

## Desert Dome

**Cost:** \$31.5 million (includes Desert Dome and Kingdoms of the Night®)  
**Opened:** April 2002

The world's largest indoor desert, the Desert Dome, located under the world's largest glazed geodesic dome, has become a landmark for the city of Omaha. The Desert Dome features plant and animal life from three deserts around the world: the Namib Desert of southern Africa, the Red Center of Australia and the Sonoran Desert of the southwest United States. The Desert Dome contains 84,000 square feet on two levels (42,000 square feet on each level). Located beneath the Desert Dome exhibit is the Kingdoms of the Night, the world's largest nocturnal exhibit.



### Mechanical Facts of the Desert Dome

The world's largest glazed geodesic dome stands 13 stories tall. The top of the dome is 137 feet above the main level. Although the building is 230 feet in diameter spanning over one acre, there are no support columns except the outer wall. Geodesic is defined as a dome pattern of triangles that provide a strong structure. A gutter system, on the outside of the dome, is connected to two, 20,000 gallon underground storage tanks for the collection of rainwater. This water is used for watering the plants inside.

### Perfect Panel Placement



The 1,760 tinted acrylic panels are three different shades, as well as clear, providing maximum shade in the summer and maximum light in the winter. A computer program simulated the height of the sun during the spring, summer, fall and winter to determine the location of the panels. The darkest panels at the top provide shade from intense sunlight. The clearest panels are located on the sides to allow for more light in the winter when the sun is low in the sky. The shading of the dome panels also assist with energy conservation.

### Amazing Architectural and Mechanical Features

The Desert Dome contains more than 500,000 pounds of steel reinforcement. The building contains over 10,000 tons of concrete in the ringwall and structural slab, that is enough to pour a 4" concrete slab over 6 1/2 football fields. At the top of the dome is a 36' x 16'6" mechanical headhouse that contains the heat recovery units. Heat is reclaimed in the winter to help warm the Dome. In the summer, exhaust louvers expel hot air. Excess moisture is pulled out through the exhaust fans at the top of the Dome. The 44'6" diameter concrete floor of the headhouse is 12" thick to muffle any mechanical noise.

### It's HOT and COOL in the Desert

In public areas of the Desert Dome the temperature is 72 - 75 degrees Fahrenheit. This is made possible by using chilled water from the Zoo's Central Plant, which freezes large tubs of ice at night and melts it during the day for cooling. Cold water runs from the tubs through pipes and providing air conditioning for the Desert Dome, Scott Aquarium, Wild Kingdom Pavilion and Center for Conservation and Research. It feels cooler in the caves, in mountain shade or near waterfalls and warmer in direct sun. Temperature sensors for individual exhibits are located throughout the building and monitored through the life support computer.

The soil can be heated or cooled in different areas. An irrigation and drainage system, located throughout the building, allows water to reach the plants without rotting the roots. The walking paths are made of textured concrete. Approximately four feet of soil mixes, comprised of decomposed granite, pumice,

sand, top soil, clay and coir (shredded coconut bark) were used on top of the floor. The different geographical areas have different soil mixtures best suited for their plants.

### The Three Deserts of the Desert Dome

The three deserts of the Desert Dome are divided by Central Mountain, a 55-foot tall mountain in the middle of the Desert Dome. Surrounding Central Mountain are a variety of unique desert plants including succulents, palms, mesquite trees, grasses, herbs, shrubs and the endangered Welwitschia, found only in the Namibian deserts.



The **Namib Desert** of southern Africa is the world's oldest and most biologically diverse desert. The Namib Desert portion of the Desert Dome features a 30-foot tall sand dune containing 300 tons of red sand that came from a mine site near Phoenix, Arizona. Kuiseb Canyon Oasis is home to 20-foot date palms. Climbing among cliffs are rock hyraxes, klipspringers and meerkats. Within the Desert Caves live 21 reptile species from Africa and Australia, including venomous snakes such as death adders, a cape cobra and the Inland taipan (the world's second deadliest snake).

The **Red Center of Australia** is one of the world's most unique isolated deserts. In the Desert Dome, rock wallabies live on the Australian side of Ayers Rock or Uluru. Ayers Rock is an Australian landmark and the world's largest monolithic rock. Wave Rock, a showpiece of the desert, is an overhang of colorful granite caused by water carrying dissolved minerals like iron.

The **Sonoran Desert**, of the southwest United States and northwest Mexico, is the world's second most biologically diverse desert. While the ocelots look on, peccaries wallow in the desert dirt of the Sonoran portion of the Desert Dome. Visitors will wind past bobcats, entering hummingbird canyon where they will encounter a waterfall in the desert. Among the flat, prickly pear cactus and the tall endangered Saguaro cactus forest live quail, lizards and the occasional cottontail. In Rattlesnake Cave, there are 14 species of reptiles and amphibians, including seven species of rattlesnakes. This is also home to the Gila monster and the Beaded lizard, the world's most venomous lizards.

### Desert Dome Sun Room

As you exit the Desert Dome, there is a special room designed to showcase newly hatched or young reptiles and amphibians. This area also houses some of the reptile related conservation and research projects taking place at Omaha's Zoo. Each window and skylight allows the young reptiles access to beneficial ultra-violet rays from the sun.

### Classroom and Concessions

A room in the Desert Dome can be used for classes and private meetings. Located outside the Desert Dome is a concession stand with plenty of outdoor seating on the Desert Dome Plaza.