

Intro to Permaculture Low Desert Community Video Transcript

Let's look at what happens when we take some of the design patterns of zones and sectors and apply them at the community scale. This is Milagro cohousing in Tucson, Arizona, USA. Tucson is in the Sonoran Desert at 32 degrees North latitude, at about 2400 feet above sea level, or 730 meters in elevation. They get an average of 12 inches or 300 millimeters of rainfall per year.

Here is the sector compass for Milagro. You can see the sun sectors and the seasonal winds are the main influences.

The buildings are made out of adobe clay blocks, and I've highlighted them in brown. The adobe absorbs the low sun, and then creates a warmer microclimate from all the radiant heat on the sun facing side. That is the yellow band up against the south and west sides of all the buildings.

On the north sides of the buildings, a shadow is cast in winter months and that area stays cooler and more moist because there's less evaporation. In many locations, trees are planted in those shade bands, which are colored in blue, and those trees further cool and shade that microclimate, making a pleasant environment in summertime and helping to shade and cool the building when temperatures can climb above 110 degrees Fahrenheit or 43 degrees Celsius outside. The shady sides of the buildings are also great tree locations in this design because trees there will not block the solar gain of any of the buildings or sun-facing windows. Both sunny and shady microclimates are created and accentuated through this design.

The buildings are also situated to block or deflect hot summer winds from the southwest as well as cold winds from the north. This creates a sheltered environment for people and plants even when there are strong desert winds.

Additionally, all of the water falling on the structures and pathways is concentrated in the central area between the houses. If you look at the total roof area of the buildings all concentrating water into planting basins in the central area, then that area no longer gets 12 inches or 300 mm of water in a year. It gets about triple that from rainfall alone. This has created lush gardens full of native and exotic food plants, habitat, and a comfortable human environment.

The domestic water is from the Tucson municipal system, but Milagro treats its' own wastewater in a constructed wetlands instead of sending it to the city sewer. Any excess water after treatment is then pumped back up for use as irrigation, adding another source of water to the oasis they've created.

There are many other features that we don't have time to mention, but I encourage you to look into this community in the links below. Now think for a moment, What have they created there? They took a windswept hilltop and put in a new shape, a new pattern. What natural feature in the desert landscape does Milagro mimic? Where's the nicest place to be on a hot desert day? That's right, through the arrangement of the structures and concentration of water, they've created their community as a canyon.

