

CENTER OF STANDARDIZATION FOR NON-PERMANENT FACILITIES HANDBOOK



U.S. Army Corps of Engineers
Middle East District

CENTER OF STANDARDIZATION FOR NONPERMANENT FACILITIES

Established on 3 January 2012, the Center of Standardization for Non-Permanent Facilities is an Army's Design Agent for Temporary and Semi-Permanent Facilities world-wide. CoS responsibilities include evaluating UFC compliance for all Non-Permanent Facilities; and maintaining a catalog of Non-Permanent Designs, Facility Standards, and functional interior spaces. The CoS offers a wide variety of completed design options that are adaptable, scalable and modular for flexibility based on the location and purpose.

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OUR VISION

Eliminate the adage - If you've seen one FOB you've seen one FOB. We are dedicated to eliminating the custom design paradigm of designing a unique facility to perform a single mission.

OUR MISSION

To ensure UFC compliance of all non-permanent facilities and the safety of existing facilities in support of military operations, while meeting current and future contingency operational needs.

We maintain a library of non-permanent facility standards for use worldwide and create designs based upon these standards which can be customized for specific user needs at additional cost.

OUR GUIDING PRINCIPLES

- Maximize use of local materials and methods
- Minimize use of heavy equipment
- Avoid use of fire sprinklers
- Maintain troop constructability
- Minimize maintenance inventory
- Eliminate load bearing interior walls

SERVICES WE OFFER

- Functional space analysis to match customer needs to facility standards
- Ballistically protected facilities
- Facility envelope designs available in a range of materials
- Base camp layouts utilizing standard building designs
- Full construction estimates and itemized material listings for each facility and compound design
- Custom designs based on CoS standard designs
- Full color 3D printed models of designs
- High resolution 3D rendering/animation
- Compliance reviews to ensure life safety in accordance with UFC 1-201-01
- Consultation and inspections for existing facilities per UFC 1-201-02

TYPES OF DESIGNS

Off-the-Shelf (OTS) Designs

CoS for non-permanent facilities collects 2% of the Construction PA prior to sending designs for oversight, requests for information, and quality assurance.

Assembly Designs / OTS Design Modifications

Design modifications are at cost, typically range is between \$50k-\$500k.

Site Adaptation of Designs

At cost of geographical district, CoS, or other entity.

HOW TO USE THIS CATALOG

All facilities are designed to be scalable with the flexibility to either be lengthened or shortened by the standard “bay” length, and are based on the same size to meet all mission requirements.

1. Select an Envelope

Select an envelope based on the parameters (i.e., available materials, duration of facility need). CoS offers a variety of exterior for <25 year operations, single story, 2 story, or warehouse space.

2. Select an Interior Layout

Choose from one of our many ready to use designs, or build your own layout from our pre-designed assemblies.

3. Calculate the Cost

Rough Order of Magnitude (ROM) =
(Envelope Cost + Assembly Cost)
* Area Cost Factor + 2% (CoS Fee)



MUTE
Multi Use Tall Envelope
Single story metal frame

CUBE
Common Uniform Building Envelope
Single story panelized modular facility

SAFE
Standard Adaptive Facility Envelope
Single or two story structure with integral ballistic protection

TERRA HUT
Tactically Earthen Rapidly Raised Assembly Hut
Single story constructed with onsite soil

SAWS
Standard Adaptive Wood Structure
Single or two story wood structure

FACE
Four Area CMU Envelope
Single story CMU envelope with direct fire protection

Weather Shelter
Single story Hangar or Warehouse with metal
and concrete construction

ENVELOPES

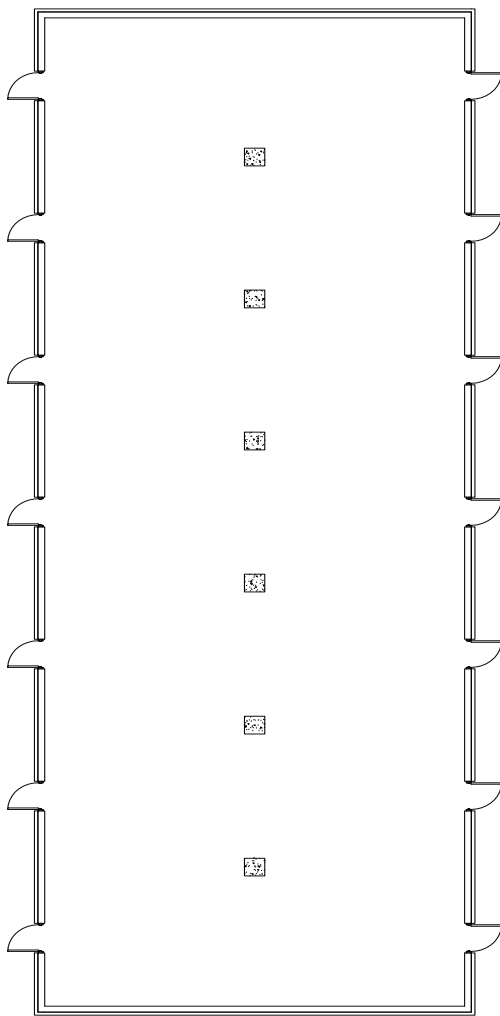
The building envelope, which includes the walls, windows, roof, and foundation, forms the primary thermal barrier between the interior and exterior environments, or the “shell”.

ENVELOPES - SAFE 1 (SINGLE STORY)

Standard Adaptive Facility Envelope



Description	
Occupied Duration	Up to 25 years
Construction Material	Concrete Framing w/ CMU infill
Default Dimensions	14 Bay, 9.8m x 34.3m, 442.5 m2
Stories	Single
R-value	Wall - 21; Roof 40



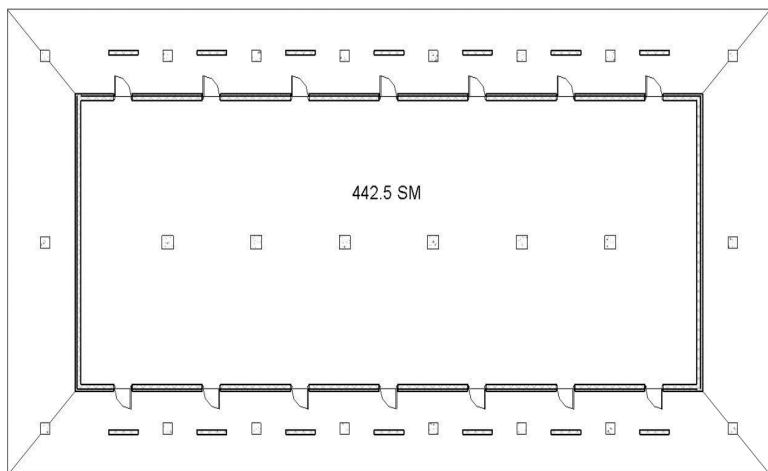
ENVELOPES - SAFE (TWO STORY)

Standard Adaptive Facility Envelope

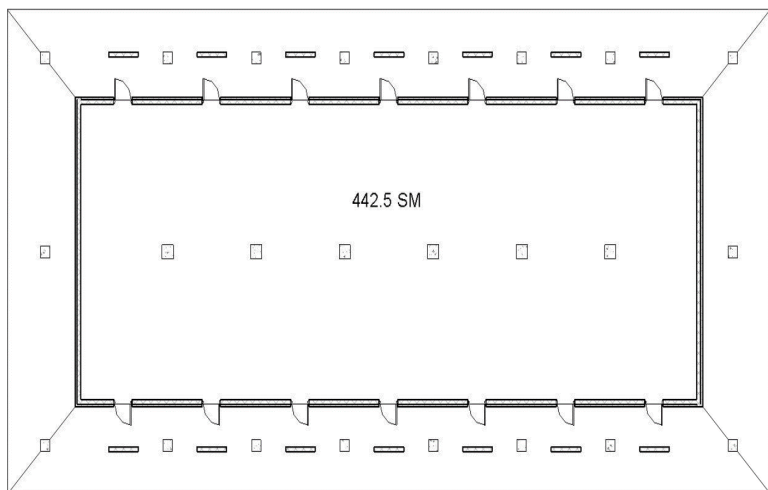


Description	
Occupied Duration	Up to 25 years
Construction Material	Concrete Framing w/ CMU infill
Default Dimensions	14 Bay, 9.8m x 34.3m, 442.5 m2
Stories	Two
R-value	Wall - 21; Roof - 40

Ground Floor



1st Floor

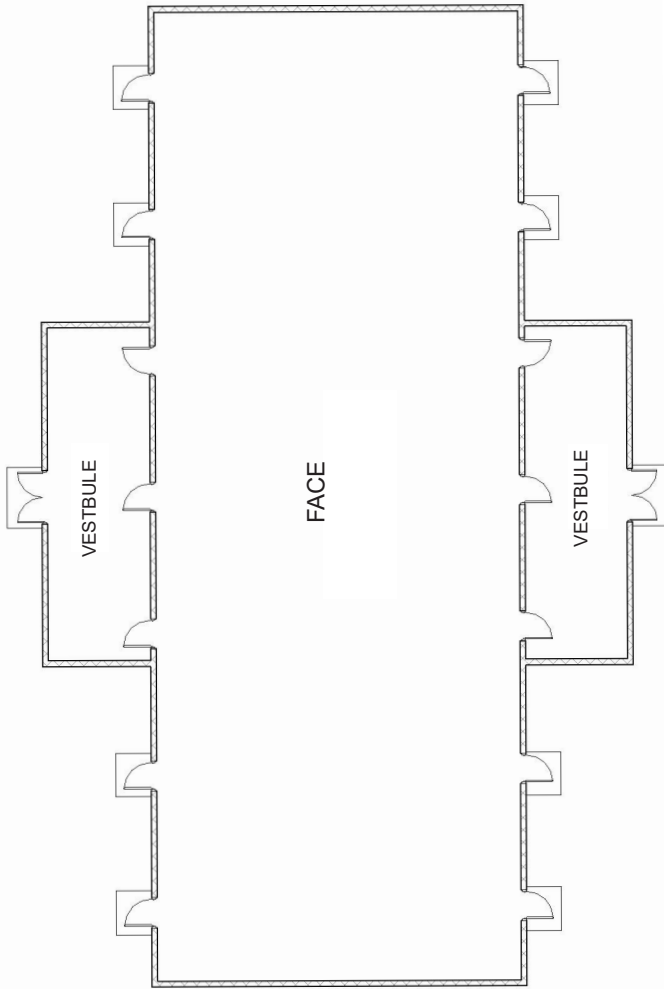


ENVELOPES - FACE

Four Area CMU Envelope



Description	
Occupied Duration	Up to 25 years
Construction Material	CMU
Default Dimensions	14 Bay, 9.8m x 34.3m, 442.5 m2
Stories	Single
R-value	Wall – 20; Roof - 40

