

# BUNKERTECTURE

Future Housing in a Nuclear Bunker

<https://competitions.uni.xyz>



Img.1: International campaign to abolish Nuclear Weapons (ICAN) activists in front of the American Embassy in Berlin, Germany. Credits: Omer Messinger, September 13, 2017.

# Premise

The paranoia stemming from war, especially nuclear, pandemics and natural disasters is at an all time high and rising by the day. Even following the 2012 phenomenon of the Mayan Prediction of the end of times and its theoretical and factual refute, the fear of a prophesied doomsday has not rested. The predictions range from well within the current decade to the next century. However, what seems to have changed is that the doomsday or the end of times no longer has just Biblical implications. [22-23%](#) of people in the UK and US feel that the world would, quite literally, end in their lifetime, or that they would at least see the occurrence of a doomsday level event. Among those, [60%](#) of the people, especially in the US, feel that it would be through a nuclear war. Only a miniscule percentage among these people hope to survive such an event, and even fewer have the means for it.



Img 2: An underground refuge bunker with supplies. [Source](#)

# A Doomsday Home

What may have seemed like a narrow possibility close to a decade ago has in the course of time developed into a fully formed idea. It is now manifesting itself in the paranoia and doomsday insecurities of those who can afford it: a Doomsday Home. In simple terms, a **bunker** built to withstand nuclear or terrorist attacks, a plague epidemic or a natural/man-made disaster.

Such homes are being constructed and sold across the world, particularly in the US, where the inception of the paranoia can be pinpointed to the devastating 9/11 attacks. Given that the availability and affordability of such shelters remains highly disparate, it may not be too wrong to state doomsday homes this as one of the commodities that defines the 'haves' and 'have nots' in that part of the world.

Refuge construction in the present, thus, for the populace at large, a way for survival post the occurrence of such events, requires suitable redressal.



Img 3: The inside of the access portal of a nuclear bunker. [Source](#)

# Issue

The issue of the construction of such a structure dwells upon the same school of thought that allows for the governments of the world to build and house immensely destructive nuclear weapons: as a deterrent rather than a measure of force. A number of governments in the world are giving more credence to catastrophe planning as the red flags of climate change, civil unrest, and the looming threat of nuclear contamination become more and more pressing by the day.

Despite that, the effort is largely privately concentrated, and as a result is severely limited to only millionaires who have plenty of resources to spare a chunk of it towards securing an uncertain future. In other words, catastrophe planning for all is an overlooked reality of the world we live in, as most of us scramble for basics in the day to day.

The idea is to impart equal credence to the mitigation and to the preparation for such events, as it is to remediation, repair, and recovery in the aftermath of such events. More than that, it is time that catastrophe planning moves beyond world leaders, government officials and the few millionaires of the planet.



[Img 4](#) The entrance of the Survival Condo Project shelter. [Source](#).

# Case Study

## Apocalyptic Insurance

### The Survival Condo Project

In 2008, Larry Hall, who previously developed networks and data centres for the government purchased a retired missile silo, and began converting it into an ultra luxurious colony for millionaires who wanted to invest in assuring that they, or some of their kin, survived in case such an event struck. The apartments were constructed and finished at an escalated rate after the 9/11 attacks gripped the nation in fear and paranoia, and by 2011, all the accommodation units in the facility meant to house atleast a dozen families were completely sold out. The 15 floor development is built to withstand nuclear attacks, contraband, and even natural disasters, and is complete with all sorts of facilities for its residents, including a swimming pool, a small theatre, internet facilities, a medical wing, a gym, a dog walking park, an armory, a rock climbing wall, and LED panels for windows, that would mimic the views outside.

Along with the facilities on offer, [the project](#) also provides weapons/ survival training to its to-be residents in the now and has provisions to have them picked up within a set radius if and when disaster strikes. Hall also states that the project received renewed interest and a surge in the number of interested buyers every time North Korea conducted nuclear missile tests, or there was news of unrest between the two nations.



