Form 60

LIGHT HOUSE BOARD
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9th. Cleveland

~~3rd~~

~~South~~ DISTRICT

Department of Commerce and Labor

LIGHT-HOUSE ESTABLISHMENT

DESCRIPTION OF LIGHT-HOUSE TOWER,

BUILDINGS, AND PREMISES

AT

Buffalo Breakwater, North End, N.Y.

Lake Erie.

February, 1909

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NAME AND POSITION OF THE LIGHT-HOUSE AND LIGHT-STATION.

Buffalo Breakwater, North End, N.Y.,
On a crib behind the northerly end of the old breakwater, southerly side of the main or north entrance to Buffalo Harbor

1. By whom described, Chas. C. Bartlett, Chief Clerk and Norris M. Works, Superintendent.
2. Date of description, February, 1909
3. Distinguishing character of light or lights, Fixed Red.

4. Latitude of tower, 42° 52' 39"
5. Longitude of tower, 78° 53' 56"

Authority, U.S. Lake Survey Coast Chart No. 1 - Lake Erie, 1901-1904- Issued March 29-1904- Corr. No. Ea.

PREMISES—A DETAILED DESCRIPTION OF, EMBRACING—

6. Site of station—Public land, purchase, Military or Naval reservation, lease: U.S. Breakwater Reservation.
7. Date of reservation,
8. Date of deed, Granted to U.S. by N.Y. State, letters patent approved Sept. 10-1900.
9. Date of permission to occupy,
10. Date of lease,
11. Area of the entire site, crib. 40' x 40' = 1600 sq. ft.
12. Area inclosed, Not inclosed.
13. Character of surface soil, Stone.
14. Distance of tower from nearest high-water mark,
15. Inclosures to premises,
16. Wharf or landing on premises, Hanging iron ladder on southerly side of crib, bridge to breakwater and wooden ladder on side of breakwater.
17. Road to landing or wharf, character of, and distance from tower,
18. Means by which the light-station may be reached, By boat from Buffalo, N.Y.

PREMISES—A DETAILED DESCRIPTION OF—CONTINUED.

19. Distance to the nearest public road, railroad station, or steamboat landing, and to which: 3/4 mile to foot of Erie St., Buffalo.

20. Distance to the nearest post office, 1 3/8 mile to Buffalo P.O.

21. Distance to the nearest village or town, 1 1/8 mile to Buffalo City Hall.

22. Facilities for reaching the light-station by public conveyance, None.

23. Facilities for reaching the light-station by private conveyance from the nearest village, town, railroad station, or steamboat landing, and the distance: 3/4 mile by boat from foot Erie St., Buffalo, N.Y.

24. Tower or other means used for supporting the lantern and apparatus, Low tower projecting from roof of "quarters" building.

25. Number of separate lights, One.

26. When first built or established, 1872

27. When last thoroughly rebuilt, repaired, or renovated, Tower built higher in 1899. Pier repaired temporarily in 1906. The superstructure of crib was entirely renewed in 1885

28. Condition at this date, Poor.

29. Shape of tower in plan, Tower, 8 sides. Quarters, square.

30. Form of tower—Cylindrical, conical, or pyramidal, Right 8 sided frusin.

31. Height of tower from base to ventilator ball of lantern, Top of crib to ball = 44 1/2 ft.

32. Height of focal plane of lantern above mean high water (on sea and gulf coasts) or mean lake level on northern lakes and rivers: 53 1/2 ft.

33. Background of the light-house, upon which it is projected, as seen from the sea or lake: Dark buildings and smoke of city of Buffalo.

34. Color of tower, White, black lantern.

35. Color of tower, how produced: Lead and oil paint.

36. Tower—Connected with keeper's dwelling, and how, or detached. Tower rises from roof of "quarters".

37. Object—Seacoast, lake coast, bay, harbor, channel, or range; for general or local navigating purposes: Marks the N. and S. breakwater, the S. side of the main (north) entrance to Buffalo Harbor. Also serves in Niagara River navigation.

