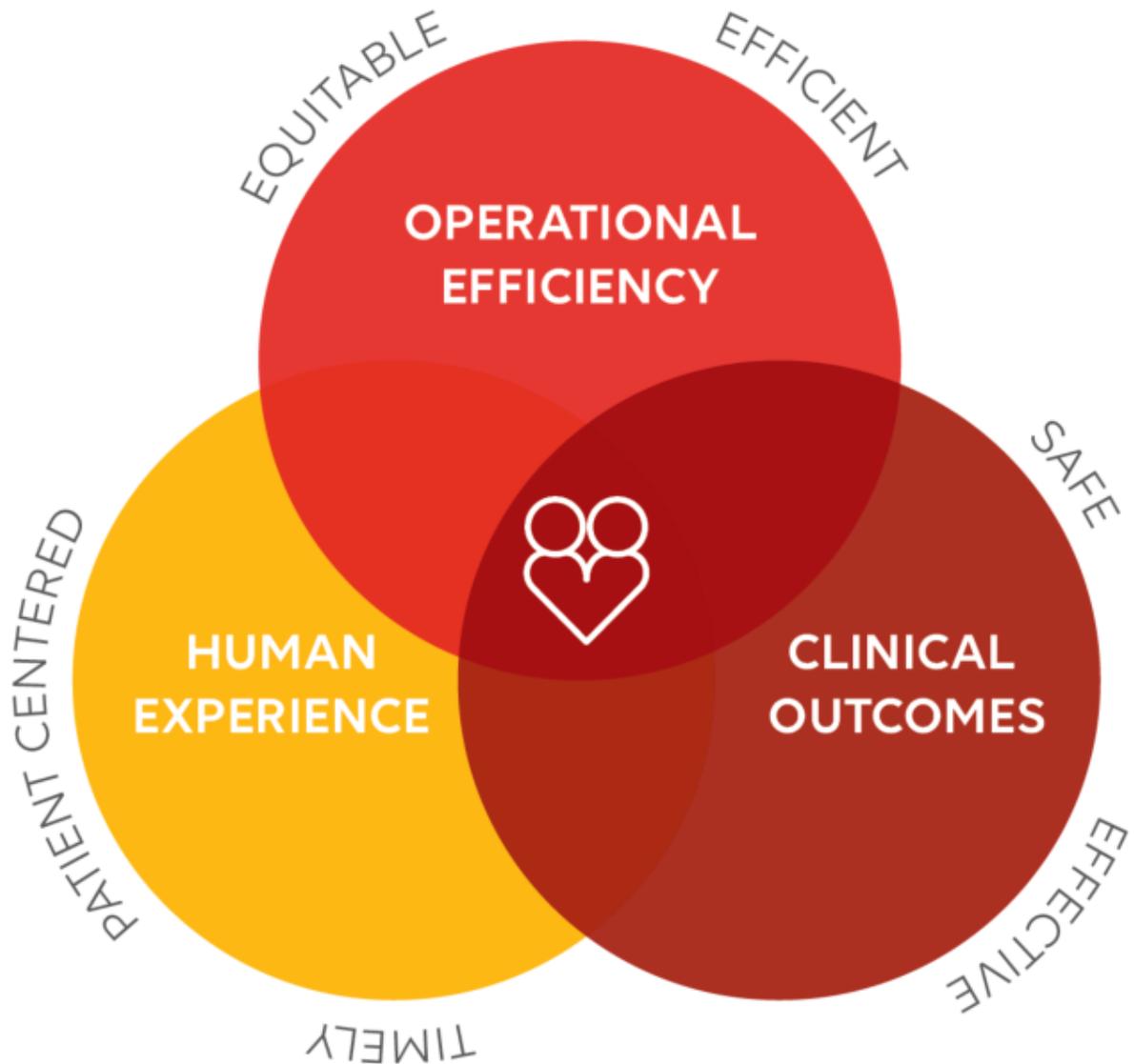


Monitoring & Control

- Daily progress meetings with all stakeholders, daily construction meetings
- Daily reporting on actual expenses
- Daily reporting on safety and quality control
- Design submittals for information only
- Request for Information (RFI)'s – responded to immediately
- Definitization of contract