# ICBM Silos

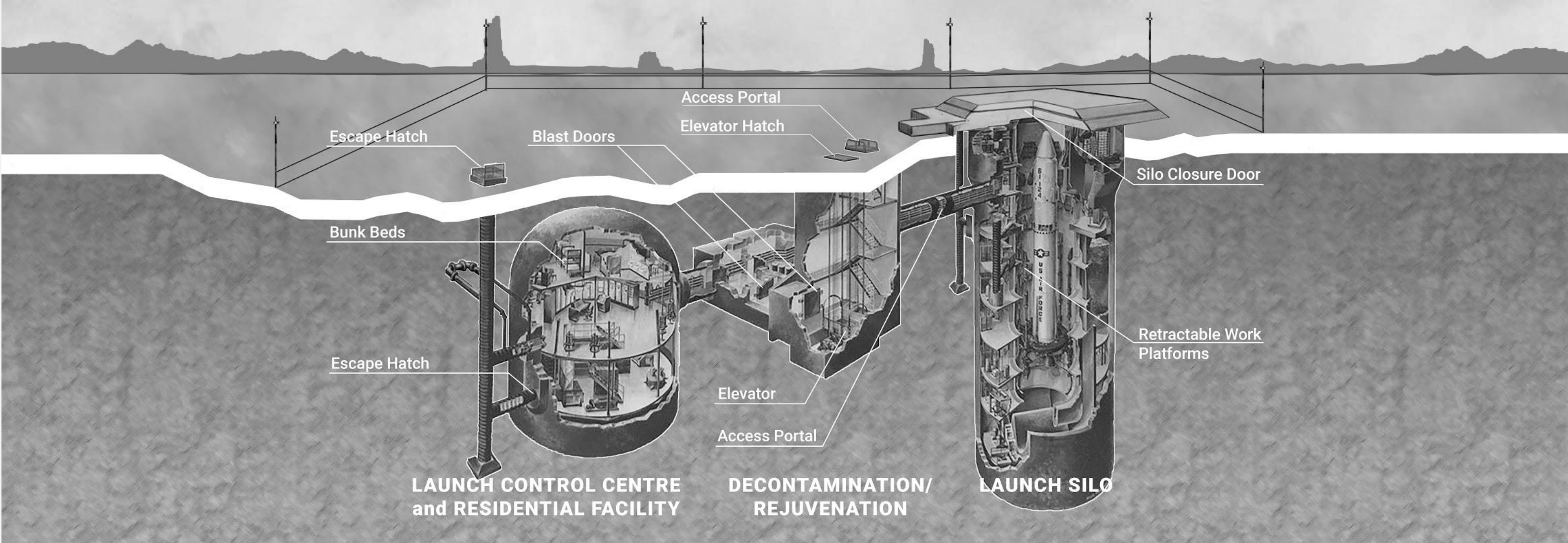
## What are they?

ICBM is full for Intercontinental Ballistic Missile, known to be among the most precise and deadly missile carriers for thermonuclear, biological, and chemical weapons to be fired across distances as large as 5500 km. Currently, The United States, Russia, China, India, and North Korea are the only countries that have operational ICBMs.

The first ICBM's prototype was developed in Nazi Germany for use against American cities, and the development and design of ICBMs reached a fever pitch during the time of the cold war between the US and the USSR. ICBMs have been known to be launched from land, and are called land based ICBMs, while the other ones are submarine based.

Land based ICBMs were housed in underground missile launch facilities called Nuclear Silos, ICBM Silos or an Underground Missile Silo. Naturally so, they were placed away from areas with high residential densities and most of them in the US were built around Colorado, Nebraska, North Dakota, South Dakota, Missouri, Montana, Wyoming and other western states. All of the underground silos and the missiles housed in them are currently decommissioned, except the LGM 30 Minuteman III.

Titan II was the first U.S. missile that was based in missile silos.



Img 6: Schematic sectional view of the **original** ICBM missile silo under operation before they were decommissioned post the cold war.