38. Materials of which the tower is built: Quarters and tower of wood, lantern of iron.

39. General description, embracing—

40. Thickness of walls at base, 5 5/8"

41. Thickness of walls at parapet, 5 5/8"

42. Diameter of tower (inscribed, if polygonal) at base, 9' - 1 1/4" outside.

In 1901 besides repairing much of the superstructure, the truss work beneath the "quarters" was inclosed and rooms partitioned off under some for fog bell striking apparatus and storage purposes.

PREMISES—A DETAILED DESCRIPTION OF—CONTINUED.

General description, embracing—Continued.

43. Diameter of tower (inscribed, if polygonal) at parapet, 9'- 1¼" outside.
44. Kind of stairway and steps, 1 straight flight wooden stairs & landing, thence 1 flight wooden winding to lantern.
45. Number of landings of stairway, 1 intermediate.
46. Size of glass for glazing tower windows, 10"x20" — 4 lts. each.
47. Number of windows in tower, and size of sash, 2 — each has { 1 sash - 24"x24" / 1 " - 23"x24" }
48. Number of doors, 1 outside door to quarters) - 1 door at foot of stairs from quarters.
49. Kind of foundation and depth below the surface, A wooden crib 40 ft. sq., filled with stone, standing in 22 ft. of water and rising 13 ft. above water, supports the 20 ft. sq. stone and the inclined oak posts, 10 ft. high (which are trussed together with tie rods) on which stands the "quarters" building, from the roof of which rises the tower.
50. Character of soil at and surrounding the light-house, None
51. Soil susceptible of being protected by grass, shrubbery, ~~or trees~~:
52. Miscellaneous remarks upon tower and site: The entire station will require rebuilding before many years.

LANTERN AND LANTERN FIXTURES.

53. Order or class of lantern, 4th Order.
54. Polygonal or cylindrical, Polygonal.
55. Diameter, inscribed, to glass, 7'- 1½"
56. Number of sides in plan, 10
57. Vertical or helical bars, Vertical.
58. Height glazed, 96"
59. Number of plates in height, One.
60. Number of plates in each side, One.
61. Thickness of plates, 3/8"
62. Size of different plates, All 96½" x 26¾"
63. Number of storm panes of glass, None.
64. Unglazed side of lantern in plates and degrees of arc, None. ; ~~between~~ what bearings (~~magnetic~~ true and *from seaward*),
65. Materials of which the lantern is constructed, Wooden parapet, 6" thick, cast iron above.

LANTERN AND LANTERN FIXTURES—CONTINUED.

66. Roof, lead iron, lined with zinc.

67. Ventilator ball, lead iron.

68. Lightning-conductor spindle, Iron finnacle, about 12" long, on top of ventilator ball, with silvered point.

69. Lightning conductor, of what material; how attached to spindle; how led, and how far below the surface of dry earth, or otherwise, as the case may be: 9/16" Copper Cable, looked about neck of ventilator ball, and running down N.W. face of crib, into lake.

70. Balustrade and outside gallery, Wood, covered with galv. iron, pipe hand rail. Iron rod handrail about lantern, just below glass.

71. Lantern doors, and how fitted: Small wooden door, under glass, in parapet, on south eastorly side.

72. Floor of lantern—Of what materials: Maple wood.

73. Watchroom door leading into the lantern, and how fitted: Door from quarters, at foot of 1st flight of stairs.

74. Parapet, inside diameter (inscribed, if polygonal), 6'-5 3/4"

VENTILATORS.

75. In parapet, wall, or lower part of lantern: 4 brass, square frame, round revolving disc valves, in parapet.

76. Lantern ladders for cleaning plate glass, outside: None.

77. Curtain hooks inside of lantern—How fitted: Brass hooks screwed into lantern posts.

WATCHROOM.

78. How fitted: Quarters Building:- 18'-5½" x 18'-5½", supported 8'-6" above the deck of crib, with balcony 3'-11" wide on all 4 sides, surrounded

by tower and lantern. Space beneath is inclosed and divided into store rooms.

WATCHROOM—CONTINUED.

The Quarters Building is divided into 4 rooms, as follows:-
kitchen, fitted with stove and sink.
sitting room.
bed room, fitted with bed and closet.
pantry, fitted with closet and door to stairs leading to lantern.

79. Bell wires, or speaking tubes, or telephones for calling relief keepers—Kind: None.

80. Where led:

ILLUMINATING APPARATUS, ETC.

