

Program Bulletin- Lighthouse Tower Tour

Program Overview

This program focuses on the inner workings of the lighthouse tower, as well as the duties of the lighthouse keepers. Visitors participating in this program will climb the lighthouse tower and view the watch and lantern rooms.

Lighthouse Background

Congress authorized a light station at Old Mackinac Point in 1889, intended to warn sailors of the protruding tip of Michigan's lower peninsula. Workers built a fog signal in 1890, and the lighthouse itself was built and went into operation in 1892. The keepers' quarters attached to the tower was a duplex, with living quarters for a keeper, assistant keeper, and their families. Both apartments could easily access the tower to ensure that the light was constantly maintained. One of the keepers' primary jobs was the clean, maintain, and monitor the lens and lighting equipment to ensure that Old Mackinac Point's light shone brightly and consistently.

The Tower

The brick tower at Old Mackinac Point is over 50 feet tall. Inside, a spiral staircase with 51 steps winds to the top. The central column in the staircase is hollow, and historically contained a suspended weight used to power the clockwork mechanism which rotated the lens. Near the top of the staircase, keepers (and modern visitors) need to duck to avoid a low spot before emerging into the watch room.

The Watch Room

After climbing the staircase, keepers entered the watch room. As the name implies, this was a space for the keepers to stand watch when the light was illuminated at night or in bad weather. Since there were always at least two keepers assigned to Old Mackinac Point, all-night watches were required by regulation. The two keepers may have evenly split up the overnight hours, so neither of them had to stay awake all night long.

Standing watch was relatively boring, as the keeper on watch merely needed to make sure that the light was actually turned on and the lens was spinning smoothly. The rotation of the lens was powered by a clockwork mechanism, which in turn relied upon the weights suspended in the staircase column. The clockwork needed to be regularly re-wound. An electric motor replaced the clockwork mechanism in 1940.

Keepers would also needed to check the lens itself while standing watch, and to thoroughly clean it during the day. To do so they climbed the ladder up from the watch room to the lantern room. Visitors must always have three points of contact on the ladder rungs or handrails while climbing, and need to be careful when passing through the small hatch to the lantern room.

The Lantern Room and the Lens

The lantern room is the uppermost level of the tower. Historically, Old Mackinac Point's 4th order Fresnel lens filled most of the space in the lantern room (it is currently displayed on

the first floor of the keepers' quarters). Every evening, or during periods of bad weather, the keepers illuminated the lens. Initially, an oil lamp provided the light source, so keepers needed to regularly check that the lamp had enough fuel and was burning cleanly and brightly. A incandescent oil vapor (IOV) system, similar to a camping lantern, replaced the oil lamp in 1913. Finally, in 1929 a regular electric lightbulb was installed inside the lens. Whatever the illumination source, the lens bent and magnified the light and focused it into horizontal beams, which could be visible up to 14 miles away.

The lens also created Old Mackinac Point's unique light signature. All lighthouses show different light signatures to help sailors identify which lighthouse they are seeing. Different light signatures were created by using different colored lights (green, red, or white) and differing how often the light appeared to flash. The flashing effect was created by rotating the lens, which simultaneously generated multiple beams of light. Since sailors could only see one beam at a time, as the lens rotated the light would appear to flash on and off. At Old Mackinac Point, the original light signature was a red flash (created by placing a red glass chimney on the oil lamp) one every 10 seconds. The signature was changed to a white light flashing once every 10 seconds in 1913.

Every morning, the keepers would climb to the lantern room and begin cleaning the lens. This could be a painstaking process that lasted several hours. The keepers wanted to ensure that no dust or smudges obscured the light emanating from the lens. They also prepared the light source for the next use, as they did not want to waste time getting things ready as the sun was setting or a storm rolled in. Once finished with the lens, the keepers turned their attention to the rest of the station, cleaning the lantern room windows, the clockwork mechanism, and the rest of the tower. They were also responsible for maintaining the buildings and grounds, including the fog signal machinery in the fog signal building.

Keepers tended to the lens every day until 1957, when Old Mackinac Point was decommissioned following the completion of the Mackinac Bridge. The bridge towers are 10 times taller than the lighthouse (over 500 feet versus over 50 feet), and are covered with navigation lights. No longer needed as a navigational aid, Old Mackinac Point became a museum.