# Brief

**The challenge is to design a fully functional refuge bunker in a decommissioned missile silo to house a colony of survivors, intended to serve as a shelter for its inhabitants in times of disaster or major external crisis.**

The competition entry would focus on how such an architecture would separate itself in practice and design from conventional practices of constructing a dwelling. What would happen to the **furniture and utilities**? Would **opulence** be an option? Or is **austerity** the way forward for such a structure? While the direct design inferences from a bunker are obvious in nature, participants must keep in mind that the space may not be utilised at all within the lifespan of the homeowner. How do you think such a space would function **an entire generation into the future**? Would it confine itself to a particular style of architecture? The design should thus be reflective of a paranoia in the present while undertaking an approach that reflects future occupation.

Participants may choose to design the described main functions in any of the three existing structures on the site. Part of the functions may be designed above the vast open surface of the site, but succinct reasoning for the same must be provided, along with the conditions of its usage with respect to the subterranean structures and possible conditions outside.

# Objectives



## Mitigation

Looking to reduce the severity of the event by providing a safe haven to survivors.



## Sustenance

Sustained survival of the families inside the shelter for 5 years.



## Community

Designing common spaces fostering the surviving community to start anew



## Farsightedness

Designing in the present with due consideration for future occupation.

The structure has to be built to **accommodate at least 25 families** for a period of a **minimum of 5 years post occupation**. A model demographic of a **four member nuclear family** ( $\pm 1$  member) for the same may be assumed by participants for the design. The following qualitative objectives can be a point of beginning for the participants to conceive this design broadly.

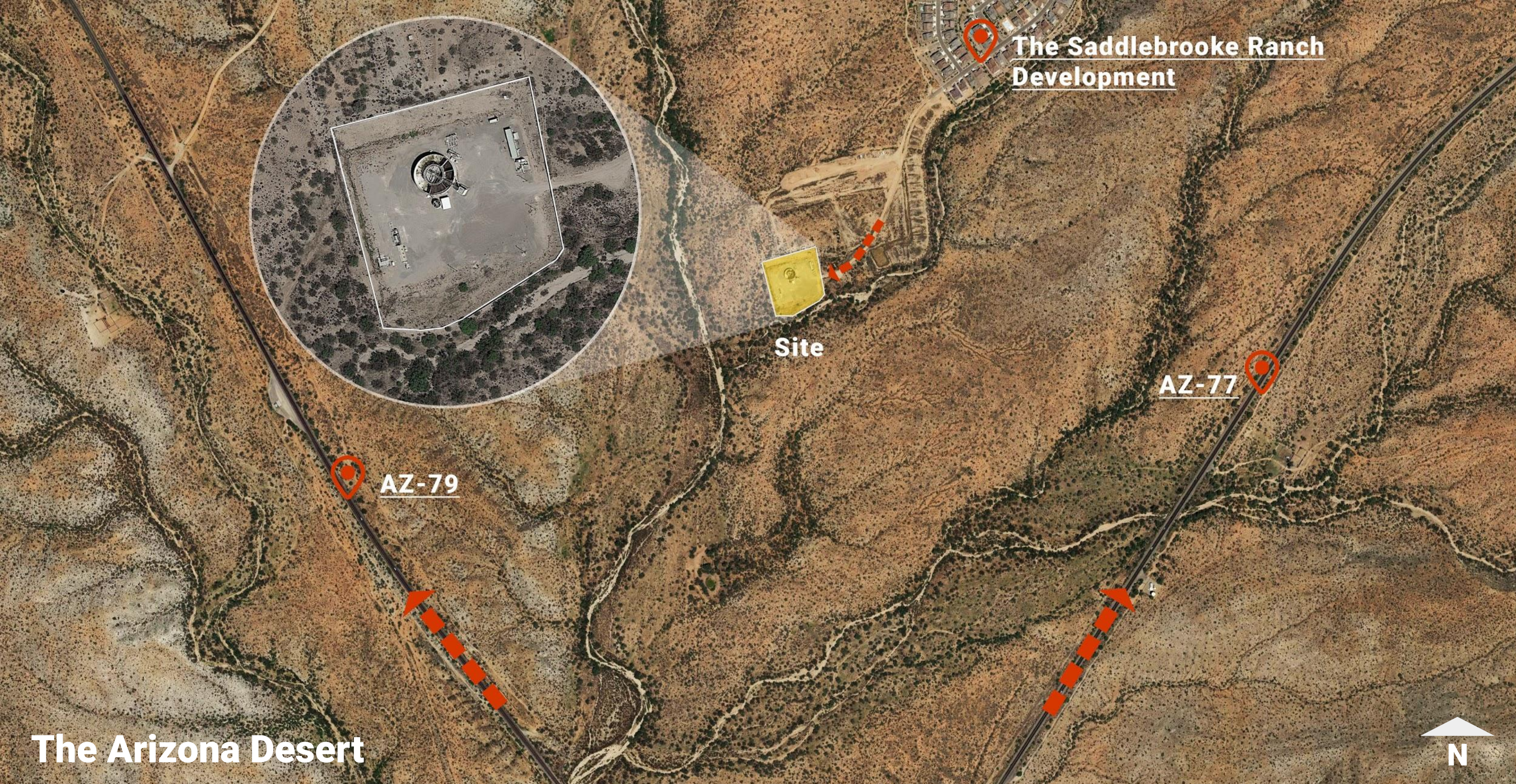
For the purpose of design, participants may **assume empty shells of the three surviving underground structures**. Participants are also free to **redesign ingress and egress to the structures** based on their space program.