81. Name of maker, Henry La Paute, A Paris. Year made, Not known.

82. Marks and number on apparatus,

83. Order of apparatus, 4th Order - Diaptric, Fresnel. Inside diameter (inscribed circle) of central drum, 19 9/4"

84. Characteristic of light shown by apparatus, Fixed Red

85. If movable; time of revolution,

86. Intervals between flashes,

87. Duration of flash,

88. If fixed, or fixed varied by flashes; state arc of each fixed part in degrees: 360°

89. Number of panels in the lens apparatus, 4

90. Number of flash panels, ; arc of each, in degrees,

91. Number of elements in each panel of central drum of the lens, 5

92. Number of prisms in each panel *above* the central drum of the lens, 5

93. Number of prisms in each panel *below* the central drum of the lens, 3

94. How are the flashes produced—By the whole apparatus revolving ; by revolving belt only ;
if by panels of vertical elements revolving outside of fixed lens, state the number of such panels:

Describe how:

95. If by vertical elements, (*a*) state the number in each panel, ; (*b*) and the number of elements of fixed lens covered by the panel:

ILLUMINATING APPARATUS, ETC.—CONTINUED.

96. Pedestal, Iron, 3'- 1½" high.

97. Service table, Wood, over stairs.

98. Tube leading through the center of the upper metal ring of the lens into the ventilator ball, to carry off the gases of combustion and to assist in producing a proper draft in the lantern—Of what material, diameter, and how fitted and connected with damper tube when in place: Brass, 2 5/8" outside diameter, 2'-9" high, screwed to lens ring.

99. If revolving, revolving machinery:

100. Revolving on chariot, mercury float, or balls:

101. If a chariot, describe it and state the number and size of each pattern of wheels in it:

102. If on balls, describe the construction of the ball-raceways, whether flat surface, or semicircular or V grooves:

103. State number of balls: ; diameter of balls,

104. Revolving cord or chain—How led:

105. Length of drop tube,

106. Length of time revolving machinery will run after one winding:

107. How is the machinery protected:

ILLUMINATING APPARATUS, ETC.—CONTINUED.

108. How regulated? Describe:

IF COLORED LIGHT—

109. How is the color produced? Describe: Ruby chimney.

110. Red sectors—Between what bearings (from seaward); magnetic, if on sea or gulf coasts; true on northern lakes and rivers:

111. State where colored glass is attached, if to illuminating apparatus or to the lantern:

112. If colored glass is inside of illuminating apparatus describe its form:

LAMPS AND BURNERS.

113. Description of lamp in use and number of wicks to burner: 4th Order, high style, top of wick 14 3/8" above base, 1 round wick, 1½" outside diameter.

114. Number of ~~spare~~ lamps at the station, 3

115. Number of spare lamp burners at the station, None.

CLOSETS IN TOWER.

116. How fitted and used: 1 closet on middle landing of stairs, below lantern, 4 ft. wide, 7 ft. 6 in. high, 4 shelves.

OIL HOUSE OR ROOM.

117. Describe where placed and how fitted: Wooden closet in room beneath "quarters", 8'-6" x 2'-3", with room for 56 - 5 gal. cases of oil.

CLOSETS AND STOREROOMS.

118. Where placed, how fitted and used: Space under quarters divided into 2 rooms, one used for fuel for fog signal, the other for fire-wood, fog signal bell striking apparatus, paint storage, and oil storage closet.

119. Damp or dry, suited or unsuited to the purposes for which they were designed: —

FOG SIGNAL.

120. Kind and character of apparatus: Roberts water tube boilers, Lewsby automatic apparatus 10" steam whistles, all in duplicate.

121. How much time is required to start the signal? 45 min., if cold weather from cold water. 15 min., if fires were banked.

122. Where, or by whom, made; The Roberts Safety Water Tube Boiler Co., Red Bank, N.J.

Year made, 1900.

123. Characteristic distinction of: If whistle is disabled the bell is struck a treble blow, every 30 sec.

Blast	Silent interval	Blast	Silent interval
3 sec.	57 sec.	3 sec.	57 sec.

