

Gander 1940: Technical details

(by Robert G Pelley 2021-05-08)
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The present article is basically an extract from a book by John Walter Wood, entitled "Airports, Some Elements of Design and Future Developments", pp 32-33 (Couraid-McCann Inc, NY 1940). It is supplemented by comments, information and photos from other sources.

The island of Newfoundland lies closer to Europe than any other part of the North American continent, and on the direct air-line route between New York and Ireland. Newfoundland is a British colony whose executive power is vested in a governor appointed by the British Crown.

AIRPORT

The airport was conceived by the combined talents of the Newfoundland Government, the British Air Ministry, and Imperial Airways engineers, with engineers of several organizations in the United States acting as consultants.

The airport at Hattie's Camp has paved area of 154 acres, which is seven times the paved area of the landing mat at the Cleveland Municipal Airport and only less in area than the 175 acres of pavement of Chicago's Municipal Airport.

Choice of site was partly due to its freedom from fog, fog being practically unknown inland from the Newfoundland coast.

In preparing the barren land site, over 800 acres of forest land were cleared, several million yards of earth and shale were moved, a small hill was leveled, and a lake was filled in.

RUNWAYS.

Of the four paved runways, one measures 1 mile by 1100 feet and three measure 4,500 by 600 feet. The surfacing consists of 4-inch consolidated Colas asphalt prernix, laid in two courses and double-surfaced,

DRAINAGE.

Owing to the extent and density of the clay subsoil, impervious runway surfaces were built, and surface drainage is used exclusively. Each runway has a concrete gutter along its lower aide, which in turn empties into large trunk-line drainage structures.

AIRPORT LIGHTING.

An unusually complete, up-to-date, and brilliantly lighted lighting system has been installed.

All electric power is provided locally, mostly by direct Diesel power. Besides the four main units there are two emergency, or stand-by, units for the continuance of essential lighting and radio facilities should the main plant become inoperative. A complete power-plant machine shop permits repair on the spot of any possible damage with a minimum of delay.

It is said that the Newfoundland Airport has the most brilliantly lighted wind-T, the longest boundary-light circuit, the largest incandescent contact lighting, and the greatest sodium contact-lighting system in the world.

The effective range of the rotating light beacon, of some eleven million candle power, is 85 miles in normal weather. On account of its brilliance, it is turned off on the approach of a plane, while the European-type neon beacon, of some three and a half million candle power mounted directly above the rotating beacon, burns steadily and gives ample indication. The combination of the two beacons (as shown below) is by far the most powerful assembly on any airport.



Gander beacon
(this became the name of Gander's local paper)

The Westinghouse wind-T, mounted at airport level, measures 22 by 14 feet. It is lighted by fifty-two 25-watt lamps, each in a separate fixture having a green surrounding globe. There is a position-indication system which registers on an instrument on the control-room desk. Thus comparison is possible of wind direction at airport level with the meteorological instruments, nearly half a mile away, mounted 60 feet above airport level.

Newfoundland Airport 1938.



Hand-coloured photo by the late Fred Smeaton

The boundary-lighting system is in two sections, each complete in itself. Every alternate light in the system is on an opposite circuit, and this duplication is carried throughout, from the main switchboard, through separate controls on the desk, separate transformers, and entirely separate cables. Any failure anywhere in one circuit cannot affect the alternate circuit.

Boundary lights are special Westinghouse units. The prisms in the enclosing globes direct the aviation yellow light, used for distinctive indication, so that maximum candle power is directed toward the line of vision of approaching planes. They are mounted on self-disconnecting light cones, which will disconnect the light plug, thus protecting the circuit, should a plane or vehicle strike the light. An extension stem permits raising the light from its normal position of 3 feet above field level to nearly 6 feet in case of deep snow.

The contact lights, spaced at 50-foot intervals along the center lines of all runways, are imbedded in the pavement with their tops protruding 2 inches.

On the main runway, which is equipped with two-way radio approach aids, the first 1,200 feet at each end have contact lights with 4,000-lumen lamps and green lenses, while the middle 2,400 feet have contact lights equipped with 6,000-lumen sodium lamps - which have about ten times the visibility range of other similar units of equal power consumption under atmospheric conditions normally termed "low visibility." In the center of the 2,400-foot section of contact lights is a cluster of ten sodium-equipped units.

The other three secondary runways have similar lighting equipment, except that all contact lights have incandescent lamps of lower candle power and that the arrangement of lights is somewhat different.

Other sources, notably a Gander pioneer, the late Mr Fred Chafe, reveal that the specialist who oversaw the installation of the lighting, the wind-tee, beacon and similar equipment was a Mr Robert Scharmer from Westinghouse. The Newfoundland supplier of the Westinghouse parts was the firm of Heap and Partners in St,John's.

Some of the electricians who did the actual installation, other than Mr Chafe, were Bobby Mercer, Dennis Penny, Bob Moores, Cecil James and Mike Woodford.. The electrical foreman during the early construction was Reg Bursell.

The total airport area is over 1000 acres in extent, of which 350 acres are utilized for landing areas and approaches.

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Much thanks to Mr George Fuller, Quebec aviation historian, for supplying the initial information and reference for this article.