THE DOME & PODS AT FLY RANCH GEYSER

When it comes to climate, Fly Ranch is uncommodious! Comfortable temperatures are only found a few months out of the year; and even then, only at limited hours of the day. Our main challenge was to create a comfortable environment to accommodate three essential human activities – gathering, resting, and creating – without overly prescribing the program. The philosophy guiding the project is that simple, low tech strategies are more sustainable than high tech areas, and solutions inspired by the genius loci of a site – its sense of place – are always the most appropriate.

CLIMATE-INSPIRED DESIGN

The starting point was a deep dive into climate data, which showed that the biggest challenge in creating human comfort was overcoming both the large diurnal temperature swings in addition to overall cold temperatures most of the year. Fortunately, the site is blessed by high levels of solar radiation, which, by creating a glazed greenhouse effect, can generate heat during the day up to 20°C warmer than outside air. In order to retain the heat, the areas of earth (The Pods) are insulated from extreme air temperatures by applying them up 4m below grade, where the relatively mild and stable soil temperatures act as insulation. Constructed primarily of super-adobe earthbags, the thermal mass of the shelter helps balance out temperature swings by acting as a heat sink during the day and a heat source of radiant heat during the night. The result is that in spring, summer, and winter each pod easily avoids heat loss, and in summer, they easily avoid heat gain. We anticipate that with these strategies we can create a comfortable interior environment in each pod for eleven months out of the year through completely passive means.

A COMFORTABLE PLACE TO GATHER, REST, & CREATE

Upon arrival, one is greeted by an entry beacon and descends a ramp which opens up to The Dome. Illuminated with natural light, it serves as a hub for group activities and as an internal workshop space. Five Pods of differing sizes – used for private, quiet activities such as reading or meditation – are located a few short away, and accessed off an outdoor corridor. Through a simple strategy of opening and closing doors and windows at strategic times of the day, the interior environment of each pod is nearly always comfortable. Unusually accessible and wheelchair friendly, the building is an inclusive space for everyone.

HUMAN COMFORT (PSYCHROMETRICS):

Humans only feel comfortable within a restricted range of temperatures and relative humidity levels.

THE PROBLEM:

Fly Ranch has extreme temperatures, is nearly comfortable, and is usually too cold for humans.

SOLUTION NO. 1:

Generate heat with high solar radiation effect (September to May only).

SOLUTION NO. 2:

Use stable ground temperatures to insulate interior environment from extreme air temperatures.

THE RESULT:

Interior environment of pods is comfortable nearly the entire year utilizing simple, low-tech solutions.