



Grand Canyon Skywalk *The Glass Bridge*

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Grand Canyon Skywalk – The Glass Bridge Fact Sheet

Grand Canyon Skywalk is located in Grand Canyon West on the Hualapai Nation, a 2-hour drive from Las Vegas, NV, and a 5-hour drive from Phoenix, AZ.

Grand Canyon Skywalk is only a 45-minute helicopter or a 25-minute airplane ride from Las Vegas.

HIGHER THAN THE TALLEST SKYSCRAPER

- Grand Canyon Skywalk is located **4,000 feet** above the Colorado River.
- Consists of more than 1 million pounds of steel and 83,000 pounds of glass.
- In total, it weighs 1.2 million pounds.
- Its foundation is strong enough to support about 71 million pounds – the equivalent of 71 fully loaded 747 airplanes.
- The glass walls are approximately 5'-7" high, extending 4'-6" above the glass floor – safer than code yet low enough that guests do not feel confined.
- Grand Canyon Skywalk is 10 feet wide.

DESIGNING AN ENGINEERING MARVEL

- In 1996, businessman David Jin, from Las Vegas, NV, approached the Hualapai Tribe with the idea of a glass walkway over the Grand Canyon. He won approval from the tribe in 2003.
- Grand Canyon Skywalk was designed and engineered by Lochsa Engineering & MRJ Architects and built by Executive Construction Management, all based out of Las Vegas, NV.
- Engineers conducted tests on the geologic stability of the site and researched the foundation by testing the compressive strength of the rock.
- They found that the Red Limestone rock could withstand 16,000 pounds of pressure per square inch.
- Engineers also conducted extensive testing during the planning and design phase to ensure the Grand Canyon Skywalk could easily withstand the high winds that have been known to blow through the Grand Canyon.

- The design originally extended 30 feet over the edge of the rim of the Grand Canyon but eventually evolved into a horseshoe-shaped bridge extending **70 feet** past the edge of the Grand Canyon wall.

BUILDING GRAND CANYON SKYWALK

- On October 6, 2004, the Hualapai Tribe blessed the site, and one month later drilling for the Grand Canyon Skywalk began. Drilling lasted one and a half years.
- Next came a foundation consisting of eight columns that support box beams. Each box beam is 6 feet high, 32 inches wide and has 2-inch thick walls. Grand Canyon Skywalk is designed to absorb vibration and avoid galloping in windy conditions. The beams were custom fabricated in Utah in 40 ft. sections then trucked to Grand Canyon West.
- Grand Canyon Skywalk was assembled on site. The first permanent caps were attached to the eight concrete columns to support it. Pieces of the bridge were put into place and welded together once aligned. The welding took four months to complete.
- Three tuned mass dampers specifically calibrated to meet the wind and weight requirements of the location were placed inside the horseshoe frame, making it structurally sound. Mass dampers help distribute the weight on the glass bridge.
- A special manipulator was designed to lift the glass panels to the Grand Canyon Skywalk with large suction cups.
- Two-and-a-half years after the groundbreaking ceremony, the Grand Canyon Skywalk rollout began. Engineers used the same rod and plate method used on the Egyptian pyramids to roll it out over the Grand Canyon.
- On the first day, it was rolled halfway out. Rollout was completed in two days.

THE FIRST WALKS

- Hualapai tribal members led by the Tribal Council and David Jin made the first walk on March 20, 2007.
- Former astronauts Dr. Buzz Aldrin (second man on the moon) and John Herrington (first Native American astronaut) also participated in the celebration.
- Grand Canyon Skywalk **opened** to the general public on **March 28, 2007**.

NEW GLASS PANELS PROVIDE A CRYSTAL-CLEAR VIEW

- Operators recently replaced the Grand Canyon Skywalk's 46 glass panels for the first time since it opened. The project was completed in May, 2011.
- Rioglass manufactured the glass in Logrono, Spain, about 4.5 hours North of Madrid. Rioglass specializes in strong glass made for embassies and other buildings that need bomb-proof glass.
- A 150-foot crane was trucked to the Grand Canyon Skywalk to lift each 1,800-pound piece of glass into place.
- Work was done at night so that the Grand Canyon Skywalk could remain open during the day.
- The new glass panes consist of **five layers of glass** bonded together and measuring **2 ½ inches thick**.
- Each panel has a thin "sacrificial" layer of glass that can be removed and replaced by hand when it becomes scratched, instead of bringing in a large crane to replace glass.
- Each panel can support 100 lbs per square ft., equivalent to about 800 people, although only 60 to 120 people are allowed on the Grand Canyon Skywalk at a time depending on the number of visitors on a given day.

GRAND CANYON SKYWALK ATTENDANCE

- Over 1.8 million tourists have visited the Grand Canyon Skywalk since it opened in March of 2007.

THE WEST RIM OF THE GRAND CANYON

- Grand Canyon is a chasm about 277 miles long and up to 18 miles wide.
- Grand Canyon Skywalk is located on the West Rim, on land owned by the Hualapai Nation.
- Grand Canyon was carved by the Colorado River, which flows West through the Canyon and averages about 300 feet wide and 100 feet deep. Grand Canyon took an estimated 6 million years to form.