[Img 7: Monument Valley, Arizona, USA. Source](#)

# The Arizona Desert

The land housing the erstwhile missile housing complex is situated off of Arizona 79, near Oracle Junction, and has no settlements in the immediate vicinity to speak of. The land conditions nearby are arid in the Arizona desert. As is the nature of the intervention, the shelter colony is touted to be constructed nearly free of any external context and isolated in nature.



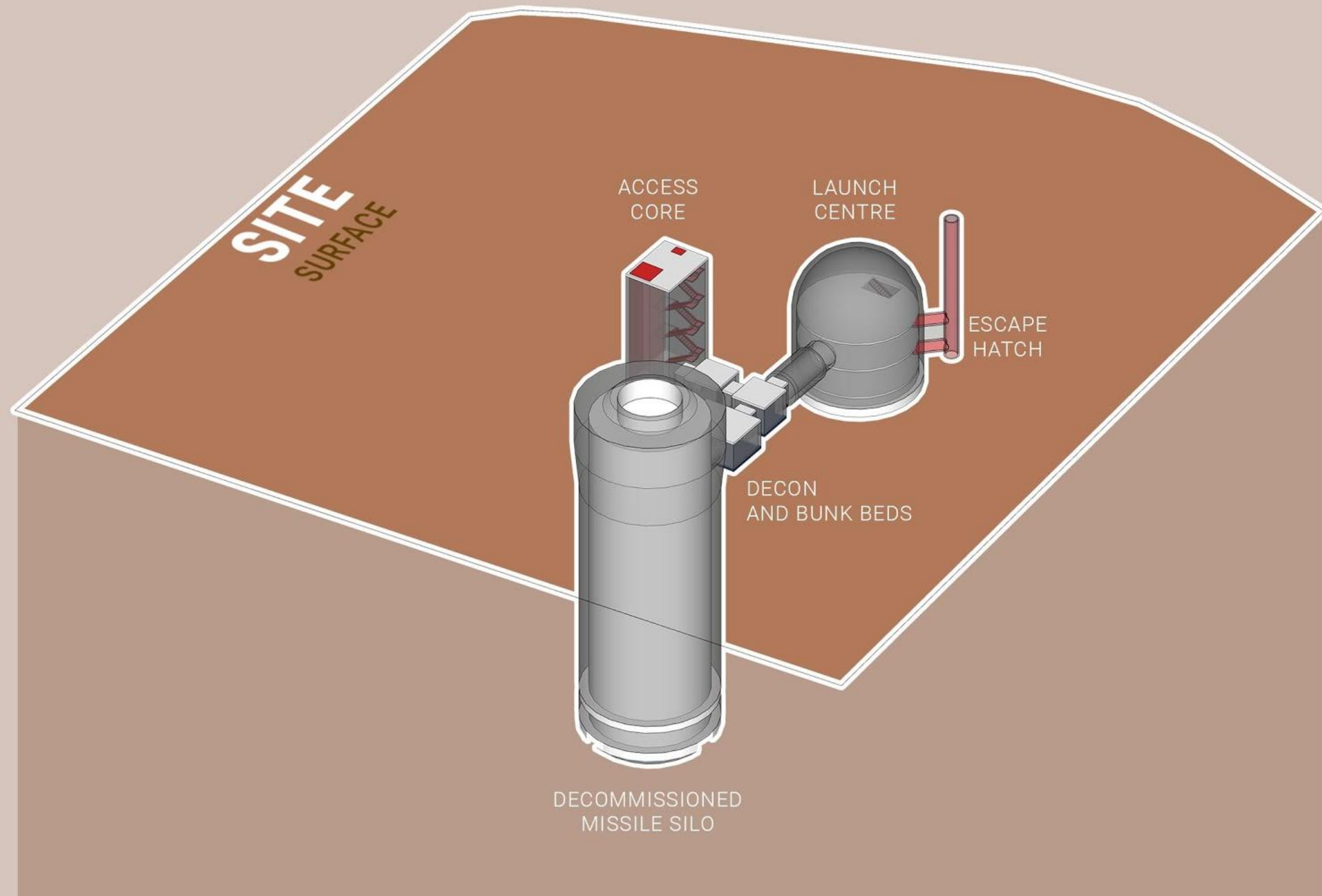
Img 8: Aerial view of the site.

