

MOLD REMOVAL WITHIN WINDOW AC UNITS AT UNIVERSITY OF ILLINOIS

CLEAN-SANITIZE-PROTECT PROTOCOL

Challenge

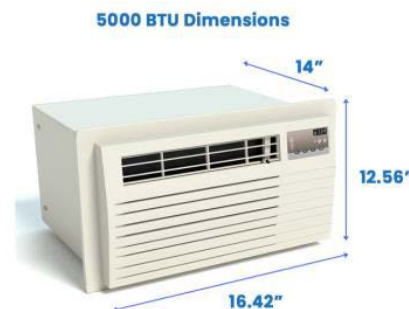
In 2022, mold found within window-mount air conditioner housing has been causing unhealthy dormitory environment conditions, as well as repeated, costly maintenance work to clean or replace thousands of AC units due to reports of mold spores & unpleasant smells.

The customer defined a successful improvement as:

1. Removal of mold & spores from each AC enclosure, followed up by ATP* measurements proving sanitary surfaces & system
2. Subjective reduction in mold odors emanating from AC vent into room
3. Neutral odor, clean appearance

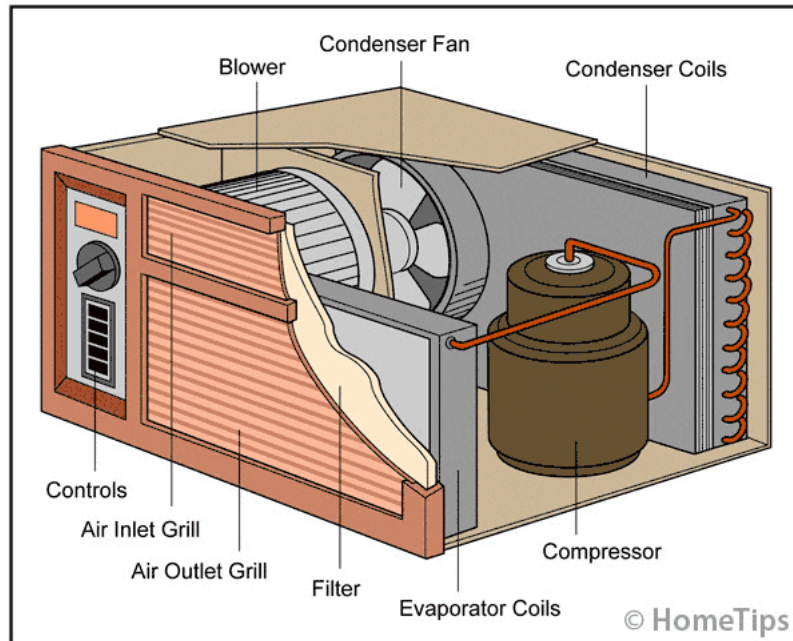
*(*ATP refers to a adenosine triphosphate test to measure microorganisms on a surface.)*

The AC wall units are typically mounted in semi-permanent mounts, often not in easily accessible windows where the unit can be easily removed. These installations include specially designed insulation, mounting hardware, and trim.



Cleaning, Sanitizing & Protecting Protocol: a 4EverGuard team cleaned the AC units in our CSP process (**clean-sanitize-protect**), utilizing our products *Safe-T-Gard* and *Titania* (see our website for in-depth description of our CSP protocol).

These units contain a basic refrigeration cycle all in one box, as shown in illustration below.