Design Process

The Triple Aim



The American
Institute
of Architects

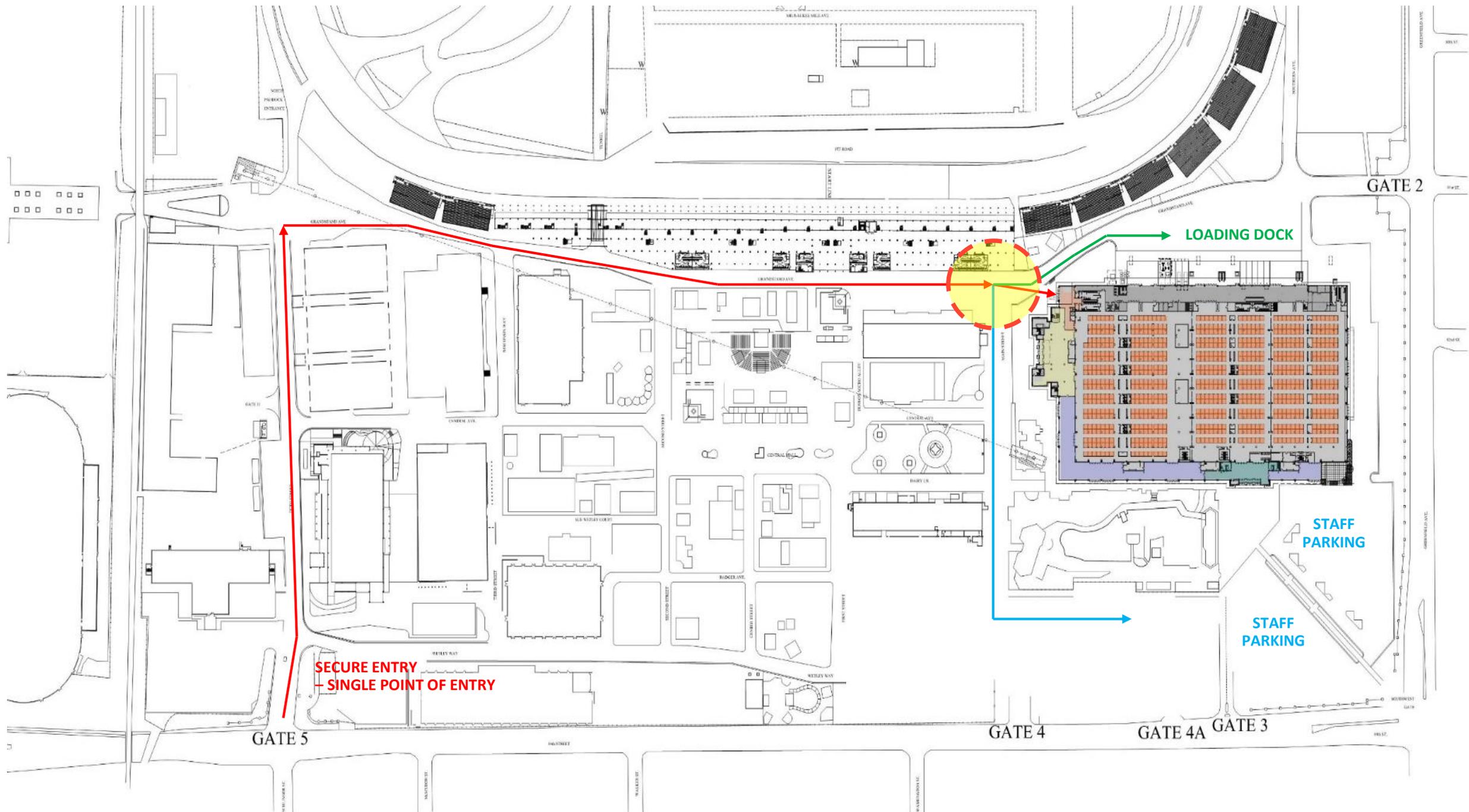
Project Delivery

an **AIA** Knowledge Community

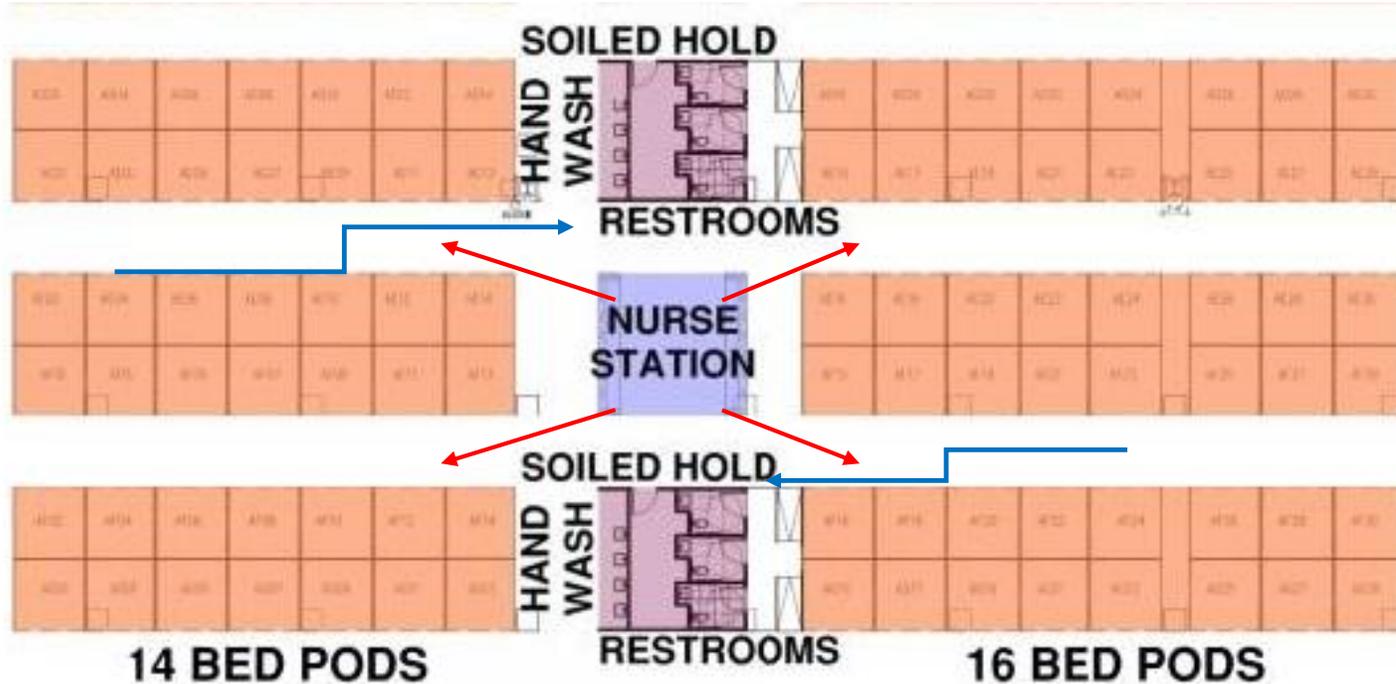
Design Process – Operational Flows

- Patient flow
 - Accessing the facility
 - Movement within the facility
- Staff flow
 - Building access
 - Movement within facility
- Material flow
 - How do goods arrive and move through the facility





Patient Care Areas



Planning Guiding Principles:

- Patient safety
 - Maximize visibility
 - Minimize potential hazards
- Minimize walking distances
 - Caregivers
 - Patients (toilet rooms)
- Clear wayfinding
- Centralized support functions
- Efficient wall layout with access to utilities
- ADA accessibility
- Best value
- Supports prefabrication