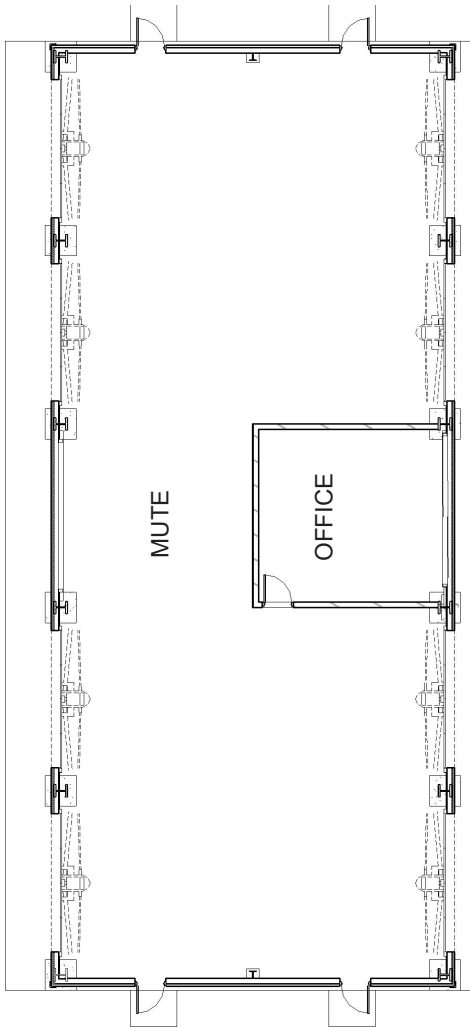


ENVELOPES - MUTE

Multi Use Tall Envelope



Description	
Occupied Duration	Up to 25 years
Construction Material	Metal
Default Dimensions	5 Bay, 12.8m x 30.5m, 390 m ²
Stories	Single
R-value	Wall - 20; Roof - 40



ENVELOPES - MUTE

Multi Use Tall Envelope

OPTIONS

MUTE 4: 4 m eave height for warehouse use
(complies with 12' high stacking max)

MUTE 6: 6 m eave height for non-warehouse purposes
(e.g. vehicle maintenance)

MUTE Adaptation Designs



Vehicle Maintenance, ST. Thomas (MUTE 6)

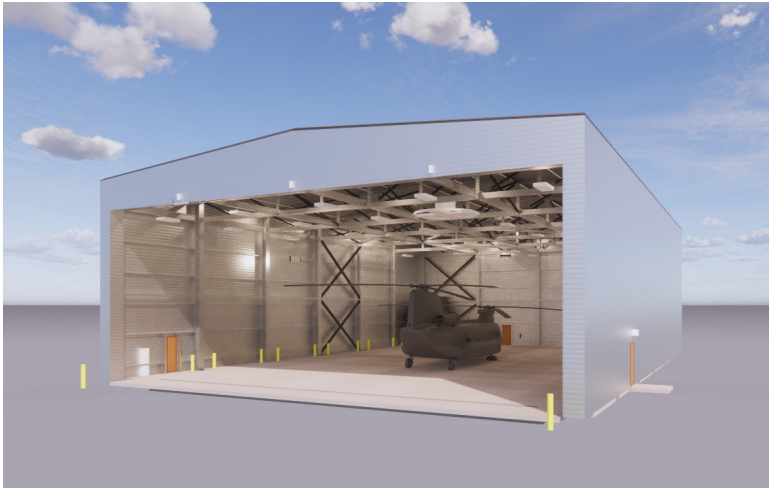


TEMF Tactical Equipment
Maintenance Facility, Kuwait (MUTE 6)



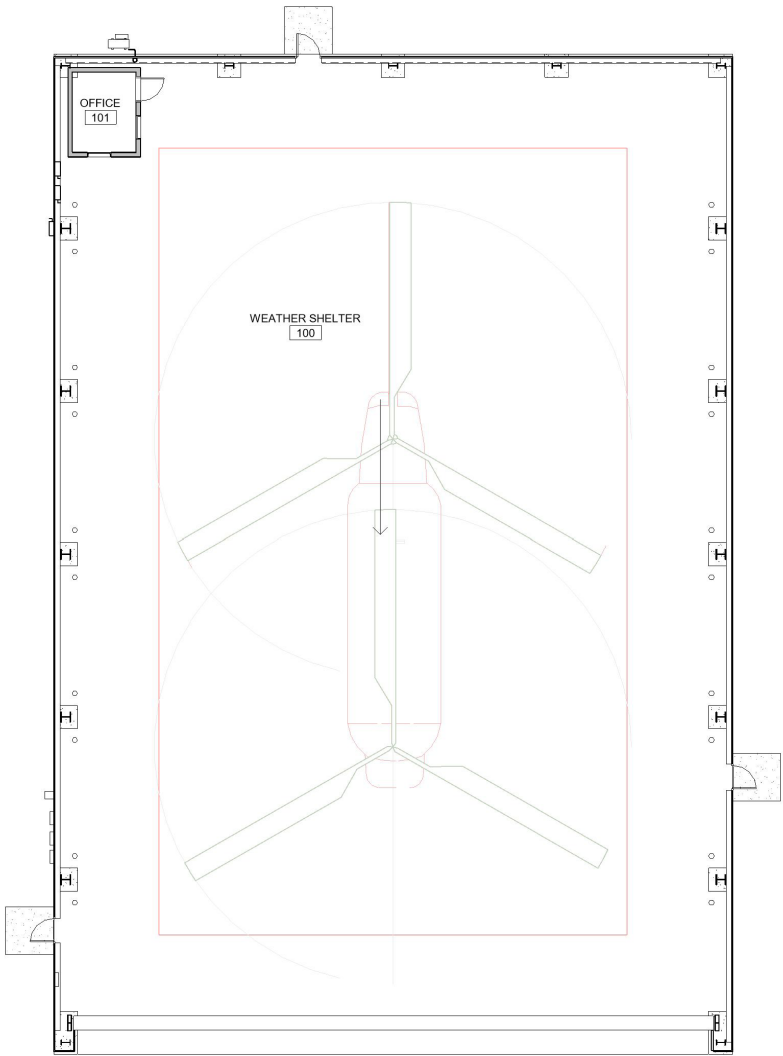
Vehicle Maintenance, ST. Croix (MUTE 6)

ENVELOPES - Weather Shelter



Hangar (Weather Shelter)

Description	
Occupied Duration	Up to 25 years
Material	Metal
Default Dimensions	26 m x 38.3 m, 921m ²
Stories	Single
Details	Option 1: Hangar Option 2: Warehouse



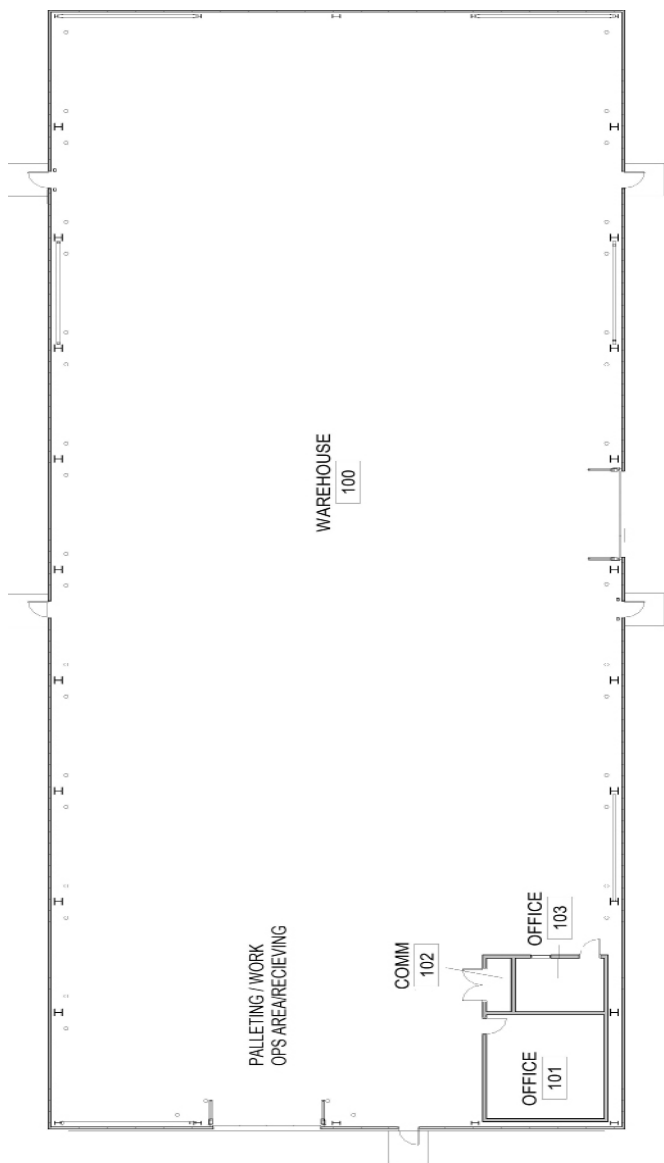
ENVELOPES - Weather Shelter



Hangar (Weather Shelter)



