

**KILROY**

# Kilroy Indoor Air Quality Policy

100 First Street



December 31, 2019

|   |   |
|---|---|
| <b>What is an IAQ Policy?</b>           | 1 |
| <b>Purpose</b>                          | 1 |
| <b>Goals</b>                            | 1 |
| Products and Material Requirements:     | 1 |
| Building Ventilation:                   | 2 |
| <b>Indoor Air Quality Monitoring</b>    | 3 |
| Tobacco Free and Non-Smoking Policy     | 4 |
| Gardening Maintenance:                  | 4 |
| Waste Management:                       | 4 |
| Managing Harmful Odor and Contaminants: | 5 |
| Indoor Air Quality Notification System: | 5 |
| Best Practices to Control Moisture:     | 5 |
| Best Practices during Construction:     | 5 |
| Best Practices to Control Pollutants:   | 5 |
| Cleaning                                | 6 |
| Roles and Responsibilities              | 6 |
| <b>Quality Assurance</b>                | 6 |

## **What is an IAQ Policy?**

Indoor air quality (IAQ) is a highly complex issue that often involves a multitude of factors and building systems. IAQ problems may cover a wide range of issues from ventilation system deficiencies, outside air pollutants, off gassing from materials in the office and mechanical equipment. Symptoms arising from poor indoor air quality are often similar to the common cold or allergies. These symptoms may include upper respiratory irritation, sinus congestion, headaches, fatigue, and itchy or watery eyes.

Indoor air quality can be controlled by actively minimizing the generation of pollutants through operation and maintenance strategies, and diluting pollutants once they are created, by bringing in fresh air (ventilation) or removing polluted air with exhaust fans and vents.

## **Purpose**

**The IAQ Policy for new construction, major renovations as well as operation and maintenance** has been prepared to provide Kilroy buildings with the optimum level of Indoor Air Quality (IAQ). This policy regulates products incorporated into the building and addresses how the building manages the sources of pollutants and moistures, to keep the indoor air clean and free of noxious odors.

The Property Management team is committed to integrating environmentally friendly goals into the overall way that properties are maintained and operated.

- Maintain a good working relationship with building management on indoor environmental issues.
- Place furniture and equipment with an air quality ventilating system in mind.
- Avoid procedures and products that can cause any indoor air quality problems.
- Establish an effective smoking policy that protects nonsmokers from involuntary exposure to secondhand smoke.
- The building staff will implement a Preventive Inspection and Maintenance Schedule to inspect, maintain, clean, and repair/replace any equipment related to air flow and air quality when needed.

## **Goals**

This policy will be fully implemented starting on the effective date in order to identify areas for improvement in IAQ and provide benchmarks to ensure that quality remains high over time.

## **Products and Material Requirements:**

- If new products or building maintenance is required, all selected products and materials used inside the building in the following categories will be selected based on their qualities as non-emitting or low-VOC materials as tested per the California Department of Public Health Standard Method V1.1–2010: insulation, thermal, and acoustic, flooring systems, ceiling systems, interior wall assemblies or interior surfaces of exterior walls, paints, coatings, adhesives, and sealants wet-applied on site furniture
- Selected products and materials from the categories listed above will also be selected based on

the following product certifications and standards prior to purchase and installation within the project:

- be certified to GREENGUARD Gold certification
- be tested and deemed compliant with the California Department of Public Health Standard Method V1.1–2010 or V1.2-2017 (see below 4.1 table)
- be tested and deemed compliant with the AgBB Testing and Evaluation Scheme (2010)
- meet the Green Star – Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with low-emitting materials or comply the ISO 16000-3: 2010, ISO 16000-6: 2011, ISO 16000-9: 2006, ISO 16000-11:2006 standards tested
- New furniture products purchased for the building will be selected base on compliance with ANSI/BIFMA M7.1-2011.
- Composite wood materials purchased and installed in the building will be selected based on either non-added urea formaldehyde (NAUF) products or ultra low-emitting formaldehyde (ULEF) resin usage that are CARB compliant and applies to materials including but not limited to: structural panels, cabinetry, shelving, trim, doors, stair treads, flooring, etc.
- For flooring systems, SCS FloorScore-certified flooring materials or Green Label Plus certified carpet materials are to be selected.