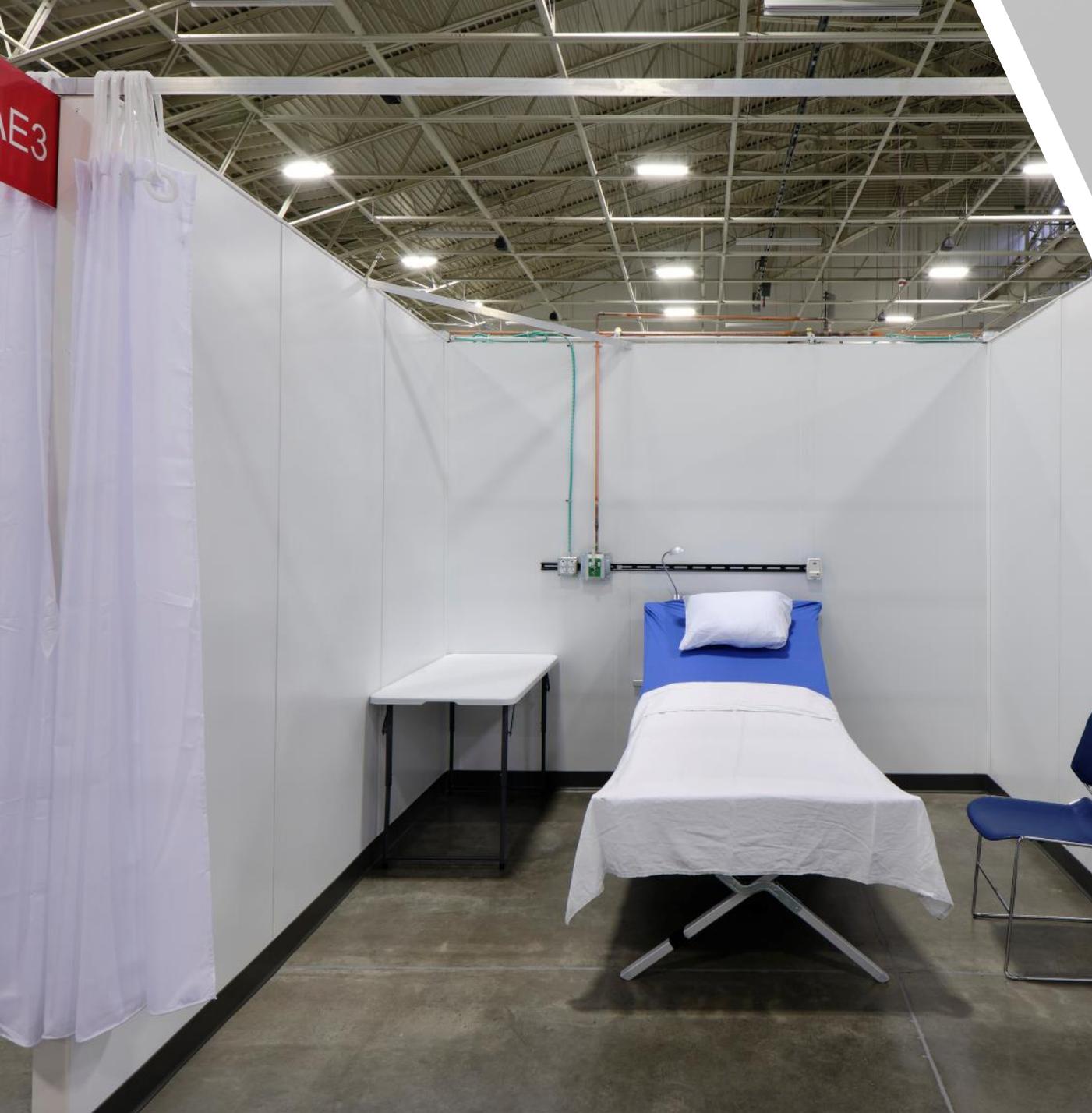
ALTERNATE CARE FACILITY
AMBULANCE
DROP OFF
→



D15

AD16

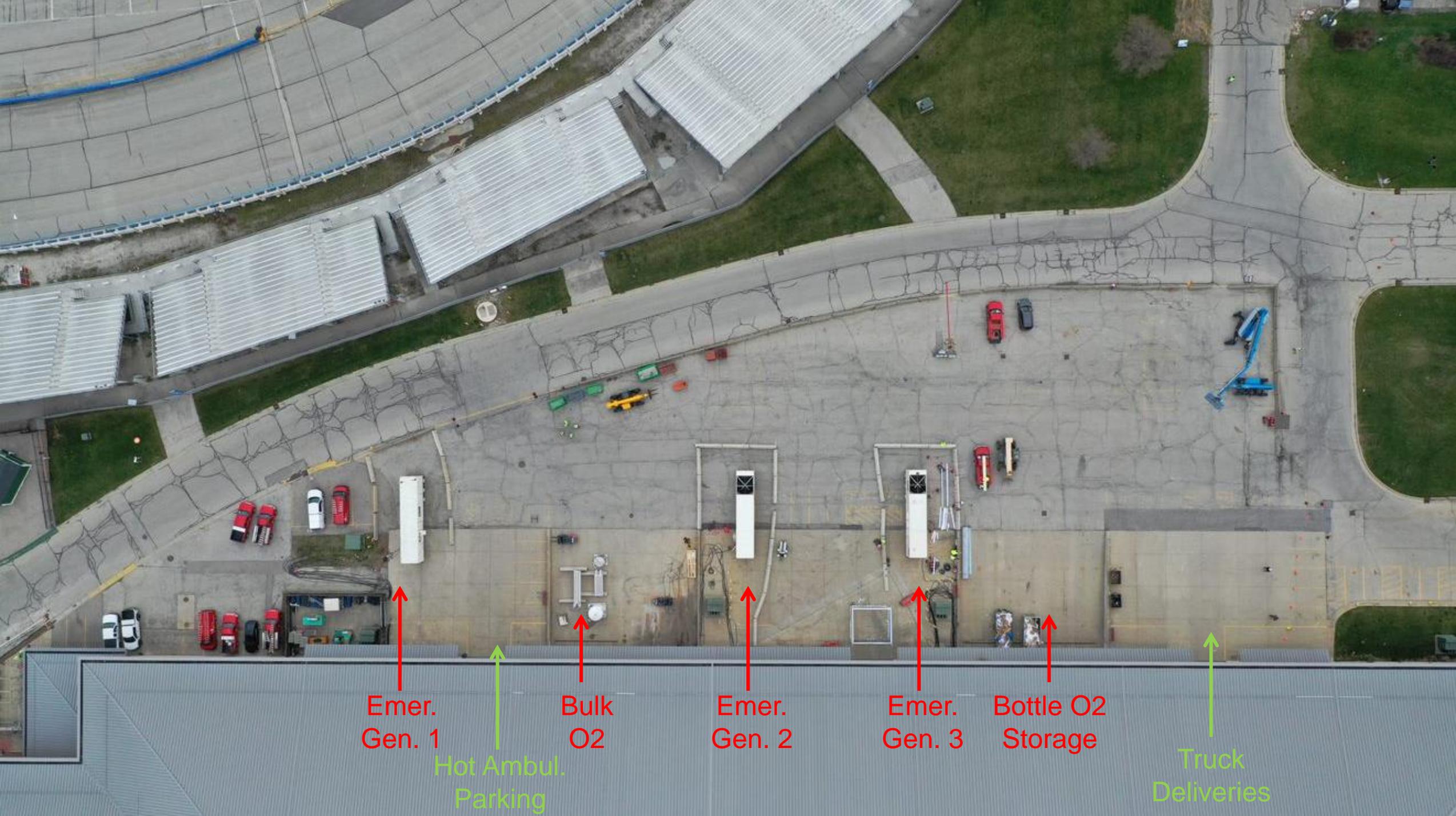
PATIENT
RESTROOM





AB16

PATIENT
RESTROOM



Emer.
Gen. 1

Hot Ambul.
Parking

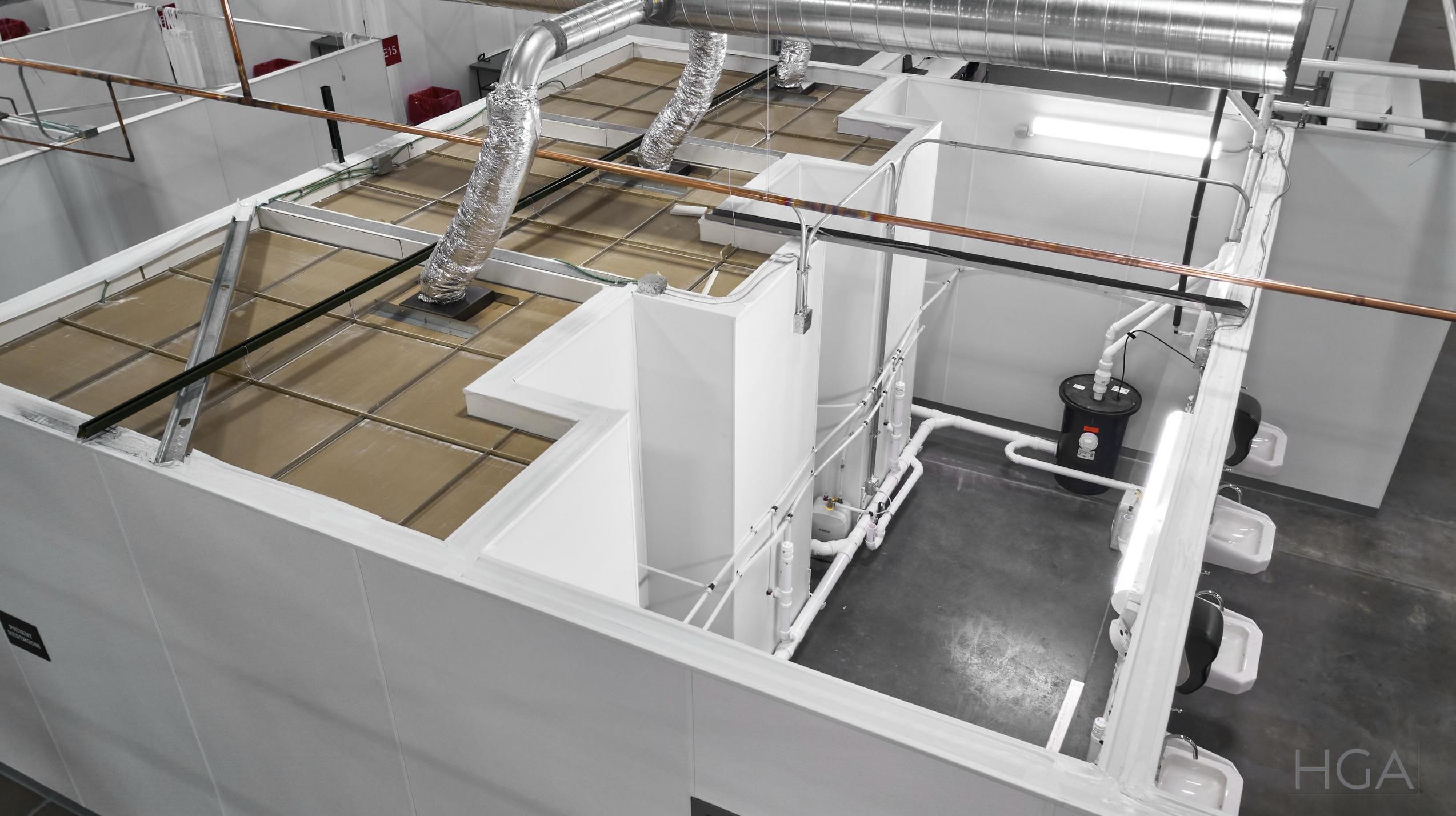
Bulk
O2

Emer.
Gen. 2

Emer.
Gen. 3

Bottle O2
Storage

Truck
Deliveries





East Dock Electrical Distribution



Electrical Systems Prefabrication Delivery and Installation



CAT
rental Power

FABRIK CAT
POWER SOLUTIONS

NATIONAL
RENT-A-FENCE
800-352-5675

NO SMOKING
OPEN FLAMES ARE NOT
ALLOWED

OXYGEN
REFRIGERATED
LIQUID NITROGEN
25-5716

NATIONAL
RENT-A-FENCE
800-352-5675

NATIONAL
RENT-A-FENCE
800-352-5675

American Maintenance

HARVEST FAIR

BELL AMBULANCE
264-BELL

Fun Any Way
YOU SLICE IT!
Wisconsin
State Fair

WISCONSIN
STATE FAIR

I ❤️
WI STATE
FAIR



Oxygen Systems Prefabrication Delivery and Installation

Close Out and Operation & Maintenance (O&M)

