

= Kõpu Lighthouse =

Kõpu Lighthouse (Estonian : Kõpu tuletorn) is one of the best known symbols and tourist sights on the Estonian island of Hiiumaa . It is one of the oldest lighthouses in the world , having been in continuous use since its completion in 1531 .

The lighthouse marks the Hiiu sandbank (Estonian : Hiiu madal , Swedish : Neckmansgrund) and warns ships away from the shoreline . Light from Kõpu Lighthouse can be used for navigation as far as 26 nautical miles (48 km ; 30 mi) away , although in 1997 a radar lighthouse largely took over its role as navigation aid .

Kõpu Lighthouse was previously known under its Swedish name , Upper Dagerort lighthouse .

= = Design and location = =

The lighthouse is built at the top of the highest hillock of Hiiumaa island , Tornimägi (English : Tower Hill , 68 metres (223 ft)) . The height of the building itself is 36 metres (118 ft) , and the light is 102 @. @ 6 metres (337 ft) above sea level , making it the highest coastal light on the Baltic Sea .

Kõpu Lighthouse has the shape of a square prism , with massive counterforts in the directions of principal divisions of the compass . The tower is laid solely of stone up to the height of 24 metres (79 ft) . The outside layer of the walls is supported by lime mortar , with the body itself built without mortar .

The body of the tower contains roughly 5 @, @ 000 cubic metres (6 @, @ 500 cu yd) of stone , with its total weight reaching 12 @, @ 000 tonnes (26 @, @ 000 @, @ 000 lb) . Local limestone and glacial erratic stones were used as building material .

Originally , the base of the tower was solid stone without any rooms ; the top of the lighthouse was reached using external wooden stairs , which were later replaced with iron ones . During reconstruction in the 1800s , a stairway was cut into the tower and has remained in use since .

= = Construction and history = =

= = = Construction of the original tower = = =

The most important East ? West shipping lane in the Baltic Sea passed the Hiiu sandbank . Already before the year 1490 the Hanseatic merchants were seeking permission to mark this peninsula with an outstanding landmark . Around 1490 they asked the bishop of Bishopric of Ösel @- @ Wiek to let them build a landmark on the Kõpu peninsula which was under the bishop ? s control . This action had no real results .

At a meeting of the Hanseatic League in Lübeck in 1499 , they applied once more to the bishop for permission to build a beacon . On 20 April 1500 Bishop Johannes III Orgas (John Orgies) agreed to allow a massive stone pillar without any openings . To cover the building costs , Tallinn city council had to establish a special lighthouse tax until the sum was complete .

Building of the beacon was supposed to start in the summer of 1500 , but the building was stopped when Wolter von Plettenberg , master of the Livonian Order , started a war which lasted until 1503 . In the spring of 1504 , purchase and delivery of the building materials began , but in the autumn of the same year the plague broke out , stopping the work once more . Building work was discontinued and alderman Lambert Ottingk , the magistrate in charge of the building , died in Tallinn on 28 December 1505 .

The account ledgers of Tallinn city council contain entries about the Kõpu lighthouse from 1507 to 1533 , showing money was spent on the beacon of Hiiumaa from 13 May 1514 until 12 October 1532 . The amounts show the majority of the work took place from 1514 to 1519 ; later there are only a couple of bigger expenditures on the beacon . A fire was first lit in the autumn of 1531 ; it was simply a bonfire on top of the tower .

The 20 @-@ metre @-@ high (66 ft) and 8 @-@ metre @-@ wide (26 ft) tower was visible on a clear day up to 20 kilometres (12 mi) offshore .

= = = Reconstruction and rebuilding = = =

In August 1649 a wooden staircase was built to the outside wall of the tower and an open iron fire grate affixed to the top . Originally it was planned to burn coal in the lighthouse , but due to high transport costs of coal , wood was used instead .

The fire consumed up to 1000 cords of firewood every year during the 180 @-@ day navigation period , a quantity so great that it led to deforestation of most of the Kōpu peninsula . A team of six was on guard every night , but storms extinguished the fire often . A rule passed in 1652 decreed that the fire must be strong and a fathom (~ 2 yards (1 @.@ 8 m)) high .

Count Axel Julius De la Gardie bought the island of Hiiumaa from the King of Sweden for 38 @,@ 000 thalers and took over management of the Kōpu lighthouse in 1659 . He had its height extended to 35 @.@ 6 m (117 ft) and the wooden stairs replaced with an iron staircase . The light , now visible from as far as 24 kilometres (15 mi) away , was lit one hour after the sun set and extinguished one hour before sunrise .