Warehouse Interior

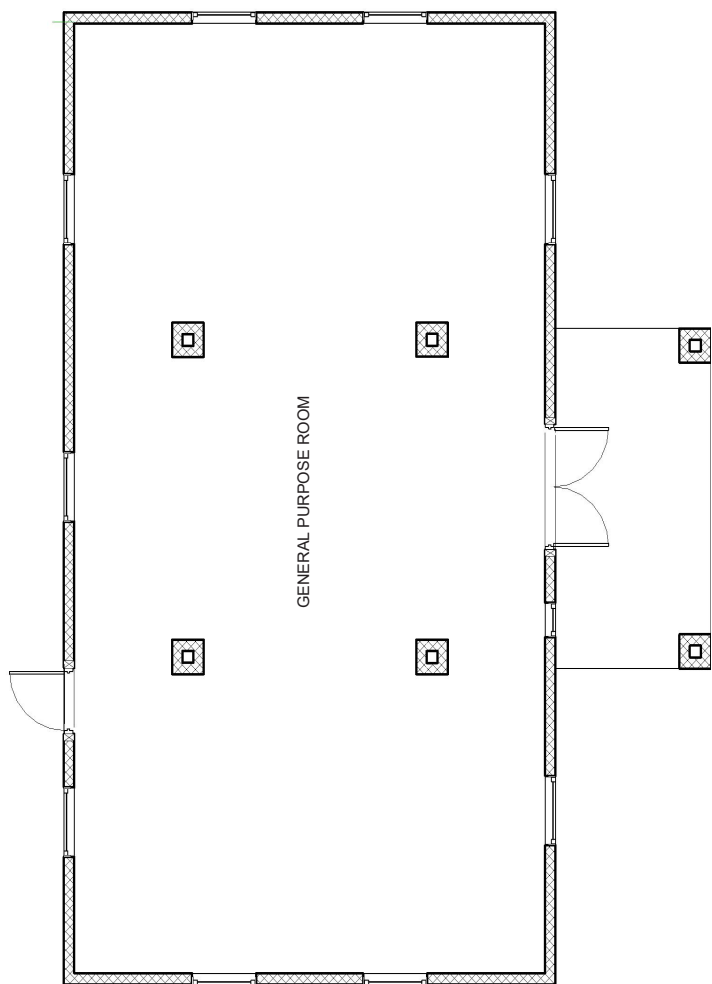


ENVELOPES - TERRA HUT (Option 1)

Option 1, 3 Bay



Description	
Occupied Duration	Up to 25 years
Construction Material	Compressed Earth Block Structure with Wood Roof Frame
Default Dimensions	3 Bay, 8m x 14.7m 118.3m ²
Stories	Single
R-value	Wall - 20; Roof - 40

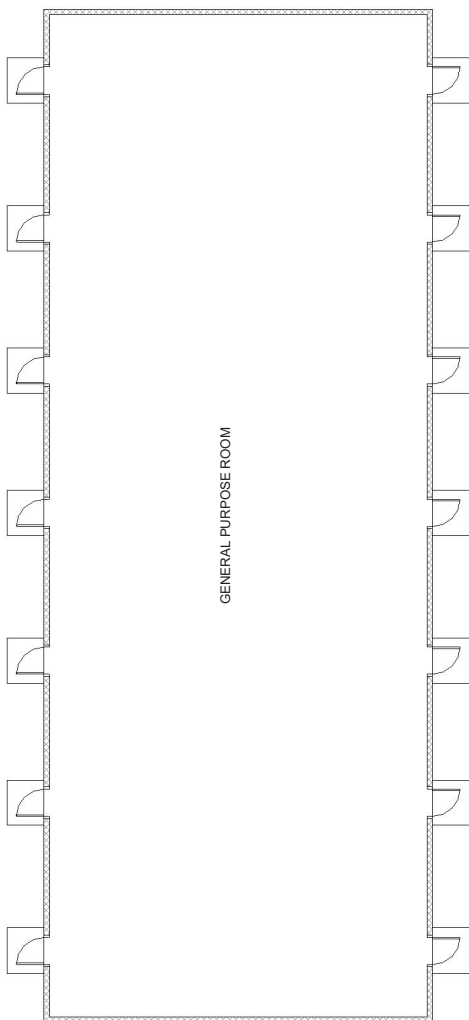


ENVELOPES - TERRA HUT (Option 2)

Option 2, 14 Bay



Description	
Occupied Duration	Up to 25 years
Construction Material	Compressed Earth Block Structure with Wood Roof Frame
Default Dimensions	14 Bay, 12.9m x 34.3m 442.5m ²
Stories	Single
R-value	Wall - 20; Roof - 40

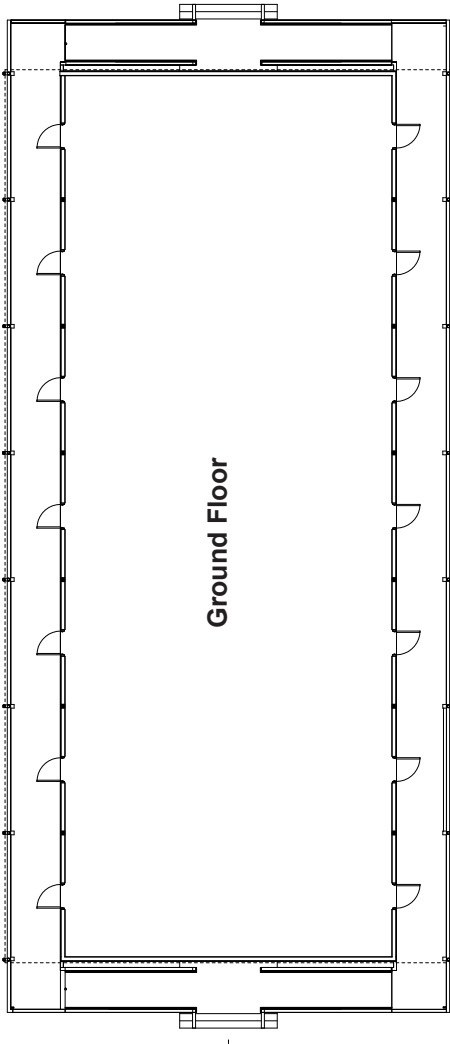


ENVELOPES - SAWS 1 (Single Story)

Standard Adaptive Wood Structure



Description	
Occupied Duration	Up to 25 years
Construction Material	Wood
Default Dimensions	14 Bay, 9.8m x 34.3m, 442.5 m2
Stories	Single
R-value	Wall - 20; Roof - 40



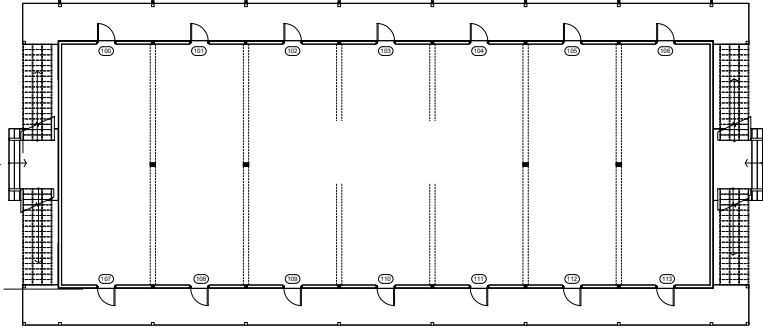
ENVELOPES - SAWS (Two Story)

Standard Adaptive Wood Structure

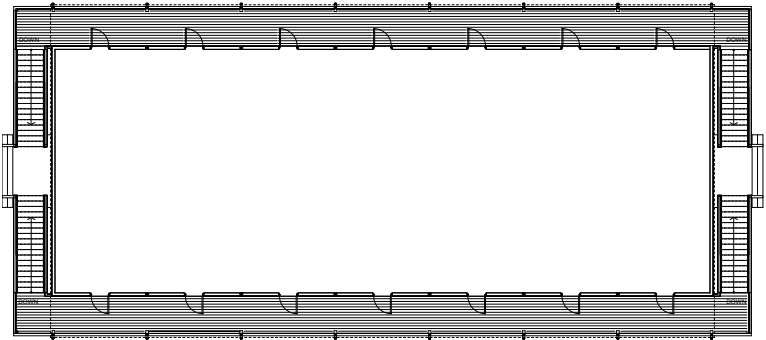


Description	
Occupied Duration	Up to 25 years
Construction Material	Wood
Default Dimensions	14 Bay, 9.8m x 34.3m, 442.5 m2
Stories	Two Story option
R-value	Wall - 20; Roof - 40

Ground Floor



1st Floor

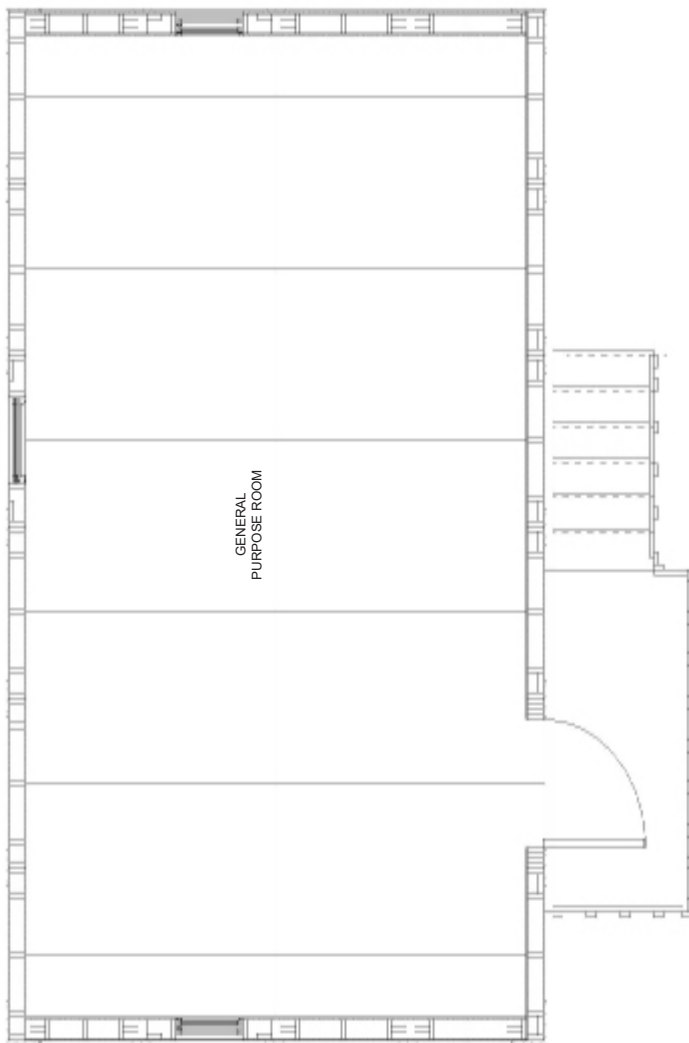


ENVELOPES - CUBE

Common Uniform Building Envelope



Description	
Occupied Duration	Up to 5 years
Construction Material	Panelized Wood
Default Dimensions	1 Bay, 7.3m x 4.9m, 35.77m ²
Stories	Single
R-value	Wall – 20; Roof & Floor - 40