- State representatives and clinicians need to be part of pre & final inspections
- Integration of new team into facility
- As-built drawing review
- Turnover letter to State
- Operations & Maintenance (O&M)
 - Not responsibility of USACE or contractor – but Wrap Around Service
 - Warranties limited to manufacturer warranties on new equipment; no warranties on construction

Lessons Learned – Hot Wash

Teamwork

- Assemble trusted, highly-qualified and hard-working partners
- Bring all key stakeholders into the Big Room (face-to-face and on-site)
 - USACE
 - Building Owner (Leaders & Facilities Team)
 - Healthcare provider
 - Government officials
 - AHJ's
 - Construction Manager
 - A&E Designers
 - Trade Partners
- High energy level and excitement from the team.
- Open line of communication with all parties
- Provide DM's with the information needed to make decisions quickly
- Take a breath and pause for a moment to plan the work flow
- Assign 1 content manager from each team.....Ben, Matthew...

Design

- Lead with Strategy - review operations plan with Operators to understand their process flow to develop the program
- Ask the right questions.
- Determine the high-level flows (Patient, Staff and Materials) Develop an efficient logical plan that responds to operations quickly & distribute to the team
- Leverage ALL the talent in the room (Architects, Engineers, Construction Manager, Trades)
- Past working relationships key (Gilbane, HGA, Ahern, Staff)



Lessons Learned

Tools

- Use MS Teams to track tasks due (ASI, Punchlist, As-builts, Etc.)
- Plan the deliverable schedule with a QC check
- **We needed a shared folder on a cloud network. Relying on people to forward emails is too risky**
- **Implement commissioning earlier to test existing HVAC equipment**
- HGA's iPad based punchlist tool was great.
- Drone footage was valuable

Details

- **Add electrical panel/clearance to backgrounds**
- Earlier interior elevation of Patient Room & other key spaces
- **Earlier Site drawing. Focused team on this topic**
- Consider ceilings in soiled utility rooms.
- Room Numbering & Signage
- Use Revit
- Develop headwall earlier than prefab starts
- **Solid existing drawings.... On other projects this was a huge problem out of the gate**

Converting a Prison into a Field Hospital



Our New Mission...

- Convert existing prison facility into an Alternate Care Site (ACS)
 - 30 bed dorm low acuity (inline O2), 90 beds – non acute (no O2)
 - Temporary medical gas (O2) facilities
 - Infrastructure (HVAC, Electrical, IT, Fire Protection) updates
- Staff support areas – medical and correction officers
- 20 days to complete

(Re)Assembling the Team

- Added corrections experience
- Integrated lessons learned



Team Caring Moment



Authorities Having Jurisdiction

USACE - Contracting Officer's Representative (COR) - Mr. Robert Vanoer - Scope Direction | Approval | Administration

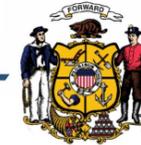
Milwaukee County - Emergency Management Director - Ms. Christine Westrich

State of Wisconsin - Director of Detention Facilities - Mr. Gregory Bucholtz
Plan Review and Letter 5/4
Final Inspections Team

City of Franklin - Building - Building Permit and Inspection(s) - Mr. Scott Satula
Demolition Permit 5/3
Building Permit 5/6 (USACE Letter + Stamped Drawings)
General Inspections and Final Inspection Team

City of Franklin - Fire (Fire Suppression | Fire Alarm) - Mr. Adam Remington
Final Inspections Team

City of Franklin - Health Services
Final Inspections Team



Wisconsin Department of Corrections
Governor Tony Evers | Secretary Kevin A. Carr

Office of Detention Facilities

May 3, 2020

TO: Christine Westrich, Director
Office of Emergency Management: Milwaukee County

FROM: Gregory A. Bucholtz, Ph.D.
Director, Office of Detention Facilities
Wisconsin Department of Corrections

RE: **Re-Commissioning of Franklin M. Lotter Building**

Dear Director Westrich:

The Office of Detention Facilities is in receipt of your letter requesting that Milwaukee County be permitted to re-commission the inmate housing units located in the Franklin M. Lotter Building on the grounds of the Milwaukee County House of Correction. The purpose of the request is based on the current public health emergency resulting from the COVID-19 virus. Milwaukee County's plan is to develop an Alternate Care Facility within the Franklin M. Lotter Building for the purpose of housing inmates who test positive for the COVID-19 virus. In particular, the project is being facilitated by the U.S. Army Corps of Engineers' construction of an emergency alternative care site providing 90 beds of isolation and 30 beds of low-acuity medical care for male inmates in the custody of Milwaukee County.

Your request to re-commission the Franklin M. Lotter Building is approved. Please provide this Office with the final construction plans and specifications so that they may be reviewed and approved upon their completion.

Cc: Theodore Chisholm, Chief of Staff, MCSO
Roberto Paredes, Area Engineer, USACE

Cc:



The American
Institute
of Architects

Project Delivery

an **AIA** Knowledge Community

Kick-Off Meeting

- Work scope (PWS)
- Preliminary floor plan
- Facility tour

Performance Work Statement (PWS)

Convert an Open Area Dormitory within the Secured Correctional Campus into a Non Acute COVID Patient Care Facility

Target Audience: Two categories of patient spaces will be at the site. FPA 99 Category 3 Patient, 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). [only 1 category identified]

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 temporary Alternate Care Facility 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 (i.e. the use of either nasal tube or mask) and do require nursing support.

The Contractor shall retrofit the selected space into a Temporary Alternate Care Site (ACS) serving primarily non acute COVID-19 patients plus some low acute COVID-19 patients in transition to a medical facility which supports higher acuity care.

Standard dormitory layouts provide for 32 beds spaces each. The Contractor will not provide beds. Dormitory infrastructure has many built-in fire protection and life safety safeguards. The existing emergency duty generator shall be tested and repaired as required along with essential power circuits to ensure that uninterrupted power is available at all times. Submit the report to the COR within 24 hours of completing the test. All plumbing fixtures will be inspected and all brought up to full functioning performance.

