

COMMERCIAL HVAC UV-C GERMICIDAL LIGHTING INSTALLATION



UV-C Air Handling Unit Retrofit for Indoor Air Quality & Coil Sanitation

Project Highlights:

- Commercial HVAC UV-C retrofit
- Air handling unit electrical installation
- UVGI lighting integration
- Commercial electrical construction
- Indoor air quality improvement
- Mechanical and electrical coordination

Project Overview

During the COVID-19 pandemic, BD Electrical installed ultraviolet germicidal irradiation (UVGI) lighting systems inside commercial HVAC air handling units to support improved indoor air quality and cleaner HVAC equipment.

The UV-C lamps were installed within the air handling units to continuously irradiate the cooling coils and other internal components where moisture can promote microbial growth. These systems help reduce mold, bacteria, and biofilm accumulation on HVAC components while improving long-term system performance.

Scope:

- Installation of UV-C germicidal lighting systems
- Electrical power for UV fixtures
- Fixture mounting inside air handling units
- Wiring and control integration
- Equipment startup and testing
- Coordination with HVAC contractors

The Challenge

Commercial HVAC systems operate in environments where cooling coils and drain pans remain damp for extended periods. Over time, these conditions can allow mold, bacteria, and other biological contaminants to accumulate on coil surfaces.

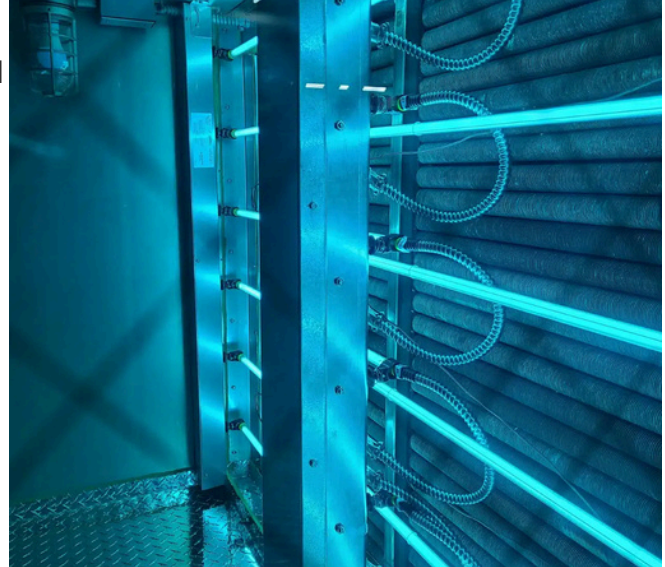
During the COVID-19 pandemic, many facility owners also sought additional technologies that could help improve indoor air quality as part of broader building health strategies. Installing electrical equipment inside operating air handling units required careful planning due to limited access, confined workspaces, and the need to protect sensitive HVAC components.

Benefits of UV-C HVAC Systems

Properly designed UV-C systems can provide several operational benefits:

- Reduced mold and bacterial growth on cooling coils
- Cleaner evaporator coils and drain pans
- Improved indoor air quality
- Lower maintenance requirements
- Improved HVAC efficiency
- Reduced airflow resistance across fouled coils
- Longer equipment service life

It's important to note that the primary benefit of many in-unit UV-C systems is keeping HVAC components clean. Systems intended to disinfect moving airstreams require different engineering, lamp intensity, and exposure time than coil irradiation systems.



Our Solution

BD Electrical installed UV-C germicidal lighting inside the air handling units, positioning the fixtures to continuously illuminate the cooling coils and surrounding surfaces.

The installation included:

- Secure mounting of UV-C fixtures
- Dedicated electrical power
- Protected wiring methods
- Clean routing of electrical components
- Coordination with mechanical systems
- Functional testing and commissioning

The completed installation provides continuous ultraviolet exposure to critical HVAC components, helping keep coils cleaner between maintenance intervals while supporting overall HVAC performance. Studies have shown that UVGI systems can reduce biological fouling on cooling coils, improve heat transfer, reduce pressure drop, and lower fan energy consumption.

