



On when
it counts.



Duncan Aviation Enjoys Dramatic Visibility Improvement, Energy Savings with Dialight LED Upgrade

Since 1956, Duncan Aviation has grown to become the world's largest privately-owned business jet support facility. With nearly 40 locations in the U.S., Duncan Aviation provides world-class aircraft acquisition and sales, airframe and engine maintenance, avionics installations, interior refurbishment and customization, and avionics/instrument/accessory repairs with



Dialight Vigilant High Output High Bay in a Duncan Aviation hangar

the personalized attention and responsiveness of a family-owned business.

In addition to outstanding craftsmanship, the company prides itself on its leadership in technical innovation and environmental stewardship, making Duncan Aviation one of the most sought-after business jet service providers in the world. Precision and attention to detail are critical for Duncan Aviation, right down to the proprietary paint color on the floors of its Battle Creek, Michigan, site. This 8-hangar, full-service MRO facility supports the needs of government and business operators and other service providers around the world.

The Challenge: Poor-quality, Expensive Lights

Originally lit with 1,000W metal halide fixtures, Hangars 2, 4 and 8 suffered a visibility problem. Not only were the lights less-than-desirable when it came to CRI and tended to yellow with age, they were also expensive to operate. In a bid to reduce operating costs and improve visibility, Duncan Aviation tried upgrading to 775W metal halides, but the results were still not spectacular.

With just 45-50 foot candles on the ground, Duncan Aviation technicians often had to work using headlamps to see clearly. Not to mention, the drab color of the metal halides made the overall appearance of the hangars somewhat dingy, which detracted from the facility's wow-factor—a significant issue for a company whose outstanding attention to detail and quality craftsmanship are its hallmarks.

In Hangar 4, a paint spray facility, the challenge was even more pronounced. Because there were no Class I Division 1 certified metal halides available, the fixtures were mounted above a piece of suspended Plexiglas, sealed off from any paint fumes and spray. That meant that the combination of poor light quality, deteriorating output as they aged and over spray on the Plexiglas shield, created a very tough visibility problem.

Lighting maintenance was also becoming a chore. The metal halides, which lasted "not nearly as long as promised," according to Rob High, Facility Services Electrician with Duncan Aviation, required new bulbs every 14-15 months. With nearly 50 fixtures per hangar, that meant the company's electrician was changing bulbs out once or twice a month in each building—hardly an efficient use of his skill or time, especially considering that access to some of the lights was quite cumbersome, which added to the time sink.

The Solution: Dialight High Bay LED Fixtures

Looking to improve the quality and efficiency of lighting, Duncan Aviation began looking for a better solution. In addition to light quality and energy savings, the company also wanted fixtures with a round form factor that would fit its existing recessed lighting setup, where the fixtures would mount flush into the ceiling for a clean, aesthetic look. Duncan Aviation tested several LEDs, but they not only failed to meet the company's stringent specifications, but they also didn't offer the round form factor required.



Duncan Aviation interior

At the suggestion of Team Electrical Sales, Duncan Aviation ran a four-fixture trial of Dialight High Bay LEDs in Hangar 3 and were extremely impressed with what they saw. "We just fell in love with the quality of light," Ryan Herbstreith, Facility Services Manager said.

The world's most widely-installed LED high bay, Dialight's high-output High Bays offered the high-clarity, crisp, clear, white light Duncan Aviation required in an extremely energy-efficient fixture. Drawing just 480W per fixture, the 60,000 lumen Dialight High Bays promised to slash energy consumption by 44% per fixture, while providing the perfect form factor to mount flush into the existing metal halide recessed holes in the ceiling. As an added bonus, the 10-year warranty on each fixture meant lighting maintenance would essentially be a thing of the past.

The Results: Phenomenal Lighting

Duncan Aviation replaced all 49 metal halides in Hangar 2 with Dialight 60,000 lumen High Bays, and in Hangar 4, the paint spray building, they were able to replace 26 of the 1,000W metal halides with just 17 Dialight Vigilant 60,000 lumen LEDs, lowering the fixture count while still delivering a dramatic improvement in visibility. In Hangar 8, it took just 21 60,000

lumen LED High Bays to light the entire 20,000 square foot space. "It's absolutely amazing, like a night and day difference," Herbstreith said. "The guys love it, and they want to know when we're going to replace the lights in Hangar 3, and all the other hangars."

Light readings inside all the hangars are now topping 105-115 foot candles—at least double the light efficacy on the ground—while using fewer watts per fixture. Because Duncan Aviation no longer has to worry about changing out light bulbs every few weeks, they've been able to eliminate the cost of ordering



Close-up of mounted 60k High Bay

bulbs by the case and the time spent changing them—about a \$2,300 annual savings. Not to mention, it's freed up the electrician's time for more valuable work, like wiring new circuits and equipment. And, because of the high-efficiency operation and no need to dispose of used bulbs, the Dialight LEDs are a greener, more environmentally-friendly solution, to meet Duncan Aviation's sustainability mission as well.

"Our paint department especially loves it because it's a more natural light," Herbstreith said. "They want to do a lot more of their detail work in Hangar 2 because the light is so crisp, and it makes new paint just really pop and looks amazing."

Inside that paint shop, Duncan Aviation chose to install a fully integrated dimming system that provides even greater energy savings without compromising safety—something that was impossible with the previous metal halides. Using a 1-10V dimming cable wired into the lighting control at the panel box, married to a Rockwell PLC located outside the Class I Div 1 environment, the lights can be dimmed as much as desired when they're not needed, saving electricity and money in the process.

Not only do the lights improve visibility for Duncan Aviation's work crews, they also create an outstanding impression for visitors. Because quality workmanship and innovation are paramount to the Duncan Aviation brand, the next-generation LEDs fit with the brand aesthetic.

"We have a number of customers that come here for tours in considering whether to bring their work to us, and we have some who have a representative on-site at all times during the work process," Herbstreith said. "The aesthetic of our buildings is very much a part of the Duncan Aviation experience, and it contributes to a greater appreciation for the quality of our product. The view in Hangar 2 with the Dialight LEDs just knocks your socks off now. That's what the customer expects to see from us, and the Dialight fixtures deliver, in functionality, efficiency and overall presentation."

Because of the success with the upgrades in Hangars 2, 4 and 8, Duncan Aviation plans to upgrade Hangar 3 with 49 new fixtures, followed by two more hangars as soon as possible.

To learn more about Dialight's complete line of LED lighting solutions for aeronautics and other high bay applications, visit www.Dialight.com.

Project Snapshot:

- Duncan Aviation, Battle Creek, Michigan, facility
- Two maintenance hangars, one paint hangar
- Outdated, 775W metal halides emitted poor quality light, were expensive to operate
- In hangar 4, (17)60K lumen Vigilant High Bays replaced (26)1,000W metal halides
- Replaced an additional (49) 775W MH fixtures with (49) 480W Dialight LED 60K High Bays in hangar 2
- In hangar 8, replaced (12) 1000W metal halides fixtures with (20) 480W Dialight LED 60K High BaysCut energy consumption by 49%
- 2X footcandle improvement
- \$2,300 in annual maintenance savings
- Dramatic improvement in visual clarity and light quality
- A decade of zero maintenance with 10-year full performance warranty

Before and After Photos of Duncan Aviation



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