Within the **Lotter Building** the Contractor shall convert three (3) open dormitory areas of approximately 2500 sf each (including toilet and shower facilities), support areas such as the Dining room (room 130), and other support areas into a **non-acute infectious COVID-19 patient care facility based on the requirements of NFPA 99 Space Category 3 (Basic Care).**

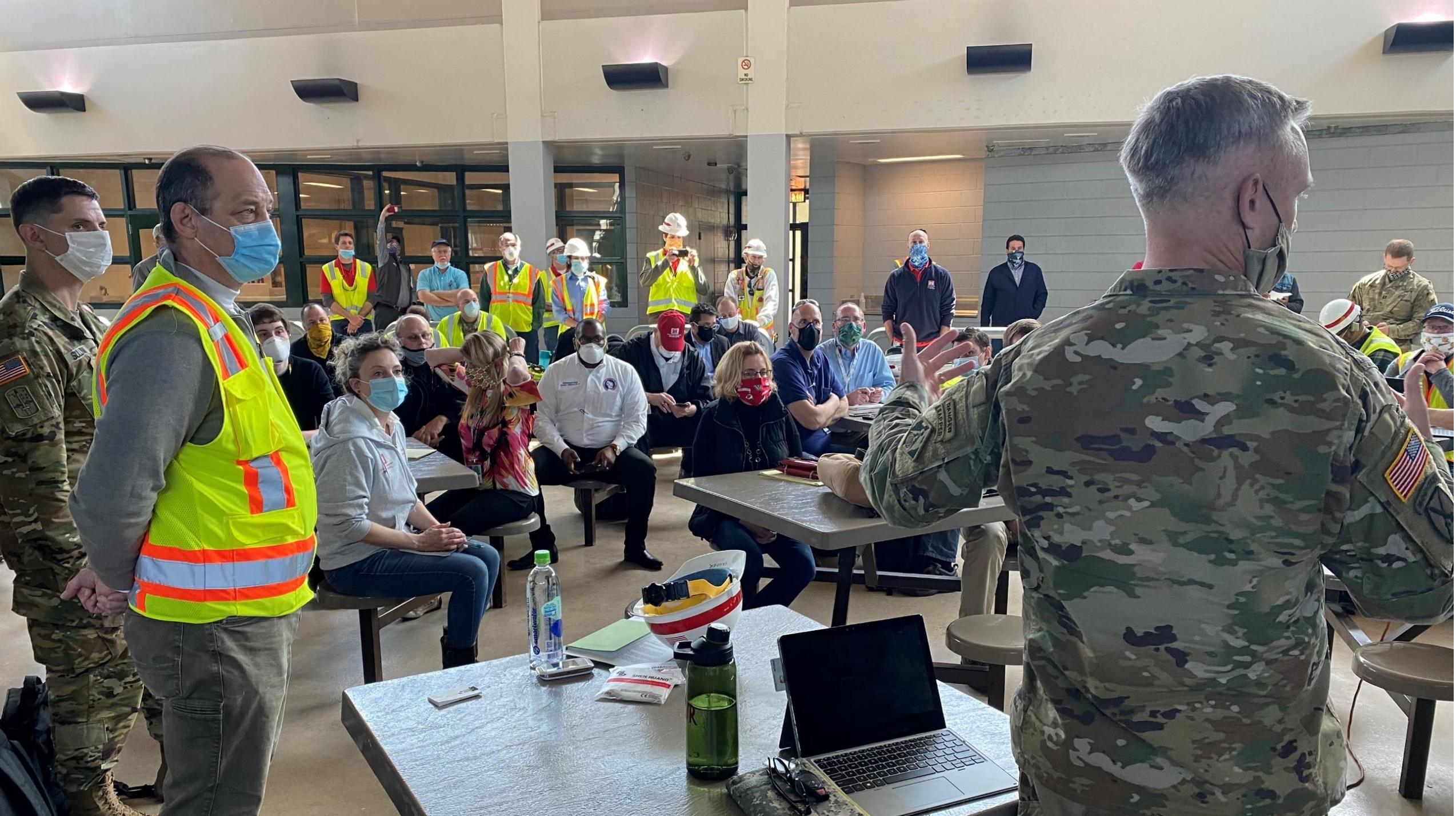
The Contractor shall convert one (1) open dormitory area of approximately 2500 sf (including toilet facilities) into a low acute infectious COVID-19 patient care facility based on the requirements of NFPA 99 Space Category 3 (Basic Care). **A centralized oxygen distribution system will be provided. Oxygen dispensing shall be provided at a minimum volume flow rate of 6 liters per minute at the outlet for each of the 32 patient’s beds.** Other medical gas systems, such as medical grade air or vacuum lines, will not be provided.



The American
Institute
of Architects

Project Delivery

an **AIA** Knowledge Community



NO SMOKING





Milwaukee County
House of Correction

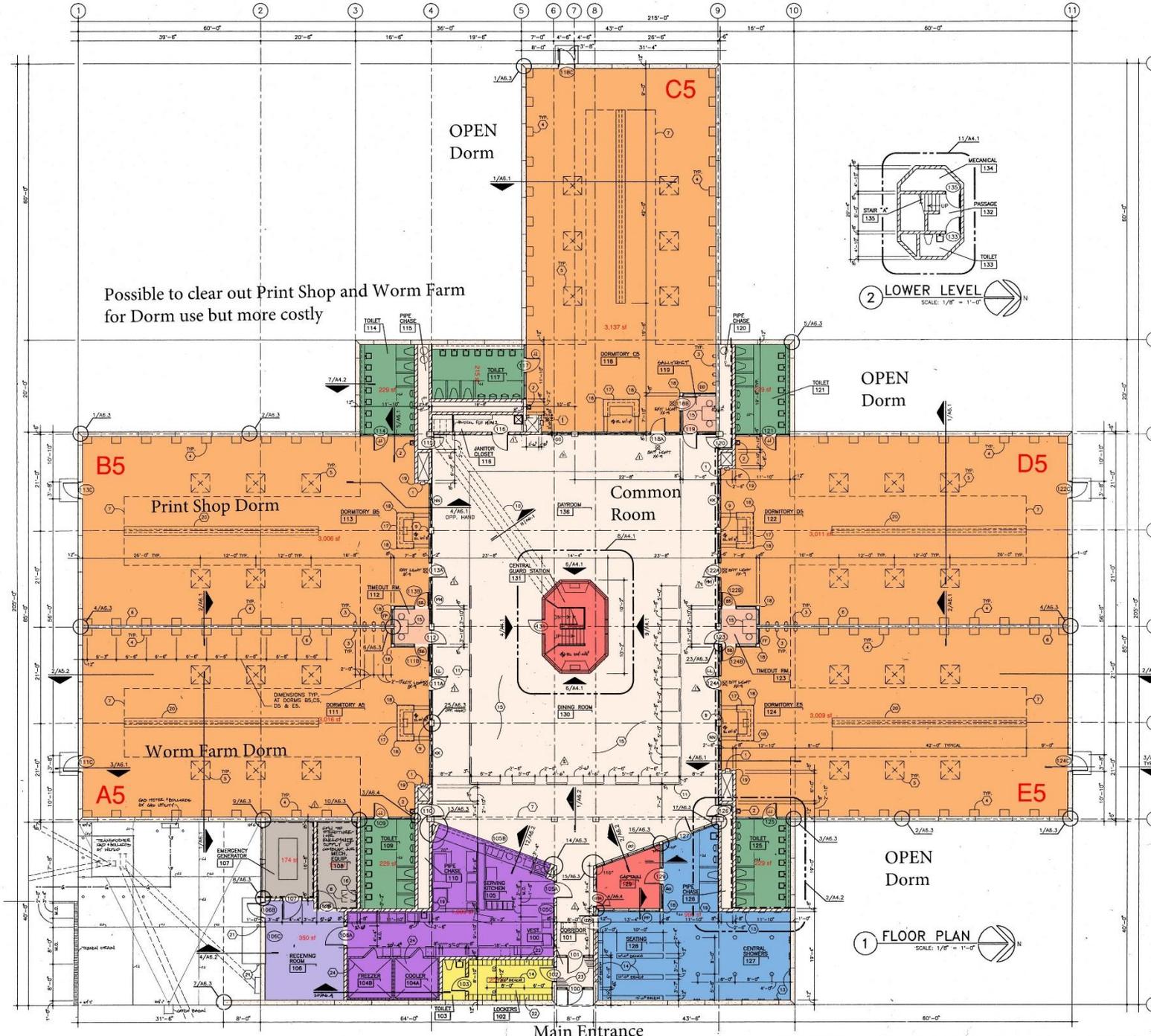
H.O.C.



Google







CODE REVIEW

CLASS OF CONSTRUCTION

- TYPE 2 FIRE RESISTIVE	- NC-2
- FULLY SPRINKLERED	- NC-1
- INTERIOR COLLARING	- NC-0
- FLOOR FRAMING & BEAMS	- NC-0
- ROOF FRAMING - HIGH ROOF	- NC-0
- ROOF FRAMING - LOW ROOF	- CLASS "A"
- ROOF CEILING	- NC-0
- EXTERIOR BEARING WALLS	- NC-0
- EXTERIOR NON-BEARING WALLS	- NC-0
- INTERIOR BEARING WALLS	- NC-0
- INTERIOR PARTITIONS	- NC-0
- FIRE WALL AT NATURAL GAS EMERGENCY GENERATOR	- 1 HR.