The Russian Empire took over the administration of the lighthouse in 1805 . Major reconstruction of the tower began in 1810 . A stone staircase was cut to the southern counterfort plus a room large enough for a team of six men . Into the upper part they made two subsidiary rooms , one on top of the other , and another , the topmost room , 35 metres (115 ft) from the ground , was for the lanterns . The lantern room housed twenty three oil lamps , using silver @-@ plated brass reflectors . The lamps burned hemp oil , requiring 3 @.@ 28 tonnes (7 @,@ 200 lb) yearly .

In 1845 , a crack in the upper part of the lighthouse called for extensive reconstruction , which saw part of the tower pulled down and rebuilt . The tower now gained its final height : 36 metres (118 ft) . A wooden structure with lamp @-@ chimneys was built for the lantern and its optical devices .

The lighthouse came under navy control , and the first maintenance rules were laid down . The fire was to be lit and extinguished in strict accordance to sunrise and sunset . In cloudy weather lighthouse keepers were to consult a calendar for the necessary data . At that time , the fire was kept burning nightly from 1 July to 1 May ? 10 months of the year .

As part of his naval reforms , Grand Duke Constantine Nikolaevich of Russia demanded modernization of the Kōpu lighthouse , in 1859 . In May 1860 , a novel gyratory device (manufactured by Le Paute in Paris) was installed . It rotated at a speed of one revolution per four minutes , using a clockwork pulley @-@ weight system . The device had one Carsel lamp with four concentric light sources and a Fresnel lens . The lamp consumed 0 @.@ 5 kilograms (1 @.@ 1 lb) of rapeseed oil hourly , and the fuel pump was powered by the same clockwork mechanism . It was said to be visible up to 27 nautical miles (50 km ; 31 mi) away . A team of seven serviced the lighthouse , with one required to be near the light at all times .

The counterfort with the staircase was roofed with wooden boards and tin sheets in 1869 . A telegraph installation and rescue stations were established near the lighthouse in the same year ; the first @-@ established worked until 1898 when it was replaced by a telephone .

= = = Twentieth century = = =

A new light system was bought at the 1900 Paris World Fair , for three million gold rubles . The new apparatus (including the light chamber) was made by Sautter , Marlé & Co . It used a kerosene lamp with a gas mantle . A heavy cast iron system floated and rotated in a bath of mercury , which acted as a bearing . The bath contained roughly 500 kilograms (1 @,@ 100 lb) of mercury . The poisonous mercury from the lighthouse was used for decades by children in the surrounding villages for playing .

The light system was set in rotation by a suspended 400 kilograms (880 lb) load ; it needed to be rewound every two hours . It was installed during repairs of 1901 .

In 1939 , the lighthouse underwent major repairs for its anniversary . As part of those renovations ,

the tower was painted with high quality oil paint , which became the main contributor to the deterioration of the tower in subsequent decades ? thick waterproof layers of paint did not allow the limestone to dry . The mortar began to deteriorate rapidly .

The lighthouse was connected to the electricity grid in 1940 . German bombers targeted the lighthouse in August 1941 , though only the lantern structure and optical system were destroyed .

After World War II , various optical systems were tested . Kohler generators were installed in 1949 along with the stationary electric light system . A new rotating light system (EMV @-@ 3) was installed in 1963 , making the lighthouse fully automated . It was in use until 1982 , when an experimental EMV @-@ 930M system (made in Ukraine) was installed . The rotation mechanism of the optical system is a novel solution ? there are no electric motors ; it uses a revolving magnetic field instead . The optics brought a six to eight hundredfold increase to the efficiency of the light radiated by a 1 kW quartz lamp . The same light system is still in use .

Due to the progressing deterioration , the lighthouse underwent frequent repairs . Major repairs were in 1957 , 1970 , 1979 ? 1981 and a major overhaul in 1982 . The walls crumbled partially during the 1980s . To stop the deterioration , a 15 centimetres (5 @. @ 9 in) thick reinforced concrete dress was built to support the foundation and walls (1989 ? 1990) . Small air channels were left in the concrete . The top of the lighthouse was renovated in 2001 .

= = Current status = =

Kõpu Lighthouse only lost its important role as a primary navigation aid in 1997 , when a radar lighthouse took over its duties . Recreational craft and small fishing vessels continue to rely on Kõpu for navigating , as a backup to electronic navigation systems . The Estonian Maritime Administration still classifies it as an active aid to navigation . Its future is ensured by its status as a protected cultural memorial .

Due to its enduring popularity and memorable shape , it is often used as a symbol of Hiiumaa . A major tourist attraction , the tower has been open for tourists since 1999 . Together with the nearby Ristna lighthouse , the Kõpu lighthouse was commemorated on a postage stamp in 2000 .