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WOODSPRING SUITES AIR QUALITY TESTING AND REVIEW

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Started testing process on September 9, 2021 to improve air quality with emphasis on odor control. Ran test on 5 adjoining rooms on 4th floor and half of hallway to elevator using (1) STAT unit in each room and (3) STAT units in the hallway. Took pre swab tests in each room and one in the hallway before installing STAT units. After units ran for one week we followed up with a post swab test and sent them in to an independent lab.

Test results came back from EnviroScreening with a reduction in colony forming units from 65% to 85% in the rooms. In the hallway we had an 87% reduction. We would expect higher reduction numbers the longer the STAT units are installed.

After reviewing our Awair Omni air monitor data we saw repeated high levels of VOC's, and CO2 that matched times when cooking breakfast and supper. Humidity levels followed a similar cycle when showering. The high humidity levels and cold outside air temperature provided a good mold growing environment in the PTAC units and around the adjoining PTAC frame. Mold was also noted in several rooms growing along the carpet next to the exterior wall.

All of this information led to the proposed cleaning and coating of the PTAC units to help lower these three contaminants. We also looked at air flow in the rooms and checked the exhaust fan operation in the restroom in rooms we were testing. We found that every room we tested the exhaust fan control knob was missing or the fan did not operate when turned on. This explained the high humidity level swings that we were seeing on the Awair Omni monitor.

Our testing protocol included cleaning the units with Simix Cleaner, Coating the coils with Simix Ceramic coating, and adding ICE COLD to the refrigerant to eliminate oil fouling of the interior system.

After running tests on 7 units we came up with two units that we could use their data. The first unit tested we were trying to shut off the Hobo Logger in between each test. This resulted in the logger not coming back on line and not recording data we needed. We also had the data collection set at every 10 seconds. We found that testing using this wide of

sample range could miss critical data from being properly recorded. After the initial 4 units were tested we changed our protocol from every 10 seconds to every second. We also changed one of our temperature sensors from outside air to room air temperature. This gave us a much more accurate delta t across the coil to indicate efficiency of the unit after cleaning, coating, and after adding Ice Cold to the refrigerant.

During the testing we found the following conditions in every unit we tested.

Since we were looking at indoor air quality we looked at the entire air supply system in each room that we tested. We looked at the following components:

Condition of air filter

Condition of evaporator coil

Condition of evaporator fan

Condition of outside air damper screen and position

Condition of condensing coil

Condition of condensing coil fan

PTAC in wall housing tipped toward outside to allow for proper drainage.

Every unit we tested had the same conditions:

Air filter having 1/2 " of dust on them when removed.

The evaporator coil is dirty with some buildup of surface dust.

Outside air damper found with original shipping screw still installed on two units. One new unit just recently installed had this condition. Room 417. Other rooms had almost 100% air blockage due to a thick layer of dust and dirt on the outdoor air damper screen if the damper door was actually open.

Condensing coils were very dirty with dirt build up that required several cleaning applications and some hand brushing to get soil to release.

Condensing fans were dirty and created some fan balance issues causing fan noise.

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All units had mold on the white styrafoam insulation just behind the evaporator coil and at the discharge vent area.

Exhaust fans controls should be changed from manual timers to motion/ir sensors with a minimum on time of 5 minutes so the exhaust fan turns on automatically whenever someone walks into the restroom. This will help reduce condensation on the metal frame mounted in the wall for the PTAC unit. This is one area where mold was also present on several units.

The General Manager for Woodspring Suites Fort Wayne, Faye Lorntz, asked me to take a look at room 129 where the unit was leaking onto the carpet in the room. After sliding the unit out we found the foundations had settled and shifted the exterior of the PTAC box up ¼" and lowering the interior by ¼". This adds up to ½" of tilt toward the interior of the room. A similar condition exists in room 112.

The exterior envelope of the facility (EFIS) needs repaired as well. The exterion decorative skin of the building is releasing from its insulation acting like a ledge that puts water behind the decorative skin. This condition has shown up and is a possible contributor to the water leaks in rooms like 129.

I have had the privilege of working with Faye and her team during the testing phase of the Inspired Tec project. Faye was wonderful to work with even with all the staffing issues, coordinating with guests and setting new quality levels throughout the facility that were apparent just a couple of weeks after she took over the facility. All this was going on as we started the second phase of our project on the PTAC Units.

The list of conditions of the PTAC units as stated above existed before Faye took over as General Manager. Faye and her staff have worked hard to make improvements to all areas of the facility. Patty (journeyman electrician) has been working directly with Inspired Tec to learn all she can regarding the PTAC maintenance and will help provide good oversight on future cleaning and maintenance of the PTAC units.

Thanks for allowing Inspired TEC to work with you to improve your indoor air quality and guest experience.

Phillip J. Doege