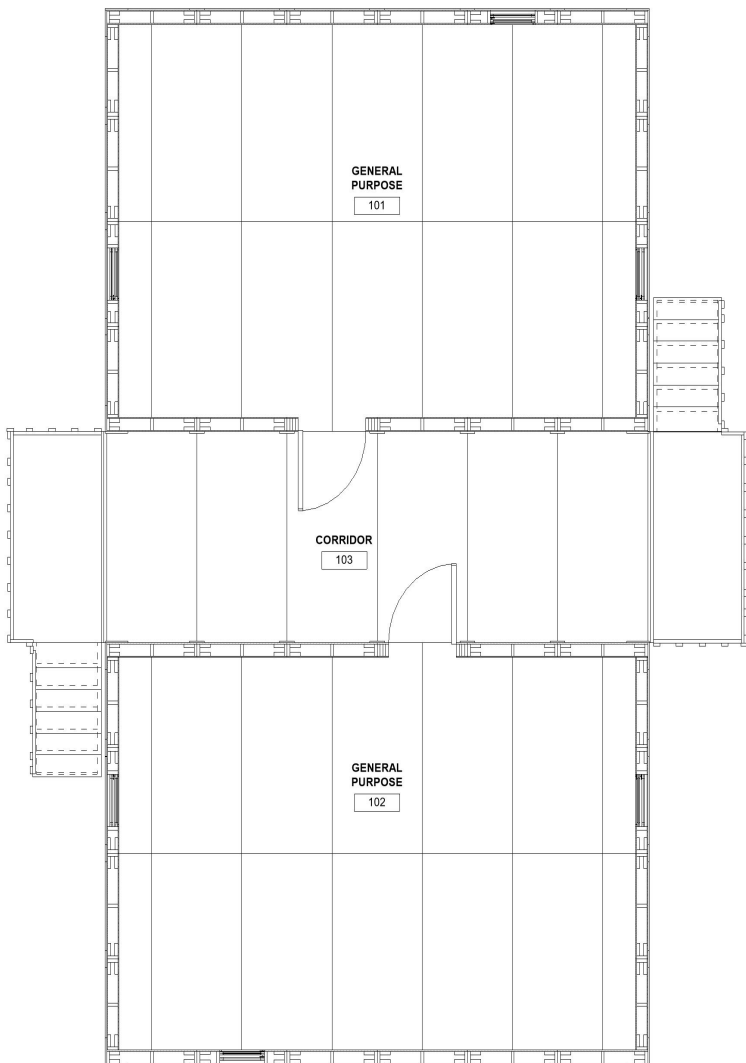
Patented 19 May 2020 Patent #10655350

ENVELOPES - CUBE Wide

Common Uniform Building Envelope



Description	
Occupied Duration	Up to 5 years
Construction Material	Panelized Wood
Default Dimensions	1 bay, 12.2 m x 7.3 m, 89.2 m ²
R Value	Wall 20, Roof 40
Additional Information	Maintains many CUBE components. Similar to SAWS, but does not have a concrete foundation

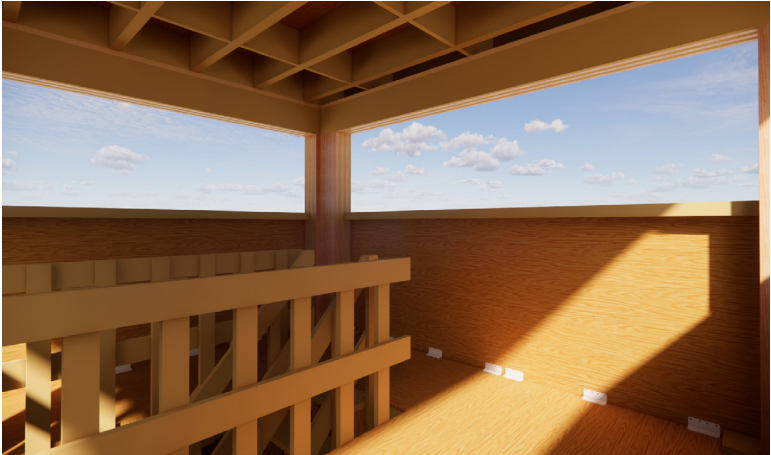


ENVELOPES - CUBE Tower

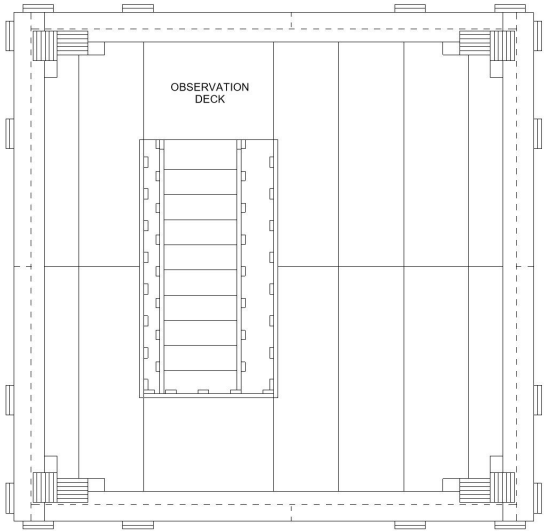
Common Uniform Building Envelope



Description	
Occupied Duration	Up to 5 years
Construction Material	Panelized Wood
Default Dimensions	1 bay, 4.9m x 4.9m, 24m ²
R Value	Wall 20, Roof 40
Additional Information	Maintains as many original CUBE parts as possible, Cab on top floor can be 16' – no outer walkway (as shown in the rendering), or 10' to 8' for an outer walkway (as shown in the floorplan)



CUBE Tower Viewing Deck
Observation Distance = 6+ Miles/ 9.6+ Kilometers



OFF-THE-SHELF DESIGNS

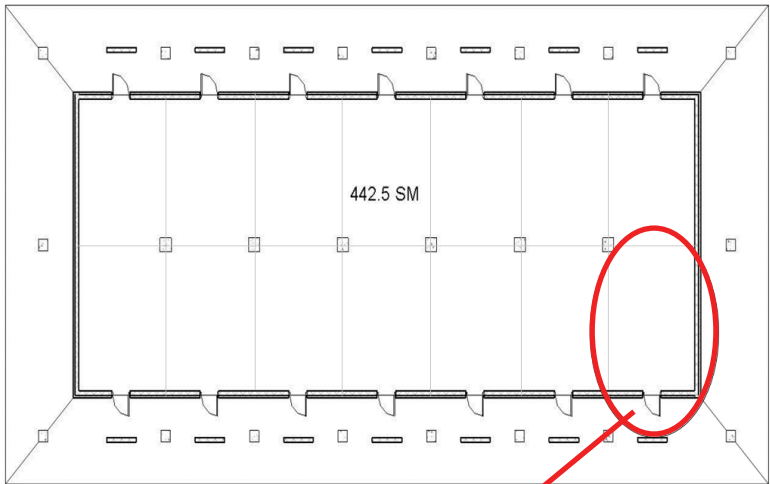
Off-the-Shelf Designs is the interior layouts which include; barracks, weapons storage, dining facilities, operations centers, headquarters, etc.

OFF THE SHELF DESIGN OPTIONS

Other options available by request.

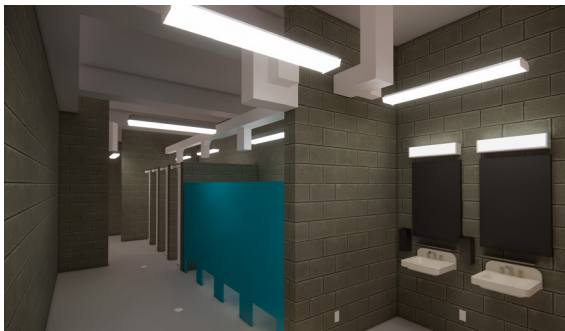
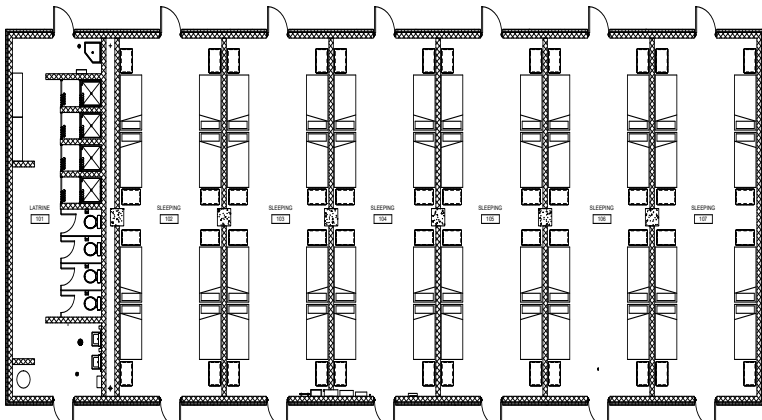
	Designs	# of Options
1	Billeting	2
2	Low Density Barracks	2
3	Headquarters	1
4	Laundry	1
5	Operations Center	2
6	Admin	2
7	DFAC Facility	2
8	Fire Station	1
9	Fitness Facility	1
10	Joint Operations Center	2
11	Latrine	2
12	Religious	2
13	Medical Facility	5
14	Tactical Equipment Maintenance Facility (TEMF)	1
15	Weather Shelter	2
16	CUBE Lounge Area	2
17	CUBE Joint Operations Center	1
18	CUBE Weapons Storage	1

STANDARD BAY EXAMPLE



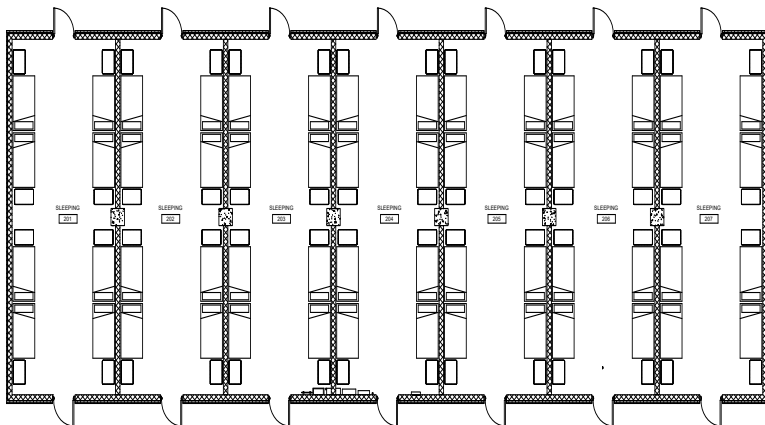
A "Bay" = 7.3m x 4.9m (35.77m²)
Standard Envelopes have 14 Bays

BILLETING (Option 1)