**Table 4-1** Target CREL VOCs and their maximum allowable concentrations

| No.   | Compound Name   | CAS No.                           | Allowable Conc. <sup>a</sup><br>(µg/m <sup>3</sup> ) |
|-------|---|-----------------------------------|--|
| 1     | Acetaldehyde  | 75-07-0                           | 70   |
| 2     | Benzene   | 71-43-2                           | 30   |
| 3     | Carbon disulfide  | 75-15-0                           | 400  |
| 4     | Carbon tetrachloride                                      | 56-23-5                           | 20   |
| 5     | Chlorobenzene   | 108-90-7                          | 500  |
| 6     | Chloroform  | 67-66-3                           | 150  |
| 7     | Dichlorobenzene (1,4-)                                    | 106-46-7                          | 400  |
| 8     | Dichloroethylene (1,1)                                    | 75-35-4                           | 35   |
| 9     | Dimethylformamide (N,N-)                                  | 68-12-2                           | 40   |
| 10    | Dioxane (1,4-)  | 123-91-1                          | 1,500  |
| 11    | Epichlorohydrin   | 106-89-8                          | 1.5  |
| 12    | Ethylbenzene  | 100-41-4                          | 1,000  |
| 13    | Ethylene glycol   | 107-21-1                          | 200  |
| 14    | Ethylene glycol monoethyl ether                           | 110-80-5                          | 35   |
| 15    | Ethylene glycol monoethyl ether acetate                   | 111-15-9                          | 150  |
| 16    | Ethylene glycol monomethyl ether                          | 109-86-4                          | 30   |
| 17    | Ethylene glycol monomethyl ether acetate                  | 110-49-6                          | 45   |
| 18    | Formaldehyde  | 50-00-0                           | 16.5 <sup>b</sup>                                    |
| 19    | Hexane (n-)   | 110-54-3                          | 3,500  |
| 20    | Isophorone  | 78-59-1                           | 1,000  |
| 21    | Isopropanol   | 67-63-0                           | 3,500  |
| 22    | Methyl chloroform   | 71-55-6                           | 500  |
| 23    | Methylene chloride  | 75-09-2                           | 200  |
| 24    | Methyl <i>t</i> -butyl ether                              | 1634-04-4                         | 4,000  |
| 25    | Naphthalene   | 91-20-3                           | 4.5  |
| 26    | Phenol  | 108-95-2                          | 100  |
| 27    | Propylene glycol monomethyl ether                         | 107-98-2                          | 3,500  |
| 28    | Styrene   | 100-42-5                          | 450  |
| 29    | Tetrachloroethylene                                       | 127-18-4                          | 17.5   |
| 30    | Toluene   | 108-88-3                          | 150  |
| 31    | Trichloroethylene   | 79-01-6                           | 300  |
| 32    | Vinyl acetate   | 108-05-4                          | 100  |
| 33-35 | Xylenes, technical mixture<br>(m-, o-, p-xylene combined) | 108-38-3,<br>95-47-6,<br>106-42-3 | 350  |

**Building Ventilation:**

- High efficiency exhaust fans were installed to maintain good indoor air quality and remove

moisture and pollutants out of the building. The ventilation system for each unit was tested to ensure that the correct amount of fresh air would be delivered to building occupants.

- All components of the ventilation systems should be inspected by a qualified technician regularly. Property Management to schedule inspections as required.
- Air filters are located at the intakes of these rooftop units. The building utilizes MERV 8 rated filters.
- Preventative maintenance of the HVAC and filtration systems is managed through the building's Angus work order system. All preventative maintenance activities are managed through the system, from weekly inspections of the HVAC units and filters, to monthly checks of the system's fan power boxes and quarterly and annual maintenance activities as recommended by the manufacturers.
- Local exhaust fans. During inspections, Property Management staff check all exterior vents where air exits from the building. Vents should be clear of leaves and debris, and dampers (the flap covering the opening) should move freely. Vents are located on the roof or on exterior walls.
- Kitchen and bathroom hood exhaust fan. During inspections, Property Management staff to check that all kitchen and bathroom exhaust fans operate properly. Educate building occupants to clean the filter screen with soap regularly so that the exhaust fan can properly draw air through the filter screen.
- Clean or replace air filters in heating/cooling equipment. During inspections, Property Management staff to replace or clean air filters as necessary, per original specifications. Dirty air filters are a common cause of equipment malfunction or damage. Clean filters will allow the equipment to run efficiently and remove particles for better indoor air quality.

### **Indoor Air Quality Monitoring**

- The building monitors its indoor air quality by adhering to the LEED v4.1 requirements for measuring Indoor Environmental Quality Performance.
- Testing is conducted at least once per year to monitor and detect air quality issues at the property.
- Specifics of the program are as following: Annual testing for the following contaminants:
  - Inorganic Contaminants
    - Carbon Monoxide (CO)
    - Carbon Dioxide (CO<sub>2</sub>)
    - Ozone (O<sub>3</sub>)
    - PM<sub>2.5</sub>
  - Volatile Organic Compounds
    - Acetaldehyde (75-07-0)
    - Benzene (71-43-2)
    - Styrene (100-42-5)
    - Toluene (108-88-3)
    - Naphthalene (91-20-3)
    - Dichlorobenzene (1,4-) (106-46-7)
    - Xylenes-total (108-38-3, 95-47-6, and 106-42-3)
    - Formaldehyde (50-00-0)
    - Total volatile organic compounds (TVOC) (as defined in ISO 16000-6)

**IAQ Sampling Methodology:**

- Indoor air measurements to be taken in locations representative of all occupied spaces, within the breathing zone (between 3 and 6 feet (900 and 1800 millimeters) above the floor), during normal occupied hours, under typical minimum ventilation conditions.
- For the purposes of this testing, representative sampling shall mean at least one sample of all regularly occupied locations of the building, with a minimum of at least once sample every 25,000 sf on each floor.
- At least three (3) measurements are to be taken at each location, a minimum of 30 minutes apart.