124. What parts of the fog-signal machinery are in duplicate? All the steam fog signal machinery is in duplicate.

125. If a bell, state (*a*) weight, 1600 lbs.; (*b*) metal, Bell metal.; (*c*) diameter, 5'-1½"; (*d*) height, 2'-7" over all. made by Meneely Bell Foundry, West Troy, N.Y. in 1871
(*e*) if struck by clockwork, state time it will run with one winding; will run 25 min. — Weight of block work made by E.D. Stevens Co., Boston, Mass. (about 450 lbs., balls 5'-10"

126. If a steam signal, (*a*) describe boiler:

(*b*) Kind: Roberts Safety Water tube boiler.

(*c*) Flue-tube or water-tube, Water tube.

(*d*) Dimensions: Rectangular case— 4'-5⅝" x 6'-4" x 8'-2" high ~~length~~, ~~diameter,~~

(*e*) Number and length of tubes,

(*f*) Diameter of tubes, 1" tubes.

(*g*) Furnace: Kind, Flat grate - ; length, 60" ; width, 43" ; height, 18"

(*h*) Total heating surface in square feet, 491.32 sq. ft. } Ratio - 27.5

(*i*) Grate surface in square feet, 18.92 sq. ft. }

(*j*) Number of grate bars, 66

The bell is hung on S.W. side, close to "quarters", in a simple triangle of oak timbers, 24 ft. above the water. The clock work is beneath the quarters.

FOG SIGNAL—CONTINUED.

(*k*) Kind of grate bars, ~~Cast~~ iron, 18 3/4" long, 1 3/4" wide, double bar.

(*l*) Kind of coal or other fuel generally used, Bituminous coal.

(*m*) Kind of safety valve, 2" spoke valve.

(*n*) Maximum pressure the boiler is capable of, Blows off ~~at~~ 125 lbs.

(*o*) Usual working pressure, 125 lbs.

(*p*) Diameter of smokestack, 20"

(*q*) Height of smokestack from grate, 39'-2"

(*r*) Height or length of steam drum, 5 ft. long. ; diameter, 1'-8" - Two.

(*s*) Kind of covering or jacket, Plate iron case, with asbestos lining.

(*t*) Present condition of boiler, Good -

(*u*) When built, 1900 - Shop Nos. 1082 & 1083.

(*v*) Where built, Red Bank, N. J.

(*w*) By whom built, Roberts Safety Water Tube Boiler Co.

(*x*) Is there a heater? Two. ; what kind? ; what size?

~~How~~ much does its use reduce the time of starting the fog signal?

127. If a steam engine is used, kind: Number of revolutions per minute,

(*a*) Diameter of cylinder,

(*b*) Stroke of piston,

(*c*) Size of steam pipe,

(*d*) When built,

(*e*) Where built,

(*f*) By whom built,

128. Whistle, ~~trumpet~~, ~~or siren~~, pressure at which blown, 125 lbs.

129. Diameter of whistle, 10" ; height, 1-20" 1-21" ; distance between orifice and edge of whistle, 2 3/4" ; single tone, Single. ; chime,

130. Disk or cylindrical siren, ; diameter of revolving part, ; when made, ; by whom made, ; number, width, and length of ports, ; revolutions per minute, ; type of governor, ; condition of revolving part,

131. Daboll trumpet, . Reed, ; length, ; breadth, ; thickness at base, ; thickness at tip,

132. Trumpet: Length, ; diameters, ; material,

133. Timing device: Leavitt Automatic Apparatus.

FOG SIGNAL—CONTINUED.

134. Height of whistle or trumpet above mean high water, 34'- 9½"

135. Direction, by compass, in which trumpet points, S 57° W. = 237°- 00'

136. If signal is blown by compressed air, describe compressing machinery:

Kind of engine, ; by whom made, ;

when made, ; nominal size, horsepower, ;

kind of compressor, ; name of maker,

State if compressor is on same bed and geared with engine, or separate and belt-driven:

137. Location, with reference to the light-house, to a particular danger or channel, or to the special object for establishing it: Adjoins light house on south easterly side. Serves to locate the south Entrance to Buffalo Harbor.