Actions Taken

- We've developed a 10-step process to disassemble, clean, sanitize and protect various portions and mechanisms within a window air conditioning unit. Some of the details are below:
- Clean all surfaces with *Safe-T-Gard*, our non-caustic dual-quat cleaner & disinfectant, to remove residue & destroy pathogens. This ensures that the surface is properly prepped and acceptable for the application of long-lasting & long-active *Titania* surface preservative. Make sure no obstructions exist within housing: turn the air conditioner fan on HIGH and spray *Safe-T-Gard* onto the evaporator coil using the patented Omnifog's white nozzle applicator, powered by a basic shop blower. From a distance of 18" to 24", spray *Safe-T-Gard* into the coils in five (5) bursts each lasting five (5) seconds, waiting about five (5) seconds between intervals.
- Short bursts allow the product to be drawn into & throughout the coil structure efficiently. If *Safe-T-Gard* is sprayed on too heavily, it will condense and not sufficiently reach and disinfect the AC blower housing. *NOTE: It is important to draw Safe-T-Gard through the same path as the conditioned air travels; this will*



inhibit mold and biofilms from growing on these surfaces as well as neutralize air impurities.

- Next, turn the AC unit OFF, and UNPLUG from power outlet. Completely remove the front frame that holds the inlet & outlet grills, unplugging the unit's hand controls, if necessary, to remove the grills completely. Take the frame with inlet & outlet grills as well as the filter and wash them thoroughly with *Cyclone* and water. We recommend washing in a sink to get best results, as preparation for the *Titania* application.
- Cleaning the accessible areas of the AC unit. We require use of *Cyclone* multipurpose cleaner as the initial cleaner, applied by a spray bottle. Spray the areas with *Cyclone* (non-diluted), and let it dwell for a minimum of 60 seconds, then wipe clean with a clean microfiber towel or cloth. EPS foam is porous & requires two or three applications of *Cyclone* to clean.
- Sanitizing the accessible areas of the AC unit. We require use of *Safe-T-Gard* as the disinfectant and will be applied by a spray bottle. Spray the areas *Safe-T-Gard* (undiluted); let dwell for a minimum two (2) minutes, then wipe clean with a clean microfiber towel or cloth. Again, as EPS foam is porous requires two to three applications of *Safe-T-Gard* to disinfect properly.
- Once the accessible areas are clean & sanitized, replace the frame onto the housing, use the original white Omnifog nozzle applicator to apply a single coating of *Safe-T-Gard* onto the frame, grills and filter that has been cleaned thoroughly; allow all items to dry -this typically requires 2-3 minutes.
- Check with ATP measurement to assure desired level of sanitization.
- Applying *Titania*. Do not turn on the AC unit. Utilize the gray *Titania* Omnifog nozzle & applicator to apply *Titania*; spray onto surfaces from a distance of 18" to 24" onto all accessible substrates, on the front of the unit as well as onto the grills & the filter, using a crosshatch pattern (left to right within a defined area, repeated by up and down in the same area.)
- Replace the grills and the filter; turn on the AC unit for five (5) minutes, then shut off.

Ease of Application & Time and Material Estimates

- 3 oz. Cyclone per AC unit - This includes cleaning of frame, grills, and the filter in a sink, as well as the mounted AC unit cleaning.
- 2.5 oz. SafeTGard per AC unit - This includes surface cleaning by hand on mounted AC unit as well as fogging coils and other surfaces)
- 1 - 1.5 oz. Titania per AC unit - volume depends on AC unit size/BTU size
- 15 minutes of labor per unit - ten (10) minutes for the mounted unit, cleaning, sanitizing, and Titania application; and about five (5) minutes for cleaning of frame, grills and filter.
- A team of two will work best.



Case Study Results

What was achieved?

- ➔ Bacterial activity in the *Titania*-treated AC units consistently measured either at or within a satisfactory margin of medical-grade cleanliness. Customer is highly pleased.

Because the university maintains over 3000 AC units, savings in time and materials is substantial, and room air quality and elimination of odors and dangerous mold spores will increase student health and comfort during Spring, Summer and Fall semesters.

We want your business. Let's chat about your facility's janitorial pain points.

Call Jon Rehorst at 4EverGuard at (262) 620-3064 jon@4everguard.com

or Luis Wassmann, at (305) 215-3900 luis@4everguard.com