**Tobacco Free and Non-Smoking Policy**

Kilroy prohibits tobacco-smoke and the use of all tobacco-products inside Kilroy buildings. Smoking is not allowed on the building grounds at 100 First, including parking areas, seating areas and rooftops. No smoking signs are posted throughout property and at Building entrances.

**Gardening Maintenance:**

- Property Management to check indoor gardening features periodically to ensure that water drains properly. Check that the exterior irrigation system operates properly. Replace or add mulch to planted areas when needed. Replace plants (trees, shrubs, ground cover) when required. Replace and repair landscaping- mulch, permeability features etc. when requirement.

**Waste Management:**

- Prepare a Pick-up Schedule for recycling and disposal of standard household waste based on the needs of the property and the building occupants.
- If staff notices a significant increase in recyclables such that recyclables are overflowing the recycling bins, then work with the recycling service vendor to evaluate whether or not to increase the pick-ups for recyclables.
- Household hazardous waste, such as, but not limited to batteries, lighting, electronics, paints, cleaning products, and pesticides must be disposed of properly.
  - Prepare a Pick-up Schedule for disposal of hazardous household waste based on needs
  - of the property and the building occupants.
- Encourage communication between staff members and building occupants to evaluate Property recycling and disposal practices and needs.
- Maintain a clean and well-organized Property with good recycling and waste management practices.

**Managing Harmful Odor and Contaminants:**

- Typical cleaning products contain a lot of chemicals and toxins. When they are used, the odors that they release may be toxic to people's health and may cause eye and/or respiratory irritation. As an alternative to using standard products, Property managers and staff should select green, non-toxic, environmentally friendly cleaning products for the Property.
- Avoid use of toxic chemicals for pest control.
- and chemical fertilizer. Insecticides and chemical fertilizers kill pests and weeds, but they can also harm people and pets. Property Management to conduct a termite inspection annually and select

low toxicity insect and pest control methods.

- Property Manager will maintain a qualifying IPM contract for the building, with weekly inspection.

**Indoor Air Quality Notification System:**

- Fire Prevention: Periodically carry out inspections to check on the proper functioning and safety of electrical systems, lighting, small appliances, and other electrical equipment. Keep heating and combustion equipment clean and free of clutter.
- Check and replace batteries in carbon monoxide alarms per fire alarm maintenance schedule.

**Best Practices to Control Moisture:**

- The exterior and interior of the building must replace materials in wet areas and the building facades using water-proofing (moisture flow resistance).
- Property Management staff to check for any leaks in water heaters, pipes, appliances, and plumbing fixtures.
- Educate building occupants to check damaged caulking/grout in and around showers/ bathtubs, and immediately contact Property Management if water is leaking from any plumbing fixture in the apartment so that staff can inspect and take care of the problem immediately.
- Property Management to regularly check for standing water throughout the Property.

**Best Practices during Construction:**

- No smoking within the construction site.
- Implement measures to reduce noise and vibrations from construction equipment.
- Ensure that construction crews wear protective gear.

**Best Practices to Control Pollutants:**

- Clean walk-off mats at entries regularly (daily), if applicable.
- Vacuum all flooring including carpets and hard flooring weekly and clean on a quarterly basis.
- Keep exhaust fans clean, keep them clear of objects around the fans, and check that they are working properly.
- Regularly clean or replace filters throughout systems.
- Implement a Preventative Maintenance and Cleaning Schedule. Evaluate and update the Schedule periodically.
- Prepare a list of acceptable green cleaning products which can be reviewed and approved by the management team, and be used for future reference.
- Set up a Green Cleaning Management training session for staff New hires should be trained upon arrival.
- Prepare and implement General Cleaning Strategies that includes effective policies, procedures, and staff training, to maintain clean indoor spaces. Evaluate the Plan periodically and update as necessary.

**Cleaning**

- Bathrooms

- On a daily basis the following areas must be cleaned: counters, bathrooms fixtures and surfaces.
- On a weekly basis the following areas must be upkeep: soap, toilet paper, paper towels, toilet covers
- Break Rooms and Common areas
  - On a daily basis the following areas must be cleaned: counters,sink, all appliances, tables, door knobs and surfaces.
  - On a weekly basis the following areas must be upkeep: hand soap,dish soap, dish sponges, paper towels.

### **Roles and Responsibilities**

The responsible party for this policy is the Property Manager. The responsible party ensures that this policy is executed and that any contractors or service providers under management's control are aware of and fully trained on the procedures outlined in this policy. Further, the Property Manager is responsible for sharing this policy with the building tenant representatives and encouraging policy adoption accordingly. The Property Manager is responsible for reviewing this policy for any significant changes on the interval specified in the quality assurance section. If at any time updates are required to this policy, the responsible party will ensure that the appropriate individuals are informed of the updates.

### **Quality Assurance**

The responsible party will evaluate the compliance with the policy on an ongoing basis. As necessary the responsible party will revise the IAQ policy to include additional or more stringent requirements based on evolving regulatory or certification requirements. The responsible party will review the results of the annual IAQ testing to ensure the building is maintaining and providing healthy air to building occupants, and to develop an action to address any deficiencies highlighted in the testing results.