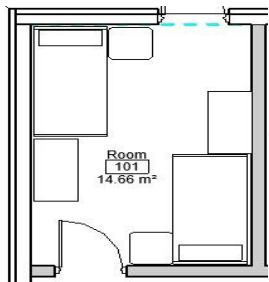
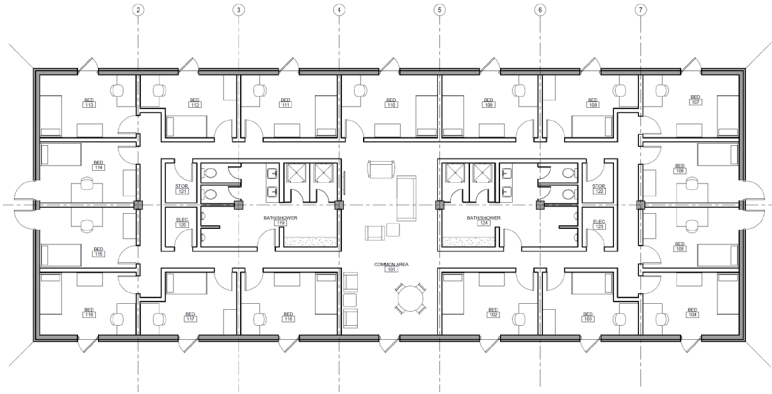
Description	
Size	48 PN
Details	Semi-open billeting w/ Latrine & Showers

BILLETING (Option 2)



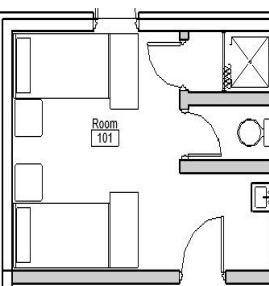
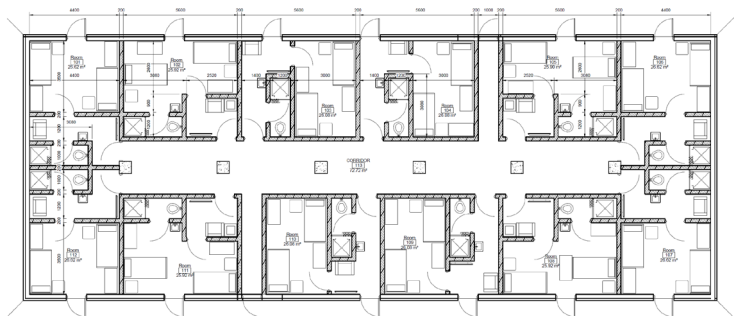
Description	
Size	56 PN
Details	Semi-open billeting

LOW DENSITY BARRACKS (Option 1)



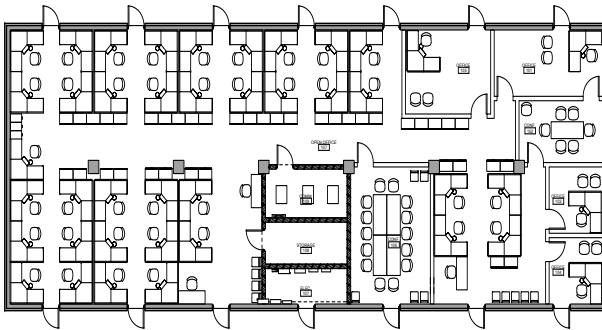
	Description
Size	38 PN
Details	19 Rooms, 2 Beds per, with Office Area

LOW DENSITY BARRACKS (Option 2)



	Description
Size	22PN
Details	11 Rooms, 2 Beds per, with Office & Bath-rooms

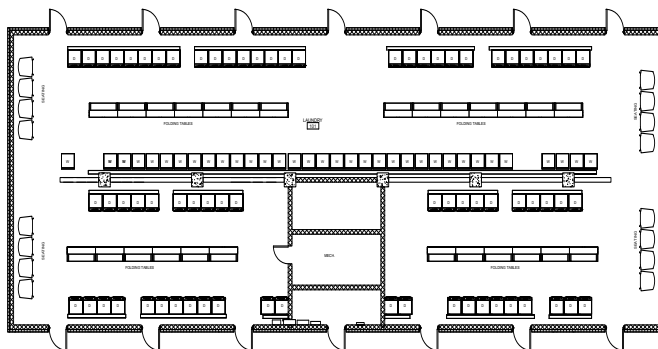
HEADQUARTERS



Description	
Size	44 PN
Details	Open Area seating, 4 offices, and multiple conference spaces

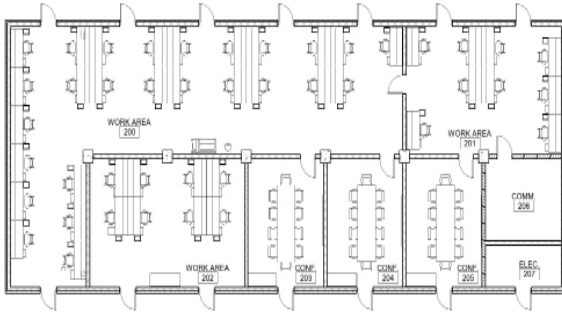
LAUNDRY

14 Bay, Open Area



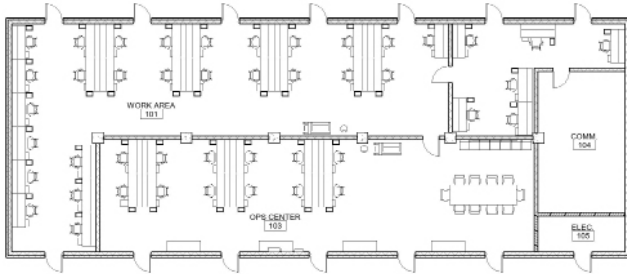
Description	
Size	900 PN
Details	Open Laundry

OPERATIONS CENTER (Option 1)



Description	
Size	43 PN
Details	Open Office Area with 3 Conference Rooms

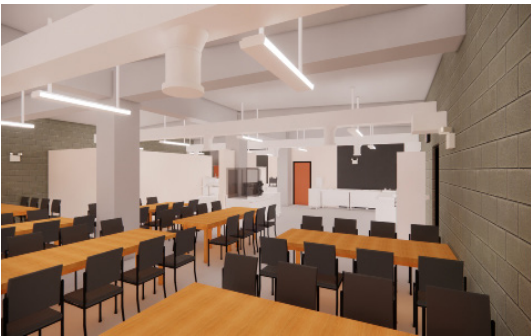
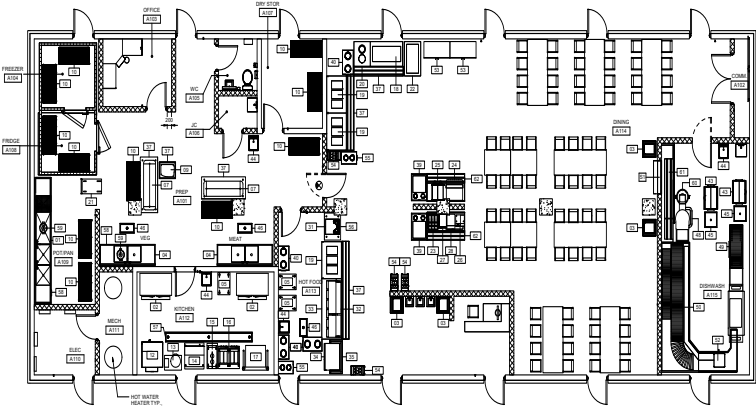
OPERATIONS CENTER (Option 2)



Description	
Size	44 PN
Details	Open Office Area with Conference Space

DINING FACILITY (Option 1)

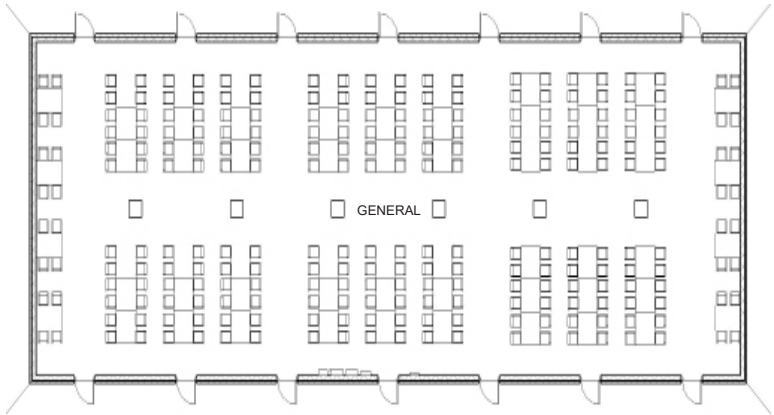
Option 1: Open floor with kitchen, 72 seats



Description	
Size	500 PN Kitchen
Details	Open Seating with kitchen & Serving space

DINING FACILITY (Option 2)

Option 2: Open seating floorplan

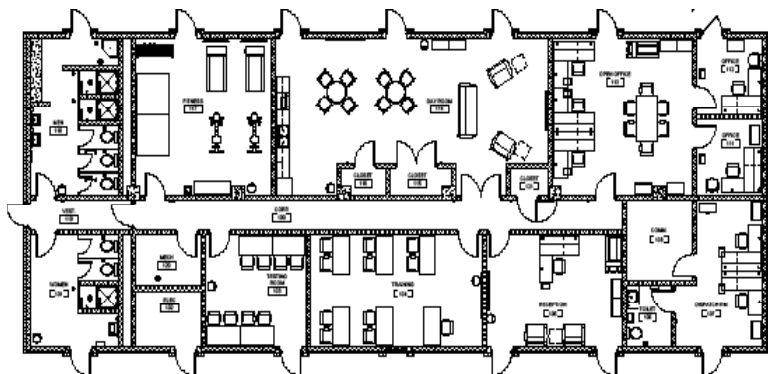


Description	
Size	224 PN
Details	Open Seating

FIRE STATION

Fire Station Apparatus Bay

*Fire Station Complex Also Available

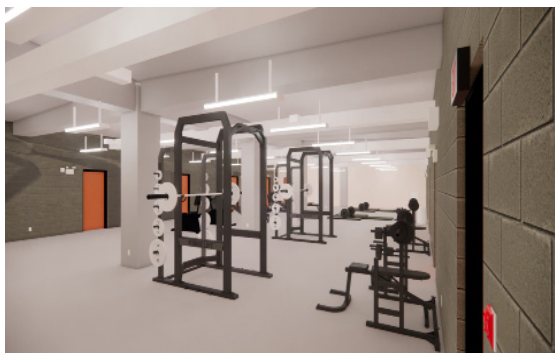
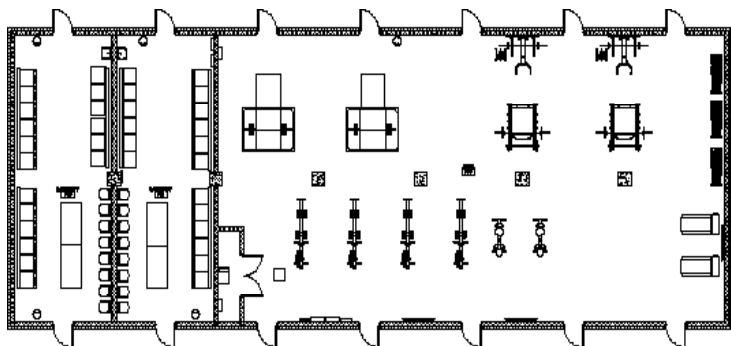


Description	
Size	395m2
Details	3 Apparatus Bays, Gear Room, Medical, Laundry

FITNESS FACILITY

Other options available by request.

