Modular Earth Domes

“Resources and energy are scarce, generating a lot of waste. And the time to act is now. We are looking for solutions that are based on principles that our civilization lost on the way. To protect from the sun, wind and temperature variations, people and animals, we are building shelters, a necessity for us to live on Earth. These shelters are a result of our analysis of new building principles that can be tested, replicated, improved and upgraded by the community.”

Earth domes are available as self-assembly construction principles for future buildings of Fly Ranch. More than a fixed design or plan for the development of activities at Fly Ranch, we propose a set of construction principles that can be tested, replicated, improved and upgraded by the community. These principles are based on our analysis of the forces and resources naturally available at Fly Ranch, trying to find the most suitable options for a sustainable development of future structures on site.

Earth domes are a combination of different self-constructive techniques adapted to the unique Fly Ranch environment inspired by Fly Ranch lodges, geodesic domes and superadobe construction.

1. Semi-buried superadobe walls and floors. These are made from excavated soil and are geothermally tempered. Using the landscape and the thermal mass of the ground to improve the interior comfort of a building is one of the common sense building principles that our civilization lost on the way. To protect from the sun, wind and temperature variations, people and animals, we are building shelters, a necessity for us to live on Earth. These shelters are a result of our analysis of new building principles that can be tested, replicated, improved and upgraded by the community.

Nader Khalili, who has worked on superadobe construction principles that can be tested, replicated, improved and upgraded by the community. These principles are based on our analysis of the forces and resources naturally available at Fly Ranch, trying to find the most suitable options for a sustainable development of future structures on site.

2. Light wooden dome, naturally insulated. Dome is a recurrent and fascinating shape in nature, because it encloses the maximum possible volume with the minimum surface of the dome. We are using this principle to build shelters that can be built and removed according to the activity.

3. Cross laminated wood dome structure that can be filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

4. Earth and wood dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

5. Geothermal dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

6. Glass, wooden and thermal mass dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

7. Geothermal dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

8. Cross laminated wood dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

9. Glass, wooden and thermal mass dome, geothermally insulated. The dome structure can be prefabricated and assembled on site with light equipment. The dome structure is then filled with transparent panels (glass, recycled plastic, ETFE...), allowing the community to be radically included in the building process.

Material needs:
For a 5m diameter dome: cross laminated wood structure: 500 m, surface of pipes: 500 m, diameter of pipes: 10 cm (4 mm) - 10 m2.

Extended red: 400 cm3
Polystyrene: 50 cm3
Dome structure: 50 cm3

Material needed for a 5m diameter dome: prototype would be 25% of the site.