EXITING

- WIDTH 30"/100 x 250 = 75" REQ'D
- ACTUAL 60" x 45" = 240"
- DISTANCE 150' FROM ROOM
- DORMITORY IS EXIT ACCESS FROM DAYROOM

WINDOWS

- REQUIRED GLASS AREA
8'6" x 4'1" x 75" (DORMS A,B,C,E) = 246 S.F.
8'6" x 4'1" x 79" (DORM C) = 259 S.F.
- ACTUAL WINDOW ABOVE DOORS 3'-0" x 4'-11" = 6.10 S.F.
8'6" x 4'1" x 8'6" = 159 S.F.

SMOKE COMPARTMENTS

- 1 TO 100 BEES = 6,150 N.S.F.
- 1 TO 150 BEES = SHAKE WALL 20 MIN. DOOR 45 MIN. GLASS

H.C. ACCESS

NOTE: - NO GUARD STATIONS ARE H.C. ACCESSIBLE.
- 28 DORM, 5 BEES, 1 WC, 1 LAV, 1 SHOWER

SANITARY FACILITIES

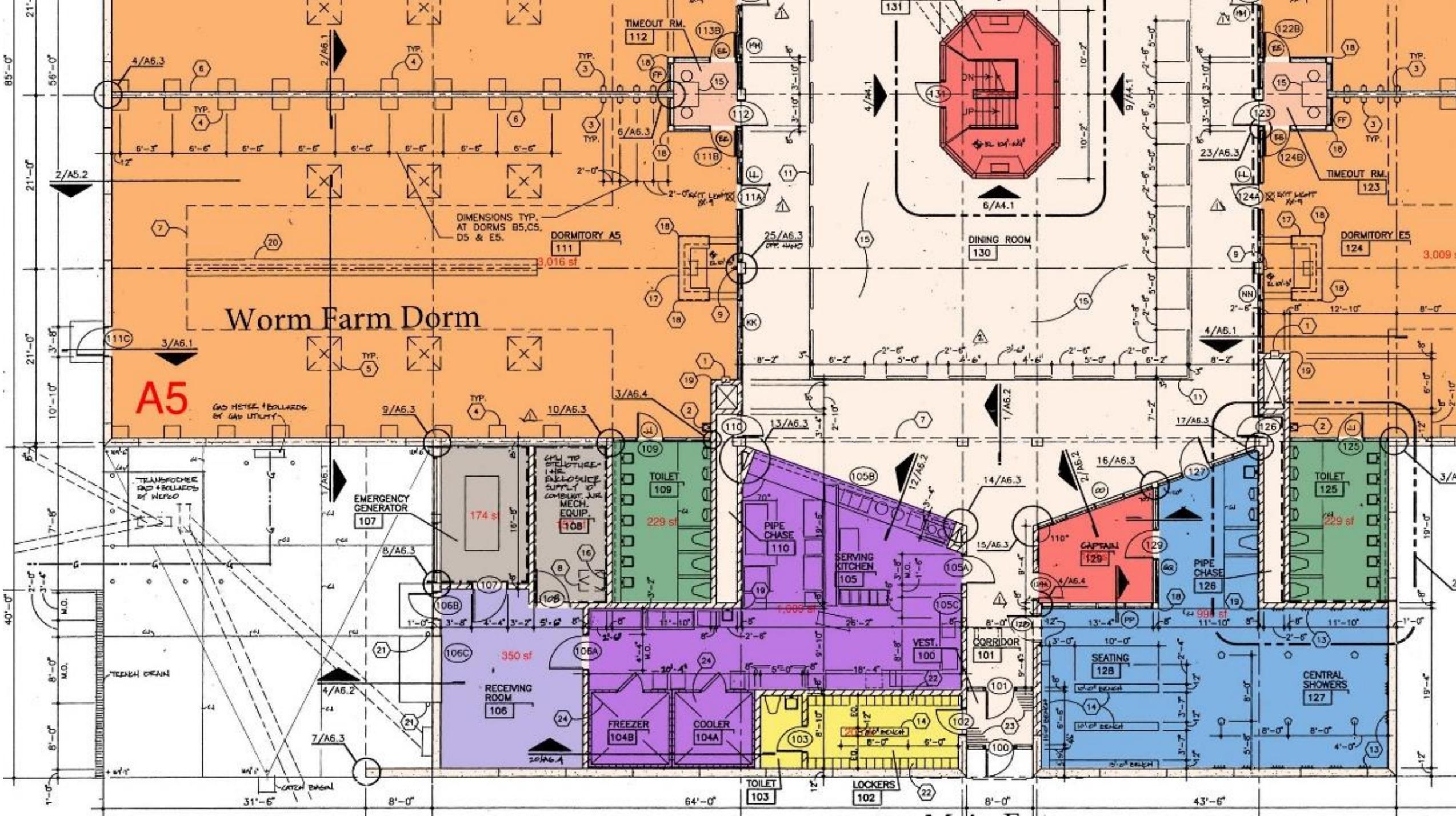
- STAFF: LESS THAN 10 EMPLOYEES = 1 SHARED TOILET ROOM WITH PRIVATE LOCK.
- INMATES: NC RATIO 1:8 = 1 RETO/DAYROOM
USE UP TO 2 1/2 WC PER DAYROOM
SHOWER RATIO 1:10 = 25 TOTAL
15 CHGS (HEADS)
- JANITOR CLOSET = SINK
- DRINKING FOUNTAINS

- LEGEND:**
- CMU WALLS
 - PRECAST CONCRETE WALLS
 - COOLER WALLS
 - 1 HOUR FIRE SEPARATION
 - ROOM NAME & NUMBER
 - DOOR NUMBER
 - FRAME TYPES (SEE SHT. A8.1)

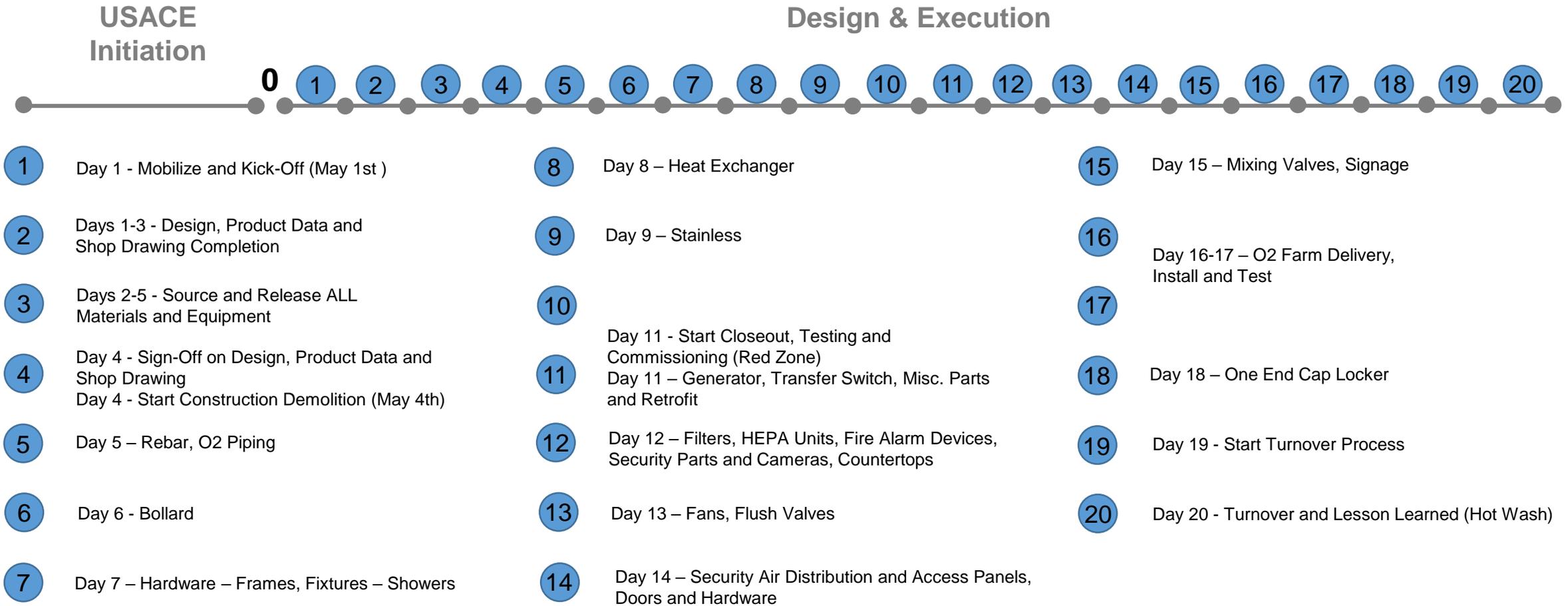
GENERAL NOTES:

- REFER TO EXTERIOR ELEVATIONS (SHEET A8.1) FOR PRECAST PANEL JOINT LOCATIONS.
- PRECAST PANEL DIVIDERS BETWEEN W.C.'s TYPICAL IN EACH TOILET ROOM (SEE ENLARGED PLAN SHT. A4.2 & DETAIL 11/A6.3)

- KEYED NOTES:**
- SEMI-RECESSED FIRE EXTING. CABINET REFER. A8.4.5
 - NON-FUNCTIONING TELEPHONE
 - WALL HUNG TELEPHONE
 - SURFACE MOUNTED DETENTION SHELF (18 x 24) (OWNER SUPPLIED/CONTRACTOR INSTALLED)
 - SCULPTURE LOCATION
 - MERGED CONDUIT IN WET PRECAST WALL ONE PER SHELF (SEE ELEC. DRWG'S)
 - LINE OF SOFFIT ABOVE
 - ROOF HATCH (REFER TO DETAIL 4/A3.1)
 - ROOF DRAIN CONDUCTOR
 - UNDERFLOOR DUCT CHASE (SEE MECH. DRAWINGS)
 - STL. PIPE GUARD RAIL @ 3'-4" A.F.F. (SEE SECTION 1/A6.2)
 -
 - AND 5'-0" A.F.F. @ 3'-0" O.C. SECURE TO WALL AS REQUIRED.
 - BENCH AFFIXED TO FLOOR.
 - TABLETS w/ CHAIRS SECURED TO FLOOR (SEE FURNITURE PLAN DET. A2.2 FOR EXACT LOCATION) (OWNER SUPPLIED/CONTRACTOR INSTALLED)
 - STL. LADDER UP TO ROOF HATCH. SECURE TO WALL AS REQUIRED.
 - GUARD DESK, TYP. AT EACH DORMITORY. (SEE ENLARGED PLAN 1/A4.1)
 - CORNER GUARD BELOW H.M. FRAME OR PLASTIC LAMINATE COUNTER.
 - CORNER GUARD TO 6'-0" A.F.F.
 - 24" WIDE SHELF AFFIXED ON TOP OF CMU.
 - CONCRETE BOLLARD (SEE DETAIL 2/A1.1)
 - MIL LOCKERS ON 4" HIGH CONC. CURB.
 - PEDMAT FLOOR IN ENTIRE VESTIBULE.
 - INSULATED CONCRETE SLAB BELOW FREEZER & COOLER (REFER TO DETAIL A6/4.4)