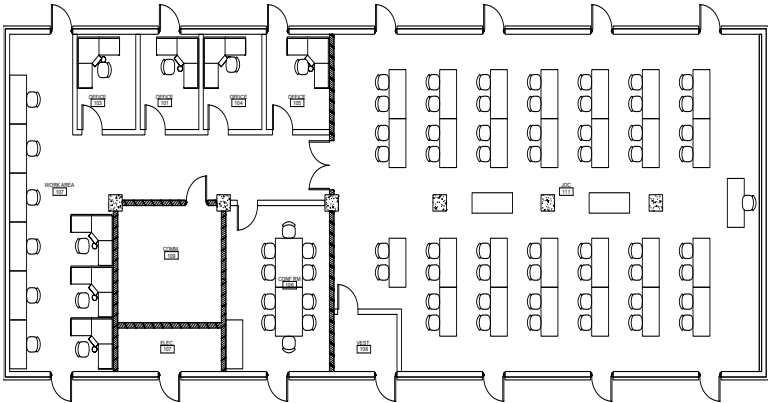
Please reach out for sizing and equipment details.



Description	
Size	442.5m2
Details	Various interior options based upon user needs and population

JOINT OPERATIONS CENTER (Option 1)

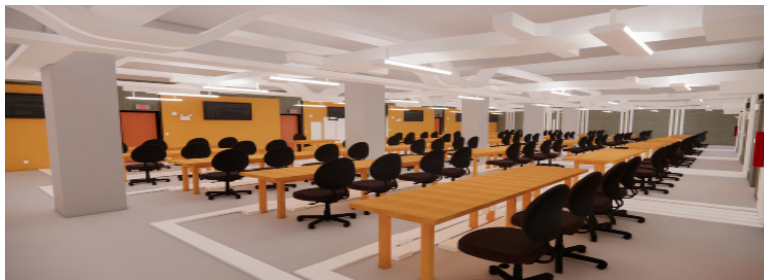
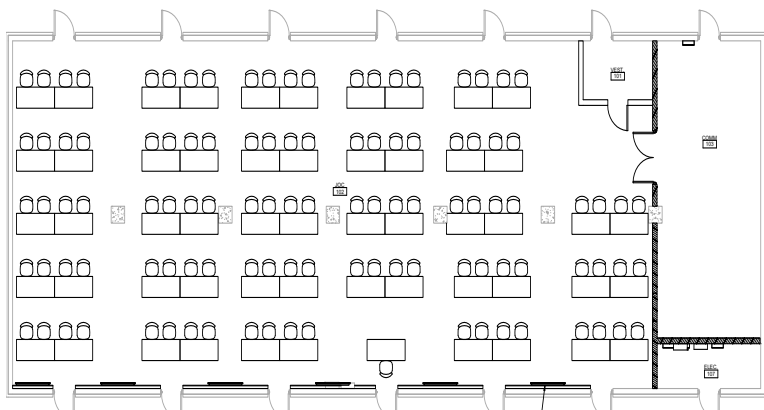
Option 1: Open seating w/ offices and conference rooms



Description	
Size	107 PN
Details	Open Seating with Offices and Conference Rooms

JOINT OPERATIONS CENTER (Option 2)

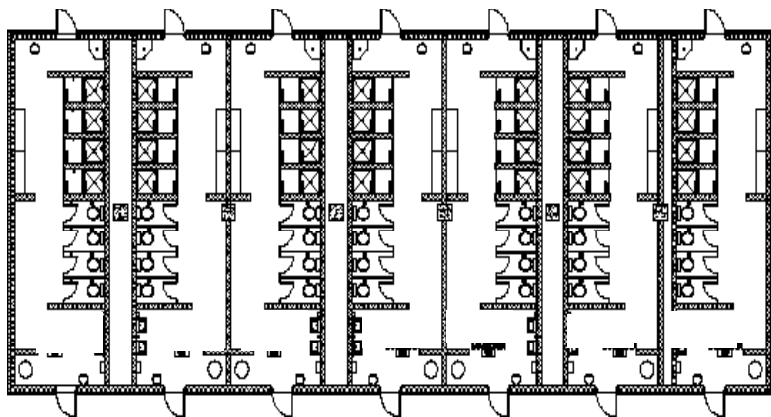
Option 2: Open seating



Description	
Size	109 PN
Details	Open Seating

LATRINE (Option 1)

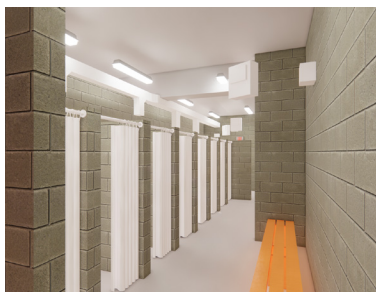
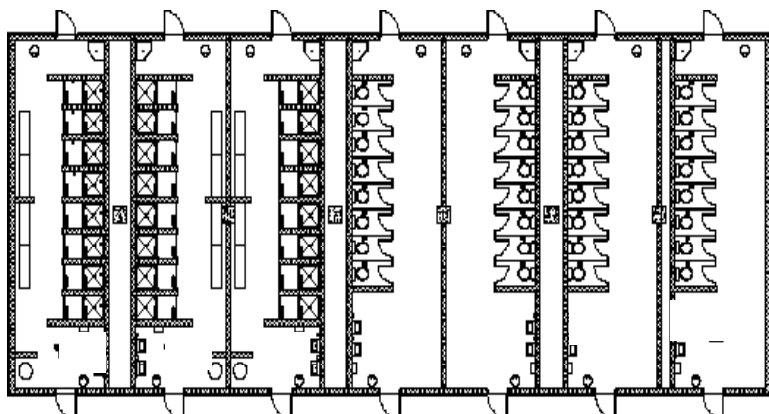
Option 1: 7 Latrine/Shower Combined Spaces



Description	
Size	240 PN
Details	7 separate latrine areas, inclusive of showers, toilets, and wash areas

LATRINE (Option 2)

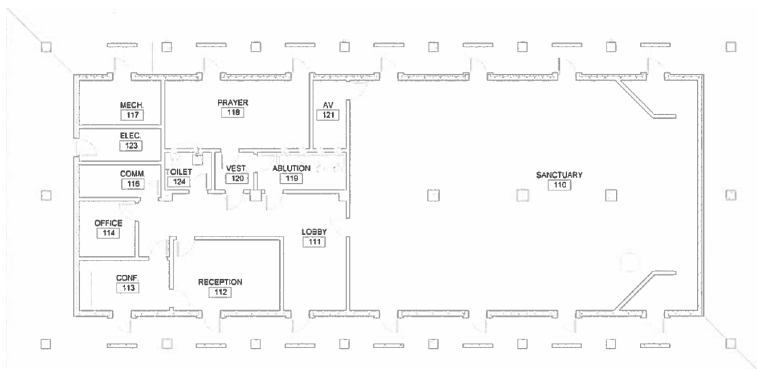
Option 2: 7 Latrine/Shower Combined Spaces



Description	
Size	240 PN
Details	7 separate latrine areas, inclusive of showers, toilets, and wash areas

RELIGIOUS FACILITY (Option 1)

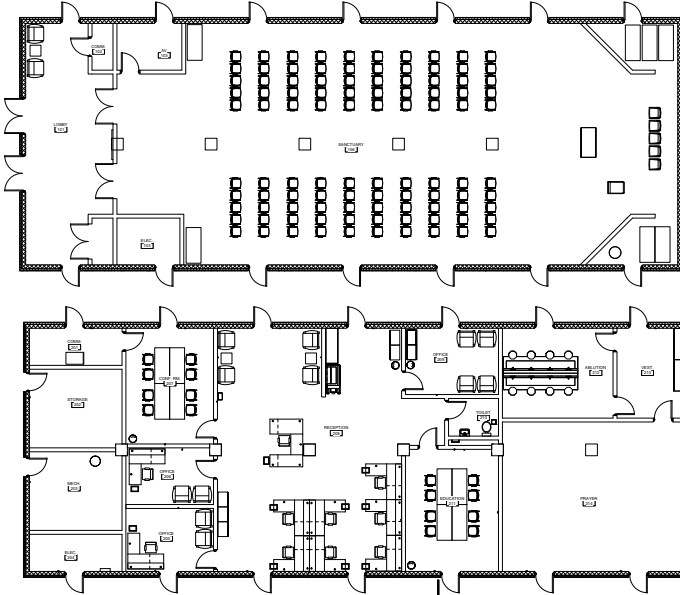
Option 1: 14 Bay, 1 Floor, Open sanctuary with Offices



Description	
Size	442.5m ²
Details	Open Sanctuary, with offices, restrooms, prayer room, and conference room

RELIGIOUS FACILITY (Option 2)

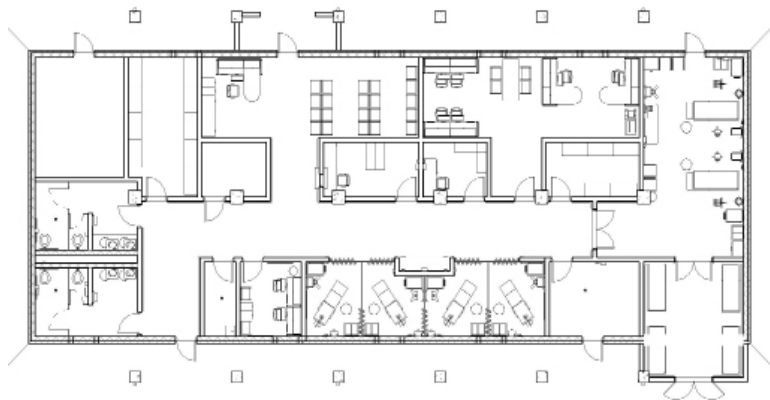
Option 2: 14 Bay, 2 Floor, Open Sanctuary with Offices



