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SPECIAL COVERAGE



SAUDI ARABIA

The new face of Jamarat Bridge

Oval design has contributed to better pilgrim flow and boosted the structure's capacity for accommodating people

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The Jamarat Bridge project is a massive structure, built to save pilgrims' lives and facilitate a crucial Hajj ritual.

Pilgrims gather in this place to throw stones at the devil in a symbolic act. Without this act, their pilgrimage is incomplete and considered to be unaccepted.

The concept of stoning the devil began when Prophet Ibrahim was told by Allah to sacrifice his son Ismael, and the devil tried to dissuade the prophet three times.

On each of the three occasions, the prophet pelted the devil with seven small pebbles to drive him away, after which the devil disappeared. This act has become a symbolic ritual and an integral part of Hajj.

It takes place over two or three days, from the 10th day of Dhul Hijjah until before sunset on the 13th.

The three pillars were previously built of stone and mud with low barriers surrounding them. They were then covered with cement, with the size of the pillars remaining unchanged for years.

However, the increasing number of pilgrims called for a project to help manage the hundreds of thousands of worshippers gathering in one place.

According to Mohammed Idris, former vice dean of The Custodian of the Two Holy Mosques Institute for Hajj and Umrah Research, the three pillars were surrounded by circular walls until 1975.

"A substantial enlargement of the area took place in 1987, and other expansions followed to upgrade the Jamarat area's capacity to ease pilgrim movement and avoid accidents. The exit points and entrances to the pillars were amended, and the curved paths to



Main: The walkway leading to the symbolic stoning of the devil. AFP

Left: The Hajj saw several tragedies over the years. AFP

Below left: The structural changes were made to ensure safety. AFP

Below: A pilgrim takes part in the stoning. AFP

Right: The new pillars are oval to help flow. AFP

the Jamarat were made straight," he told Arab News.

The Jamarat Bridge was originally a pedestrian structure built in 1963 to facilitate the stoning ritual. Since then, it has been expanded several times to accommodate the increasing number of pilgrims.

A substantial enlargement of the bridge took place in 1974, and other expansions followed to upgrade the bridge's capacity to ease pilgrim movement and avoid accidents.

Despite this, the structure witnessed several deadly incidents after pilgrims failed to follow instructions, sparking stampedes and deaths.

In 1990, over 1,400 pilgrims were killed by trampling and suffocation in Al-Maaisim pedestrian tunnel, which led from Makkah to Mina. Between 1994 and 2006, more than 1,030 pilgrims were killed in stampedes while trying to stone the pillars. Around 470 others were injured.

The worst stoning-related incident in recent memory occurred on Sept. 25, 2015, when more than 700 pilgrims

died and another 800 were injured when pilgrims surged toward the intersection of Street 204 and Street 223.

A doctor at an emergency department of a Mina hospital told Arab News at the time that most of the pilgrims died of asphyxiation.

A Saudi interior ministry spokesman had blamed the stampede on "unprecedented high numbers of pilgrims" as compared to previous years, plus the fact that a majority of the victims had descended onto a pathway during



FASTFACTS

● Stampedes and surges caused thousands of deaths at the Jamarat Bridge before the infrastructure was upgraded.

● The project, to alleviate overcrowding and avoid tragedies, cost \$1.12 billion.

a time that they were not allowed to enter it.

Witnesses to the tragedy had confirmed that a large group of Iranian pilgrims passed through Souq Al-Arab Street and refused to return, ignoring Hajj guidelines.

Regardless of the causes of the tragedies, they prompted the Saudi government to devise a solution that could save lives. After the 2015 incident, King Salman offered condolences and immediately ordered an urgent review of the Hajj plan.

Over four years, Saudi authorities studied and researched the site before the old structure was

completely removed and replaced by the existing engineering marvel known as the Jamarat Bridge.

The new project details were approved by engineering and architectural committees consisting of local experts and highly experienced US, German, and British engineers. The opinion of senior Muslim scholars was taken into consideration for the religious position on the project.

"In 2005, the circular walls around the pillars were reshaped, making them elliptical to facilitate the movement of the pilgrims," Idris told Arab News.

"In 2007 the old Jamarat project was discarded, and work on the new project began. A year later, one floor as per the project was fully constructed. In 2009, the second floor was made ready to serve pilgrims. By 2010, the entire planned construction was fully complete."

The bridge, which was constructed over three years by more than 11,000 workers, is 950 meters long and has six floors, including the basement, with a height of 12 meters per floor. Each floor can absorb up

to 120,000 pilgrims per hour.

Its foundation was constructed for 12 floors to accommodate 5 million pilgrims by 2030. On the fifth level, umbrellas cover the site of the three Jamarat to enhance the comfort of pilgrims and protect them from the sun and heat.

The Hajj infrastructure showpiece, which has won several local and global awards, was built at a cost of over \$1.12 billion.

It has 12 entrances, 12 exit roads from four directions, two tunnels, 19 ramps, escalators, emergency exits, helipads, six service buildings, and an air-conditioning system with water sprinklers to cool the atmosphere and reduce the area's temperature to 29 C.

The building also contains three electric stations and a standby generator that automatically supplies electricity in case of any temporary power cut.

Unlike the old circular shape of the walls around the three pillars, the new oval design has contributed to a better pilgrim flow. It has also assisted in increasing the bridge's capacity for pilgrim numbers.

The new bridge was designed by Dar Al-Handasah and constructed by the Saudi Binladin Group. It features a wider and column-free interior space, longer Jamrah pillars, additional ramps and tunnels for easier access, large canopies to cover each of the three pillars to protect pilgrims from the sun, and ramps adjacent to the pillars to speed up evacuation in the event of an emergency.

No casualties have been reported at the Jamarat sites in six years. However, both Saudi Hajj and health authorities are prepared for any scenario. This year, 17 emergency centers will be present at Jamarat Bridge to assist in any emergencies — from crowd surges and falls to illness — that pilgrims may face on their Hajj journey.