



## Revolutionizing The Air We Breathe

### UVC LED Technology in Dehumidification

Located on a 17-acre site at the mouth of Bayou Chico in Pensacola, Florida, the Pensacola Yacht Club, which was chartered in 1908. This 9,412 square foot facility is considered one of the south's Finest Yacht Clubs. Throughout the years, the Yacht Club has undergone several renovations and upgrades and until recently, had not found a permanent solution to the moisture issues inside the club. The issues are directly related to the area's highly humid climate and shallow water tables. Mold and musty odors, along with the health issues these conditions present, were an ongoing concern.

"The club is a beautiful facility with amazing views of Pensacola Bay, but the facility has been riddled with issues due to excess moisture for decades. Mold particularly, and related health issues, as well as the structural integrity of the building due to wood rot, have been a concern for some time, said Tom Pace, Pensacola Yacht Club Commodore. We needed a solution that was a permanent fix, not just a band-aid." In April 2021, a customer of LASER COMPONENTS, USA, Inc. was contacted to assess the facility and propose a solution for permanent moisture control.

Concerns with COVID-19 were raised as the health and safety of the members and guests is the club's greatest concern. Providing the most minimal-risk environment by eliminating airborne pathogens as quickly and efficiently as possible was necessary with continuous air disinfection.

A two-fold solution was proposed – commercial dehumidification to address excess moisture to prevent mold, future wood decay and musty odors along with a powerful UVC light array to provide continuous, proactive air disinfection and protection from COVID-19 and its variants.

### The Solution:

In April 2021, data collectors were placed throughout the building, as well as in the crawlspace to record temperature and humidity over a 4-week period prior to installation. Data collection is a look at the baseline of conditions that exist and problems that need addressed. Average Temperature was 69.4F and average indoor relative humidity was 67.9%, well above the mold threshold of 60%.



In 2021, 5 commercial dehumidifiers were installed throughout the facility, including crawlspace. The crawlspace was fully encapsulated with a vapor barrier and the spaces were conditioned. The crawlspace application is important in humid climates as humidity seeks cool space, as crawlspaces become a haven for moisture and mold, which is wicked up through the floors into the indoor space. Within the ductwork of the dehumidifiers, UV-C light arrays were installed to provide continuous air disinfection. Fans within the dehumidification equipment create continuous airflow to proactively address the indoor air, and the kitchen area, has a stand-alone air purification unit utilizing the same UV-C light array, provides continuous, proactive protection from airborne pathogens.

The light arrays are not ordinary UV-C lights, so the air is continually moved through the array and disinfected air is dispersed into the indoor space for real-time disinfection, 24-7-365, resulting in a very proactive approach that prevents mold from growing. Like any other pathogen, mold needs moisture to survive. When you control the indoor environment, and remove excess moisture, you prevent it.

### The Goal(s):

Bring indoor relative humidity down to healthy levels, between 40% – 60% (ideally 50%) to prevent mold and eliminate musty odors while promoting superior indoor air quality and energy savings. Research has indicated 50% RH is also ideal for reducing the transmissibility of virus, including COVID-19.

Provide a solution for continuous, proactive air disinfection creating a minimal risk environment for members, guests, and employees.

### The Results:

Within weeks of the installation, indoor relative humidity moved to healthy levels. Over the 45-day period following installation, the average temperature was 71.2F and the indoor RH was 57.7%. Currently indoor RH averages 51% and temperature averages 72.3F. Note the inverse effect – as the excess moisture is removed, RH decreases and temperature increases. A dry space is naturally cooler and more comfortable with increased energy savings. The overall feel and smell of the facility has vastly improved, and the environment is much more comfortable.

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