

## **Overview:**

### **Building Name:**

The Lighting Quotient Headquarters, also known as “The Web Shop,” as a salute to the building’s history.

### **Location and Site:**

114 Boston Post Road, West Haven, CT

### **Building Occupant Name:**

The Lighting Quotient: a parent company to Elliptipar, Tambient, and Fraqtir

### **Building Function:**

The building consists of two large offices for engineering, research and development, applications, marketing, and sales. Manufacturing, including painting, assembly, testing, and shipping, takes place in the attached factory.

### **Size:**

100,000 SF. The factory floor is roughly 75,000 SF and the offices and circulation space makes up about 25,000 SF. The factory is one story, and the office is three stories.

## **Architecture:**

### **Design and Functionality:**

The building was designed in the early 1900’s in an Industrial Italianate style. The blue stone sills, corbelled cornices, and archtop fenestrations exemplify this style. The factory space presents itself with much in the way of daylight, including an expansive array of sawtooth fenestrations. The office space is embellished with restored woodwork, including beautiful floors in the lobby, and formidable columns and beams in the open office.

### **Building Enclosure:**

The facade of The Web Shop is almost exclusively brick, laid in a running bond fashion. The only exception is the blue stone sills. The roof is coated with a tar and gravel built up roof system. This also coats the exterior of the sawtooth monitors. Insulation is scarce, as the building is over a hundred years old. Much of the perimeter walls are solid brick through to the interior.

## **Building Systems:**

### **Electrical:**

The Web Shop receives its power via overhead utility lines provided by The United Illuminating Company, or UI for short. The voltage comes onsite at 4160V, where it splits into two sets of transformers, providing two service entrances. It would seem ideal in this circumstance for once service entrance to power the factory, and the other to power the offices. However, this is not the case, as the electrical system has had to change with the evolution of the company’s needs over the years.

The first service entrance feeds a set of 480V transformers located on an overhead rack outside of the Utility Room. The second service entrance enters the Brick Vault Room, where it feeds 3-phase 240V and 1-phase 120/240V switchgear. A third service entrance exists but is no longer in use. It consists of 240V overhead service from UI. The service entrance was used to more accurately bill a previous subtenant for their electrical usage. However, The Lighting Quotient now utilizes the space using power from the 4160V service.

## **Mechanical:**

### Air Conditioning Description:

The existing system is comprised of (7) horizontal air handling units mounted within the space of the roof structure. Each unit consists of a return intake/filter section, steam coil, chilled water coil, supply fan and supply air duct work generally extends from the east side of the plant to the west. Operating airflow, and heating and cooling output is not known.

The (2) most southern AHUs do not have steam control valves. The remaining (5) AHUs have control valves interlocked with associated temperature sensor attached to the condensate return line. All (7) AHUs do not have chilled water control valves.

Each AHU is controlled by a local, non-programmable thermostat. The fan cycles as required based on the temperature set point.

### Heating Plant:

The heating plant consists of a 9,800,000 BTU gas fired steam boiler. The boiler nameplate indicates a manufactured date of 1958. However, the gas burner is relatively new. The boiler operating pressure is 15 psi. The boiler operates through a local boiler control panel.

Steam condensate is collected in a 1000 gallon steam condensate duplex pump receiver set. The pumps are electrically driven. The steam condensate duplex receiver operates through a float switch control system.

The steam system serves the factory heating load through steam coil per AHU as well as the heating load associated with the office building through steam to hot water heat exchangers.

Steam and steam condensate piping runs adjacent to the east exterior wall in the factory. Branch piping extends to each of the (7) AHUs. It is suggested that the steam piping is chemically treated.

### Cooling Plant:

The cooling plant serving the factory consists of a well water pumping system. A vertical turbine pump supplies approximately 150 gpm of chilled water to (7) AHU chilled water coils throughout the factory. Return water discharges to the storm sewer.

Chilled water supply piping and chilled water return piping is mounted to the east exterior wall in the factory. Branch piping extends to each of the (7) AHUs.

## **Structural:**

The exterior wall structure consists of load bearing brick. The interior is supported by 8" wood columns. Other than retrofitted transfer girders where columns were removed for large equipment, the entirety of the roof structure is wood framing.