

Abstract

In this work fiber optic lighting system (FOLS) operation is checked to determine its efficiency and performance. This fiber system consists of high intensity discharge metal halide lamp connected to fiber bundle, which guide light to several lenses. These lenses illuminate the desired place. It is shown that this (FOLS) is more preferable since it is less energy consuming. It has also ultra violet (UV) and infra – red (IR) filters. This (FOLS) is also more safe and flexible and can be also easily maintained. It can be also used in water and dangerous places like that in which humidity is large.

Fixtures were placed in suitable locations and then connected to the illuminators by the fiber optic cables. Where their intensity were found to be changed with the radius and length of the optical fiber.

From the calculation it is concluded that the length and the radius of the optical fiber plays an important role in energy losses including absorption and dispersion of the light intensity from core of fiber optic cable.

As the length of the fiber optic cable increases the absorption increase, while increase in the radius of the fiber increases dispersion and in turn decreases light intensity. Those two factors are the most important for controlling the use of the optical fiber.