'Tower of Light' Beacon Produces 12 Billion Candlepower

AMONG the millions of lights that are attracting unprecedented crowds to the hundreds of exhibits at the New York World's Fair every night, there is one beam that thrusts through the skies for an indeterminable distance with the intensity of more than 105 million 100-watt lamp bulbs.

This beam emanates from the Tower of Light Court in the pavilion of the investor-owned electric power and light industry. It is the biggest concentration of exposition lighting in the world. At peak brightness, each of the 12 beams is approximately three times as bright as the surface of the sun.

12 'Xenon' Arc Lamps

For the central beam at the Tower of Light exhibit, General Electric Co. provided a bank of 12 "Xenon," short-arc lamps, each with an intensity of 1.08 billion candlepower. GE developed the 5-kw Xenon lamps for solar simulators in space research.

The visibility of the lights depends on atmospheric conditions, especially the height of cloud layers.

The intensity of the beam can be realized by the fact that a typical good reading lamp produces 50 footcandles of illumination on the printed page held at a comfortable distance under it. The beam from the Tower of Light produces the same illumination at a distance of five miles.

As another example, Chicago's State Street, the brightest lighted street in America, has an illumination of 15 footcandles. The Tower of Light beam produces the same illumination at 5.6 miles.

The beam is 18 feet in diameter at 1500-foot altitude, 30 feet at 2500 feet, and 43 feet at 3500 feet.

The bulbs, which have quartz jackets, are 3½ inches in diameter and 19½ inches high. The cathode and anode material is tungsten, and the arc gap is 8 mm. Each of the 12 Xenon lamps is positioned in the center of a 60-inch, parabolic reflector.

These short-arc lamps reach full brightness almost immediately after the arc is struck. Instantaneous restarting is possible.

Engineers from General Electric and T. F. Jackson, the wiring and engineering sub-contractors, installed the lights in five weeks.