Description	
Size	850m2
Details	Open Seating Sanctuary on Ground Floor and Offices/Classrooms/Storage/ Prayer on 1st Floor

MEDICAL FACILITY (Option 1)

Option 1: Role 1 Medical Facility



Description	
Size	426.5m2
Details	Trauma Room, Exam Rooms, Pharmacy, Utilities, Laboratory

MEDICAL FACILITY (Option 2)

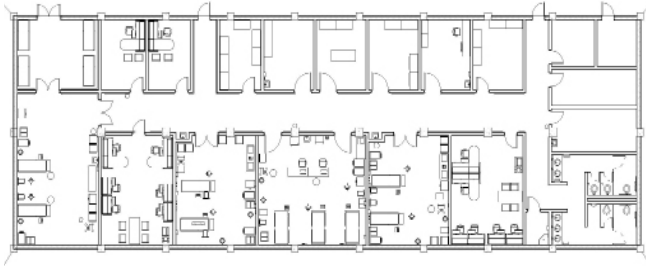
Option 2: Role 2 Medical Facility



Description	
Size	850m2
Details	Trauma, Exam Rooms, X-Ray, Physical Therapy, Dental, Optometry

MEDICAL FACILITY (Option 3)

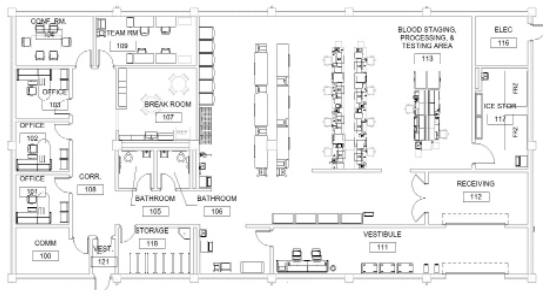
Option 3: Role 2+ Medical Facility



Description	
Size	665m2
Details	Trauma Room, Exam Rooms, Operating Room, Recovery, Utilities, Laboratory

MEDICAL FACILITY (Option 4)

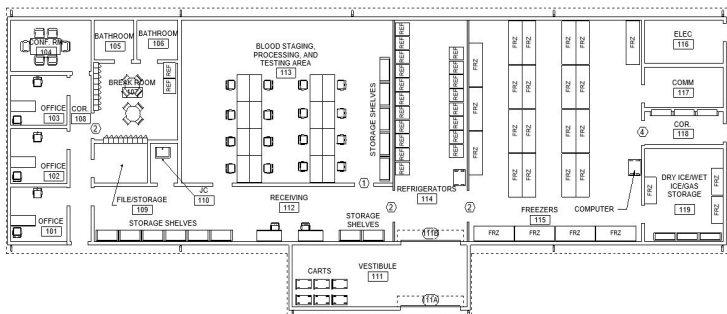
Option 4: Expeditionary Blood Transshipment (EBT)



Description	
Size	550m2
Details	Developed in coordination with HFPA and JMSLA white paper. Includes separate office spaces, conference room, blood processing, testing and storage.

MEDICAL FACILITY (Option 5) - FACE ONLY

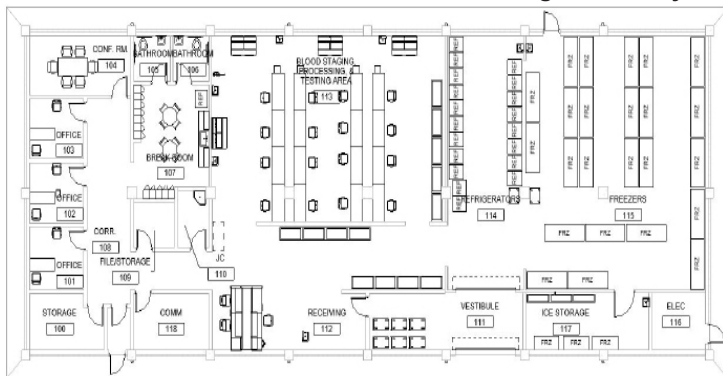
Option 5: Armed Services Whole Blood Processing Laboratory



Description	
Size	570m2
Details	Developed in coordination with HFPA and JMSLA white paper. Includes separate office spaces, conference room, blood processing, testing and storage.

MEDICAL FACILITY (Option 5) - SAFE 1 ONLY

Option 5: Armed Services Whole Blood Processing Laboratory

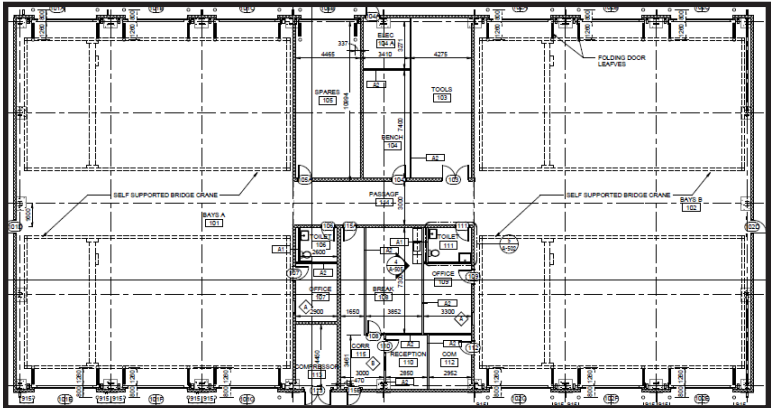


Description	
Size	668m2
Details	Developed in coordination with HFFA and JMSLA white paper. Includes separate office spaces, conference room, blood processing, testing and storage.

TACTICAL EQUIPMENT MAINTENANCE FACILITY (TEMF)



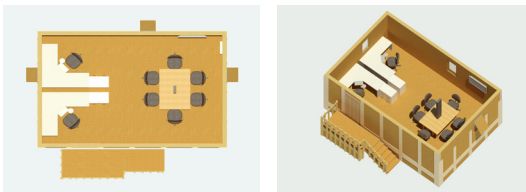
Description	
Size	1,300m2
Details	Two separate working bays, offices, restrooms, break room and tools storage.



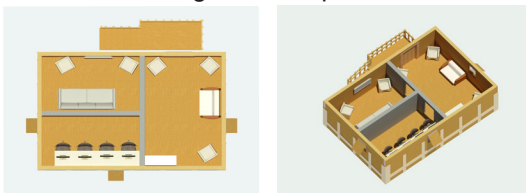
DESIGNS FOR THE CUBE

Other designs include billeting, phone room, DFAC, etc.
Several other options are available upon request.

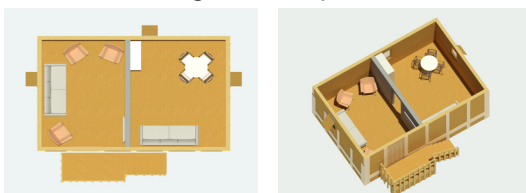
Tactical Operations Center



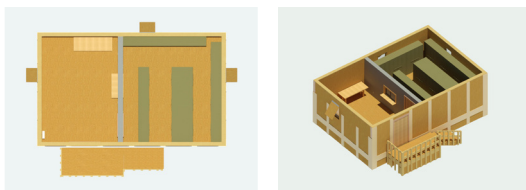
Lounge Area- Option 1



Lounge Area- Option 2



Weapon Storage



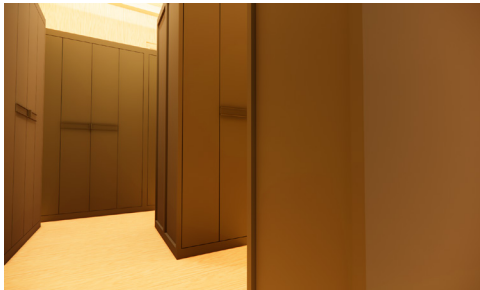
Tactical Operations Center



Lounge Area- Option 2



Weapons Storage

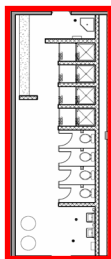


ASSEMBLIES

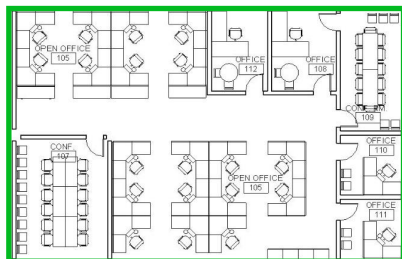
GENERAL OVERVIEW

Once the Envelope has been chosen, one can customize their build by organizing off-the-shelf designs into their design. This allows for customization and flexibility.

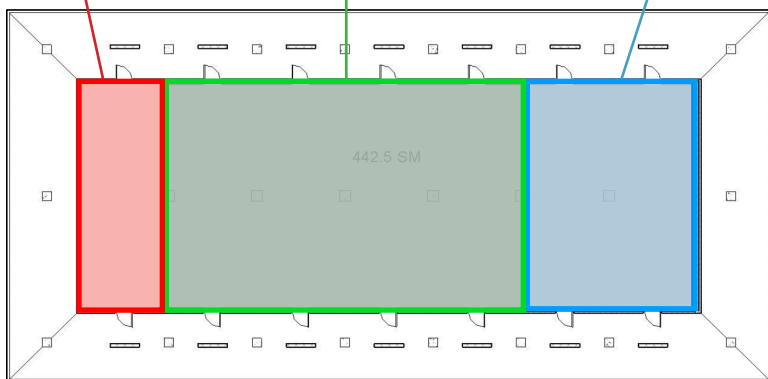
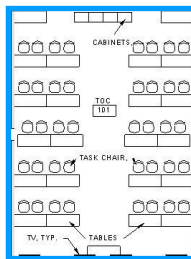
Latrine



Office/Cubical/Conference



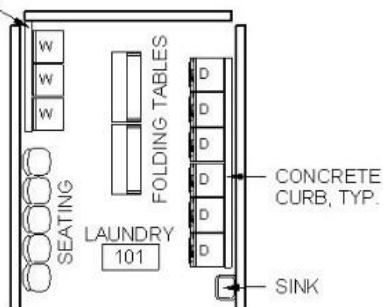
Open Seating



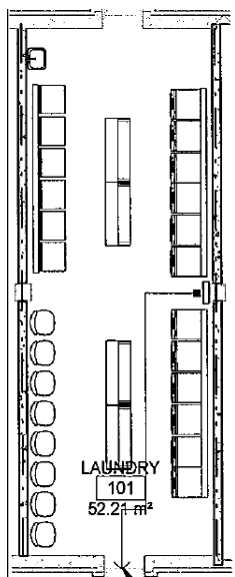
LAUNDRY

Option 1

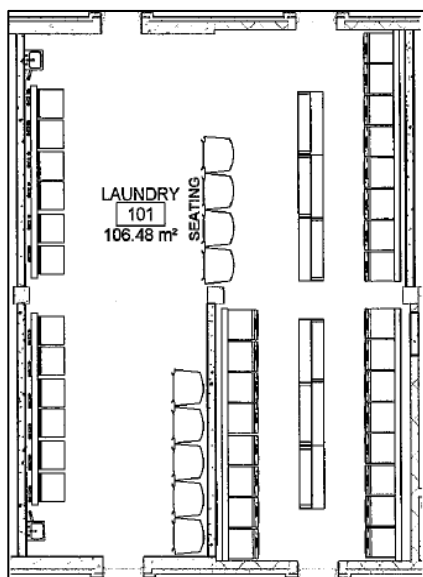
CONCRETE CURB, TYP.