# Site Plan

The proposed shelter colony sits in a decommissioned silo for the Titan II missile from 1963, capable of housing a 9 Megaton thermonuclear warhead, and is one among many such ICBM silos that were built during that time outside of Tuscan, Arizona. All the three structures that are part of the complex are subterranean, and lie beneath a parcel of land which has recently been rezoned as mixed use/commercial to be put out for listing. Only the silo closure door is visible on the surface along with some service and escape hatches, and a few temporary structures. The nearest residential settlements lie at the oracle junction in the form of a colony of mobile homes, and the other centred around Saddlebrooke Ranch to the Northeast.

Site Area: **13255 sq. m.** (On surface)  
Site Coordinates: **32°34'21.0"N 110°56'01.0"W**

No restrictions for building on ground, if valid reasoning is provided. Construction below ground **restricted to existing structures only.**



Img 9: Isometric View of the Decommissioned Missile Silo and Titan II Facility

# The Shell

The decommissioned silo is constructed of at least a 4 feet thick concrete shell built to withstand nuclear attacks and EMP disruptions. The 150 feet deep underground refuge is mounted on a gigantic spring assembly meant to absorb shock waves from earthquakes, making the structure highly resilient. The adjacent structure, decommissioned too, was meant to serve as a blast shelter and residence for the operators, while the third structure was the launch control station, both designed with appropriate escape routes and hatches.

# Program Outline

The design should look to accommodate the following main functions in the survival shelter.

## **Residence**

The primary purpose of the shelter, to provide a safe habitat to its residents. The nature of the dwelling units should be entirely permanent with all adequate provisions that one can find in a residence. **Whether or not there exists a segregation in the typology of residential units within the shelter is entirely up to the participant(s).** Along the same lines, the design of the individual unit is one of the core challenges of the brief. Participant(s) have to define the level of opulence that they would want potential residents to have.

## **Leisure/ Community**

The secondary purpose of the shelter would be to enable residents to engage with each other and the surviving community beyond primal survival. This is also one of the core problems of the design, and it is up to the participant(s) to design/intervene as to how far their proposition goes beyond basic necessities, also demonstrated by ably supported arguments.