Overall Timeline



Big Room Re-Imagined



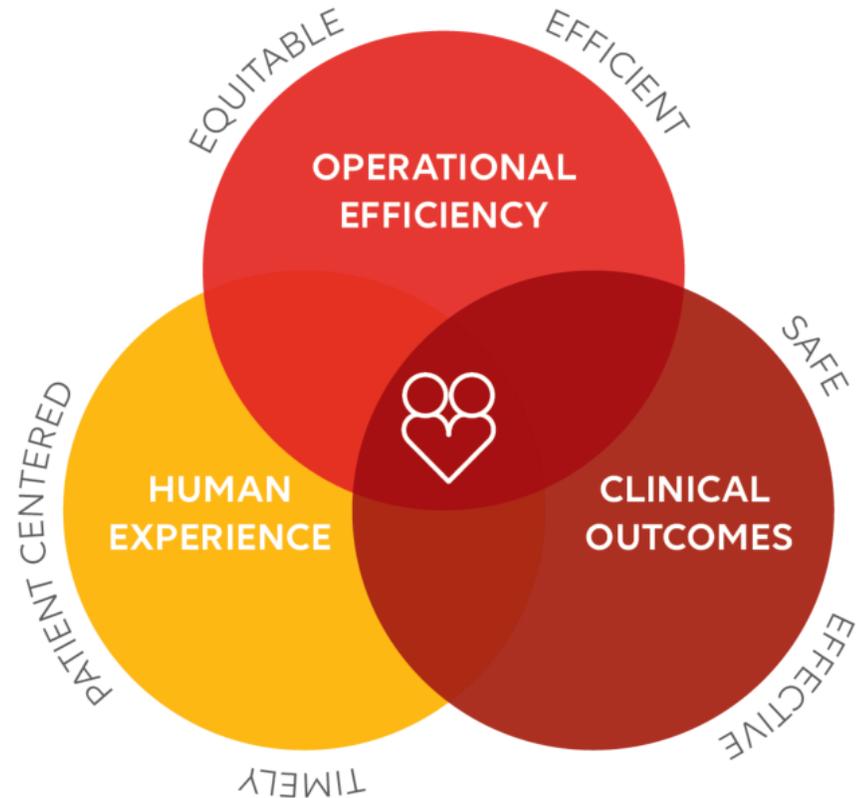
The American
Institute
of Architects

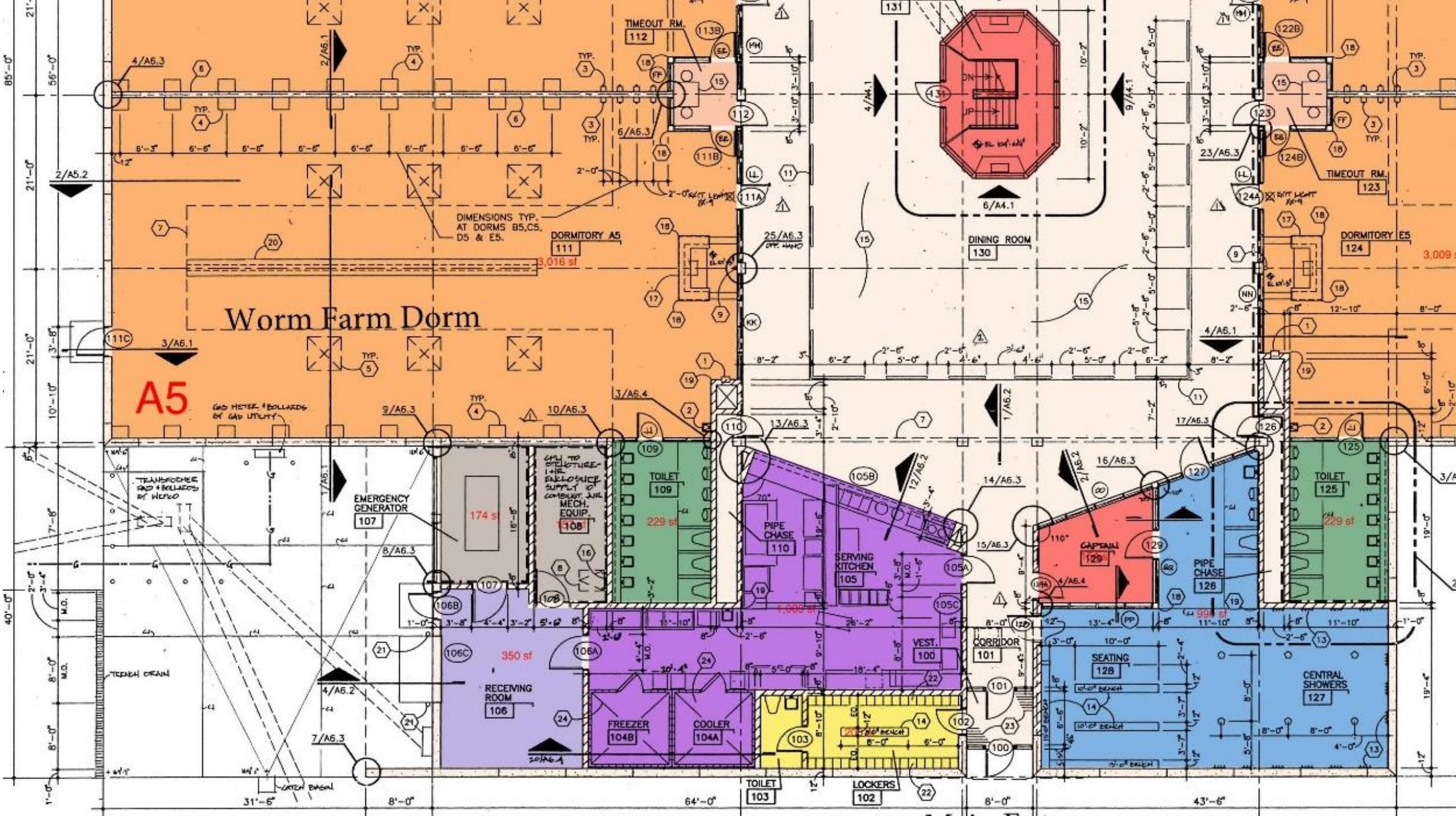
Project Delivery

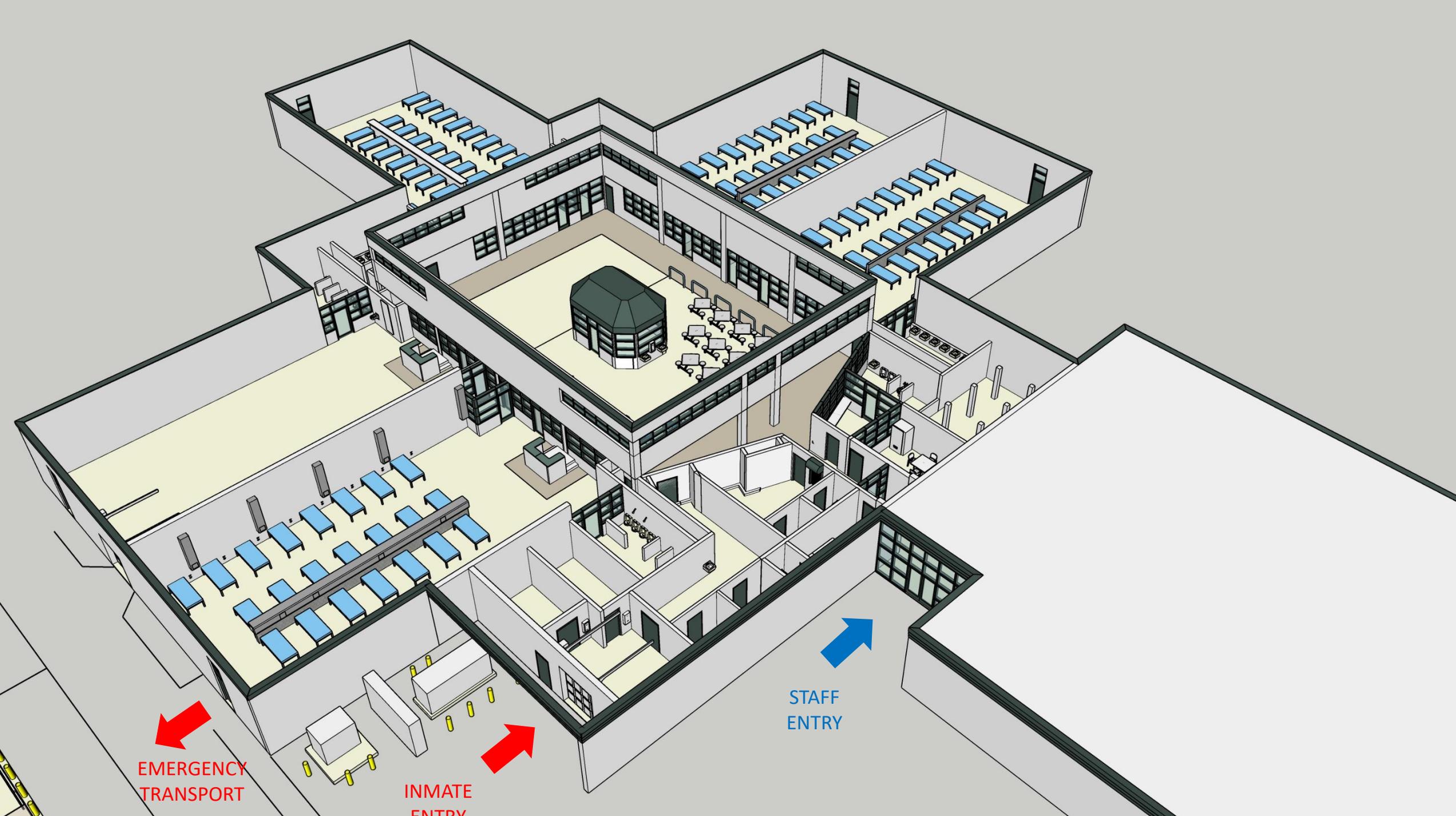
an **AIA** Knowledge Community

Design Process

- Patient/inmate flow
 - Accessing the facility
 - Movement within the facility
 - Security and safety
- Staff flow
 - Building access
 - Movement within facility
 - Patient observation and interaction
 - Safety
- Material flow
 - How do goods arrive and move through the facility







EMERGENCY
TRANSPORT

INMATE
ENTRY

STAFF
ENTRY













GENERAC
INDUSTRIAL
POWER

INMATE
ENTRANCE







Overall Keys to Success

- 1st 48 hours and with value decisions
- Coming in with a proven robust local team
- On site leadership from each partner
- Clear critical path for each day and shift to include design, procurement, decisions, close out and AHJ's + user
- Daily leadership meetings with follow-up
- Great team spirit and a high bar set each day
- Moments of pride
- Diversity of great talent by all partners on site
- Project controls management and position
- The right players at table from day one
- Total project life cycle management and care by team, selflessness

COVID-19 Rapid Response Project Delivery Case Studies

Q & A

AIA KnowledgeNet

<https://network.aia.org/communities>

The AIA **Project Delivery Knowledge Community** (PDKC) promotes the architect's leadership role in all project delivery methods by assembling and distributing knowledge and best practices for a variety of project delivery methods, e.g. design-build (DB), integrated project deliveries (IPD), and public-private partnerships (P3).



Project Delivery
an **AIA** Knowledge Community

Upcoming Courses

November 2020

Live Course - Project Delivery in a Global Pandemic

When: Nov 12, 2020 from 4:00 PM to 5:30 PM (ET)

Community: [Project Delivery](#)

1.5 Hours Course = 1.5 LU/HSW

Live Course - COVID-19 Rapid Response Project Delivery

When: Nov 17, 2020 from 4:00 PM to 5:30 PM (ET)

Community: [Project Delivery](#)

1.5 Hours Course = 1.5 LU/HSW

Visit <https://network.aia.org/projectdelivery> for more information



Project Delivery

an **AIA** Knowledge Community

THANK YOU



**The American
Institute
of Architects**

Project Delivery

an **AIA** Knowledge Community