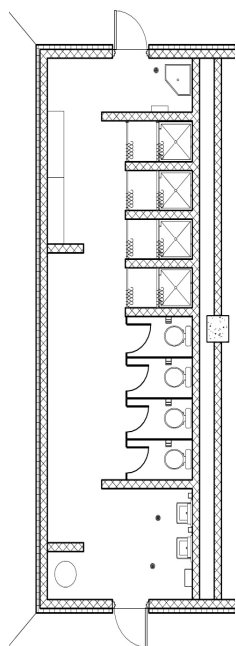
Option 2



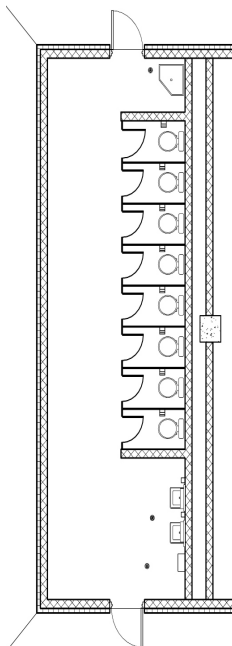
Option 3



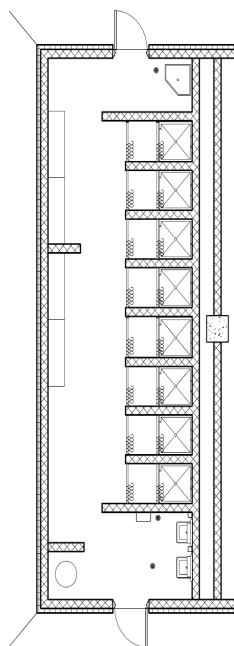
LATRINE



Option 1



Option 2

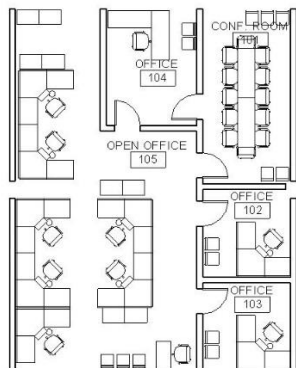


Option 3

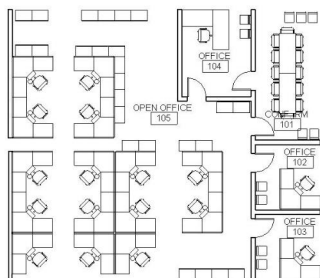
	Description
Latrine: Option 1	4 Showers, 4 Toilets
Latrine: Option 2	8 Toilets
Latrine: Option 3	8 Showers

HEADQUARTERS

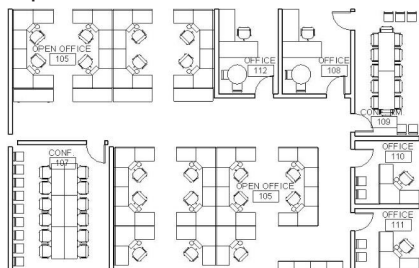
Option 1



Option 2



Option 3

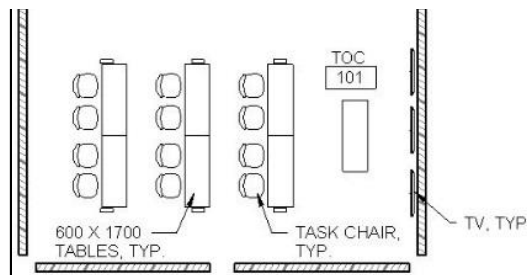


	Description
HQ - Option 1	4 Bay, 11 PN
HQ - Option 2	6 Bay, 18 PN
HQ - Option 3	8 Bay, 300 PN

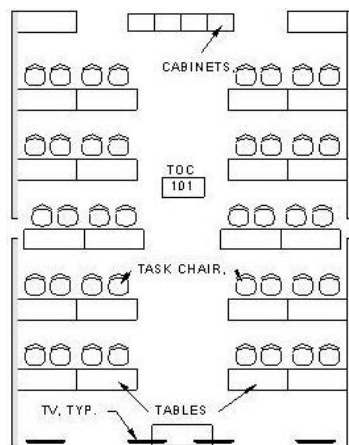
TACTICAL OPERATIONS CENTER

*Other options available by request.

Option 1



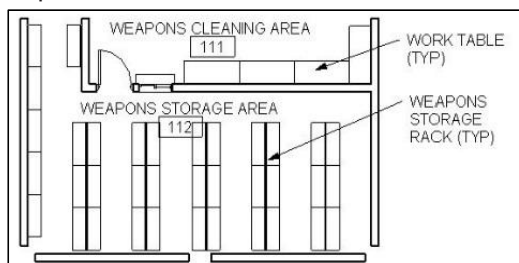
Option 2



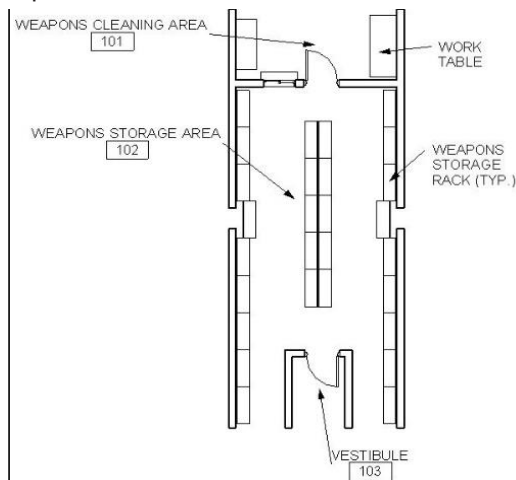
	Description
Tactical Ops Center: Option 1	2 Bay, 12 PN
Tactical Ops Center: Option 2	3 Bay, 40PN

WEAPONS STORAGE

Option 1



Option 2



	Description
Weapons Storage: Option 1	2 Bay
Weapons Storage: Option 2	2 Bay



AREA COST FACTORS

PAX Newsletter, dated 5/25/2022

<https://www.usace.army.mil/Cost-Engineering/Area-Cost-Factors/>

0.88	Alabama	1.16	Oregon	0.97	Germany
1.95	Alaska	1.16	Pennsylvania	0.87	Greece
0.85	Arizona	1.23	Rhode Island	3.21	Greenland
0.74	Arkansas	0.97	South Carolina	1.07	Honduras
1.23	California	1.00	South Dakota	1.57	Horn of Africa
0.99	Colorado	0.86	Tennessee	0.94	Hungary
1.15	Connecticut	0.88	Texas	1.84	Iceland
1.15	Delaware	1.07	Utah	1.70	Iraq
0.86	Florida	1.01	Vermont	1.25	Israel
0.87	Georgia	0.82	Virginia	0.91	Italy
2.33	Hawaii	1.11	Washington	2.04	Japan
1.00	Idaho	1.08	Washington D.C.	1.10	Kenya
1.07	Illinois	1.05	West Virginia	1.17	Korea - South
0.98	Indiana	1.05	Wisconsin	1.12	Kosovo
1.02	Iowa	1.01	Wyoming	1.20	Kuwait
0.89	Kansas			3.59	Kwajalein
0.86	Kentucky	1.89	Afghanistan	0.86	Latvia
0.84	Louisiana	1.03	Albania	0.80	Lithuania
0.99	Maine	1.97	American Somoa	1.10	Netherlands
1.03	Maryland	1.43	Australia	3.42	Northern Marianas
1.24	Massachusetts	1.50	Azores	1.12	Oman
0.99	Michigan	1.81	Bahamas	0.82	Peru
1.09	Minnesota	1.03	Bahrain	1.22	Philippines
0.71	Mississippi	0.82	Belgium	1.01	Poland
1.00	Missouri	0.83	Bulgaria	1.38	Puerto Rico
1.12	Montana	1.12	Cambodia	1.16	Qatar
0.92	Nebraska	0.83	Chile	1.86	Romania
1.16	Nevada	0.77	Columbia	1.23	Saudi Arabia
1.07	New Hampshire	1.33	Crete	1.19	Singapore
1.26	New Jersey	0.74	Croatia	1.23	Spain
0.92	New Mexico	2.31	Cuba	1.19	Thailand
1.08	New York	2.86	Diego Garcia	1.02	Turkey
0.91	North Carolina	1.08	Egypt	1.12	U.A.E
1.11	North Dakota	1.25	El Salvador	1.19	United Kingdom
0.94	Ohio	1.01	Estonia		
0.83	Oklahoma	1.07	Georgia Republic		

3D Printing Services

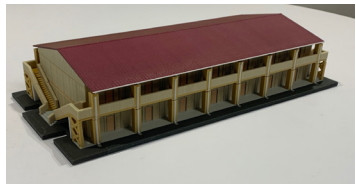
CoS Offers printing services of Physical 3D models for all of our designs.



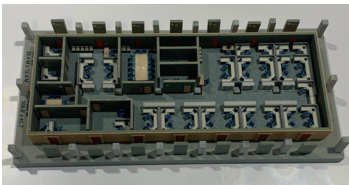
TERRA HUT



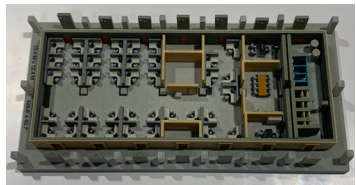
SAWS



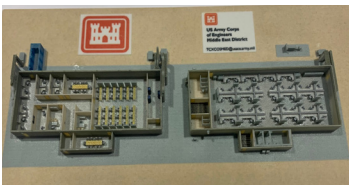
Headquarter Interior



Admin w/ Latrine Interior



2 FACES - JLOC



Bunker Bulkhead Retrofit