## **Sustenance**

Facility for production of the residents' food and other provisions. For example, the ones already constructed around the world have in situ fisheries in tanks, and provisions for vegetables and fruits being cultivated under grow lamps. Dedicated zones for the same are a definite necessity.

## **Energy and Services**

In the advent of the events that would lead to the shelter being commissioned and in-use, it would be imperative to have all services under the roof of the shelter, negating dependency on the external confines of the site and municipal provisions for the same. Power would have to be generated and stored within the facility while being used sustainably. Similarly, sanitation facilities would have to be connected to a septic tank with the capacity to hold waste for years and so on. These considerations must reflect in the submitted design.

# Submission

You have to deliver an architectural outcome on the following site, based on the given outlines.

- Recommended number of boards/sheets - 6 boards/sheets. – [ **2362px x 3544px** ] or [ **400mm x 600mm in 150 dpi** ] in portrait digital format (JPEG). Minimum 3 boards/sheets & no maximum boards/sheet limit.
- Each image should be less than **15MB**

**This additional resources folder contains:** FAQ Questions, High Res maps, Sketchup Model of the site (and bunkers) and CAD file of the site plan.

Minimum requisites in the sheets are 3 sheets/boards + Cover image containing:

This is the link for new file sizes, [here](#).

- Site plan (Compulsory)
- Key conceptual sections x 1 (Minimum)
- 3D views x 4
- Cover image/Thumbnail of size 2000 x 1000 px or larger in aspect ratio 2:1.
- Floor plans, images, sketches (if any) can be added to support the entry in the form of additional images.
- Answer 6 FAQ questions in the discussion section as given on the 'additional resources folder'.

- 
- + The team limit for this competition is 4 members maximum.
  - + Use exploded views to discuss multi levelled conceptual models better.
  - + Ensure that the final sheets which are submitted do not include your name or any other mark of identification.
  - + Mention sheet number on corner of every sheet.
  - + This is a design ideas challenge only. There is no built commission/realization is associated with the problem
  - + Plagiarism of any idea / form / design / image will be disqualified with a notice.

**Registration page here:** <https://competitions.uni.xyz/bunkertecture/info/about>

**Discover the competition schedule and deadlines here:** [Schedule](#)

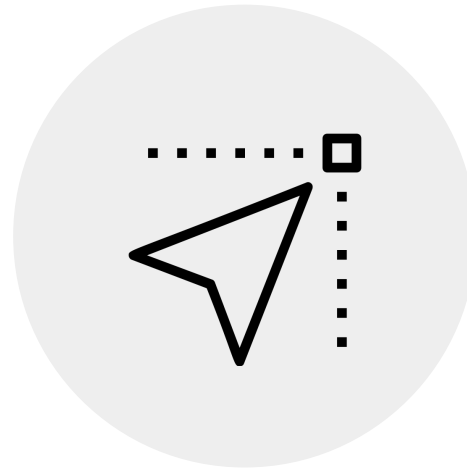
# Rewards



Grants of up to a total of **20,000\$** can be won on this challenge. Learn more about the full conditions on the competition page [here](#).

# Judging Criteria

The entries will be judged by an international jury of the competition on the following criteria:



## Presentation

The fundamental to a good entry is a good presentation.



## Concept/Idea

Quality of thought and intent in pre-design phase.



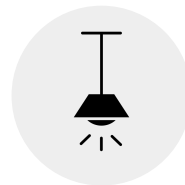
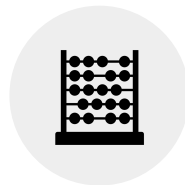
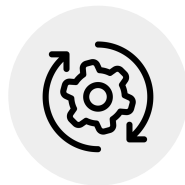
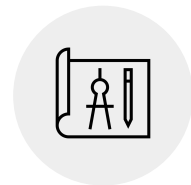
## Spaces/Programme

How the spaces are calculated and ordered.



## Design Output

The final architectural outcome of the solution.



The judging panel can also add other criteria based on their internal discussions - which will be in line with the problem statement. Participants are advised to fulfil above given criteria first in their design.

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