138. Distance and direction from the light-house, Adjacent on the easterly side.

139. Water supply for it, Elevated iron tank, bottom 7'-4" high, 4'-6" dia. x 5' high. = 595 gal. = 19 bbls.

140. How it is reached from the light-house: Iron steps inside fog signal house, up to the balcony above quarters.

141. Description of fog-signal building or buildings: Is special building for bell. The steam fog signal occupies a one story brick building on the easterly side of crib, overhanging side of crib 3 ft., outside dimensions 30'-6" x 16'-6" corner posts about 13 ft. - two windows on N.W. face, 3 on N.E. face, large glass door on S.E. face. Concrete pylon Entrance covered with corrugated iron. Sound reflector 9'- 1½" dia., pinnacle rod at S.E. end.

DWELLINGS FOR KEEPERS.

142. Location, with reference to the light-house tower: No dwelling provided. When on watch the keepers occupy the "Quarters" beneath light tower, See No. 78.

143. Coloring:

144. Materials of which built,

145. Number of rooms in each dwelling,

146. Number of keepers and assistants to each dwelling,

147. Outhouses,

148. Coloring:

149. Paths or walks on the premises,

DWELLINGS FOR KEEPERS—CONTINUED.

150. Area of premises inclosed, and how:

151. Area of garden,

152. Area in timber or shrubbery,

153. Area susceptible of profitable cultivation,

154. Area cultivated or prepared for cultivation,

155. Character of adjacent surrounding country—Soil, sandy, clay, marsh, swamp, wood, fast ground, or shifting sands:

WATER FOR FOG SIGNAL, DRINKING, AND DOMESTIC USES GENERALLY.

156. How procured, From Lake Erie {For fog sig.—By steam pumps. For Quarters—By hand pumps.

157. Quality,

158. Quantity ample or not for the station at all seasons of the year, Ample.

159. Liable or not to be injured by the inroads of storm tides and seas, Not liable.

160. If rain water in tanks or cisterns, what precautions have been taken to insure its purity?

161. Capacity of tanks or cisterns, and where placed: } In Fog Sig. House. Tank of boiler

162. Tanks or cisterns—Of what material made: } plate, 4'-6" dia. x 5'-0" high, capacity 19 bbls. Supplied by duplicate pair of Blake steam pumps, 3" x 2" x 3", double cylinders.

WATER FOR FOG SIGNAL, DRINKING, AND DOMESTIC USES GENERALLY—CONTINUED.

163. Is there a distilling apparatus at the station?

Name of maker:

Capacity, ; when installed, ; condition, ;

efficiency,

164. If from a well, describe and give depth:

165. Diameter,

166. Lined or not,

167. Water obtained by pump or bucket, For "quarters", by bucket from Lake.

168. Distance from keeper's dwelling,

HEALTHFULNESS OF THE LIGHT-STATION AND VICINITY.

169. General opinion in regard to the healthfulness or unhealthfulness of the light-station and vicinity: Healthful.

170. Diseases—What are most prevalent at the station and in the vicinity?

171. Do they prevail at particular seasons of the year, or not?

172. Are there any local causes, such as swamps, marshes, etc., in the immediate vicinity of the light-house which are likely to be the cause of these diseases?

HEALTHFULNESS OF THE LIGHT-STATION AND VICINITY—CONTINUED.

173. Would draining or other artificial means employed on the light-house premises be likely to improve the sanitary condition of the light-station?

LANDING, WHARF, BOATHOUSE, AND ROAD TO THE LIGHT-HOUSE.

174. Describe: The keeper's boat is hoisted out of the water on the south easterly side of crib, by means of a "Strachan" patent boat hoisting apparatus.
When ashore the boat is stored in the U.S. Engineer's ferry slip, opposite the foot of Erie St., Buffalo River.

175. Distance and direction from light-house:

176. Hoisting engine, what kind?

Number of revolutions per minute, ; diameter of cylinder, ; stroke,

Kind of boiler:

177. MISCELLANEOUS REMARKS UPON THE GENERAL CHARACTER AND CONDITION OF THE PREMISES, TOWERS, BUILDINGS, AND ILLUMINATING APPARATUS AT THIS DATE.

The pier and quarters building are in poor condition. The station has been a "growth" and therefore is not well planned, and the whole place will require rebuilding before many years.

Respectfully,

W. D. Fiske.

Colonel Corps of Engineers, *U. S. A.,*

Engineer, Tenth *Light-House District.*