

# **Kilroy Indoor Air Quality Policy**



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What is an IAQ Policy?	3
Purpose	3
Goals	3
Building Management and Maintenance	3
Building Ventilation:	3
Indoor Air Quality Monitoring	4
IAQ Sampling Methodology:	4
Tobacco Free and Non-Smoking Policy	5
Gardening Maintenance:	5
Waste Management:	5
Managing Harmful Odor and Contaminants:	5
Indoor Air Quality Notification System:	6
Best Practices to Control Moisture:	6
Best Practices to Control Pollutants:	6
Cleaning/Housekeeping	7
Procurement - Product and Material Requirements:	7
Construction and Renovations	9
Roles and Responsibilities	10
Quality Assurance	10
Appendix A:	11



#### 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

This 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 establishes guidelines for what kinds of products are 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. The Property Management team will:

- Maintain a good working relationship with building occupants on indoor environmental issues.
- Placing 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 tobacco and smoke free policy that protects nonsmokers from involuntary exposure to secondhand smoke.
- Utilize 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 is fully implemented, starting on the effective date, and will undergo an annual review in order to identify areas for improvement in IAQ management and provide benchmarks to ensure that quality remains high over time. The goals for each section of the IAQ Policy are included below, which are for ongoing Building Management and Maintenance, Procurement, and Construction and Renovation projects.

### **Building Management and Maintenance**

#### **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.

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- 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.
- Avoid the blockage of ventilation supply, exhaust, and other grilles.

#### 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
    - o Carbon Monoxide (CO)
    - o Carbon Dioxide (CO2)
    - o Ozone (O3)
    - o PM2.5
  - Volatile Organic Compounds
    - o Acetaldehyde (75-07-0)
    - o Benzene (71-43-2)
    - o Styrene (100-42-5)
    - o Toluene (108-88-3)
    - o Naphthalene (91-20-3)
    - o Dichlorobenzene (1,4-) (106-46-7)
    - o Xylenes-total (108-38-3, 95-47-6, and 106-42-3)
    - o Formaldehyde (50-00-0)
    - o Total volatile organic compounds (TVOC)



- 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**

Prohibit all smoking on the property site. And also, specifically prohibit smoking in the building
and within 25 feet of building entries, outdoor air intakes, and operable windows, or any
outdoor areas accessible to building occupants, whichever covers a larger surface area. This
includes any spaces outside of the property line used for business purposes. For the purposes
of this policy, the term smoking shall include inhaling, exhaling, burning or carrying and lighted
cigar, cigarette, pipe, or other lighted or vaporized substances in any manner or form, including
marijuana used for medical or any other purpose. Additionally, the use of chewing tobacco is
prohibited on the property site. This includes both the interior and exterior of the property.

#### Gardening Maintenance:

 Property Management to check indoor gardening features periodically, water plants, prune them, and ensure that water drains properly wherever necessary. 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 landscapingmulch, permeability features etc. when requirement.

#### Waste Management:

- Prepare a regular Pick-up Schedule for proper disposal of standard operational waste (Landfill, Recycling, Compost, and other applicable waste streams) based on the needs of the property and the building occupants. Ensure that all waste receptacles are emptied and collected regularly to prevent harmful odors and/or pests within the building.
- 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 skin, eye and/or respiratory irritation. As an alternative to using standard products, Property Managers and staff should only 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.
- Building management team will be alerted when potential air quality and/or ventilation issues occur in type building.

#### **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.
- Manage moisture through: using moisture tolerant materials and setting up systems to divert water away from the building

#### **Best Practices to Control Pollutants:**

- Keep doors, windows, and floors properly sealed, and regularly check to ensure that they are working properly.
- Install appliances so that they vent to the outside/exterior of the building.
- 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.
- Manage pollutant sources through: properly sealing doors, floors, and windows, regularly checking for and eliminating mold, installing appliances so that they vent to the outside, diluting and removing pollutants through ventilation, and using filtration to clean the air.



#### **Cleaning/Housekeeping**

- 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, doorknobs and surfaces.
  - On a weekly basis the following areas must be upkeep: hand soap, dish soap, dish sponges, paper towels.
  - For break rooms, provide amenities for hygienic storage of foods such as refrigerators (where necessary), cabinets, etc. and ensure that they are cleaned

#### **Procurement - Product 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, naturally low-emitting (stone ceramics, etc.), or if they meet applicable low-emitting certifications and testing standards as included below and in **Appendix A: Accepted Certification and Testing Standards (**located on page 10).

These requirements apply to products that fall in the following categories, and the <u>compliance</u> <u>requirements</u> and <u>examples of accepted certifications/standards</u> for each category are included below:

- Interior Insulation (including thermal and acoustic) = 100% of insulation
  - O Certified to UL GREENGUARD Gold
  - O California Department of Public Health Standard Method V1.2 2017
  - O AgBB Testing and Evaluation Scheme 2010
- **Flooring systems** = 100% of all systems
  - O Certified to UL GREENGUARD Gold
  - O California Department of Public Health Standard Method V1.2 2017
  - O AgBB Testing and Evaluation Scheme 2010
- **Ceiling systems** = 90% of systems by square feet
  - O Certified to UL GREENGUARD Gold
  - O California Department of Public Health Standard Method V1.2 2017
  - O AgBB Testing and Evaluation Scheme 2010
- **Wall Paneling** (including interior wall assemblies, doors, frames, windows, interior surfaces of exterior walls, gypsum boards, and wall coverings) = 100% of all paneling
  - O Certified to UL GREENGUARD Gold
  - O California Department of Public Health Standard Method V1.2 2017
  - O AgBB Testing and Evaluation Scheme 2010

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- **Paints and coatings** = 90% by volume for emissions, and 100% for VOC content of products applied on-site and used on the interior of the air barrier
  - O Certified to UL GREENGUARD Gold
  - O California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings
  - O California Department of Public Health Standard Method V1.2 2017
  - O South Coast Air Quality Management District SCAQMD Rule 1113
  - O AgBB Testing and Evaluation Scheme 2010
  - O Green Star Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with low-emitting materials
  - O EN16402
- Adhesives and sealants = 90% by volume for emissions, and 100% for VOC content of products applied on-site and used on the interior of the air barrier
  - O Certified to UL GREENGUARD Gold
  - O California Department of Public Health Standard Method V1.2 2017
  - O South Coast Air Quality Management District SCAQMD Rule 1168
  - O AgBB Testing and Evaluation Scheme 2010
  - O Green Star Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with low-emitting materials
  - O EN13999 (Parts 1-4)
- Furniture = 90% by cost of furniture
  - O ANSI/BIFMA e3 2019 credits 7.6.1, 7.6.2, and 7.6.3 (accepted for Furniture)
  - O Certified to UL GREENGUARD Gold
- Composite Wood = 100% of composite wood for cabinetry (outside of flooring, ceiling, wall panels, and furniture)
  - O California Air Resources Board (CARB) requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins
  - O EPA TSCA Title VI for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins (NAF)
  - O AgBB Testing and Evaluation Scheme 2010
  - O Green Star Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with low-emitting materials

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### **Construction and Renovations**

For any construction or major renovation projects taking place onsite, the control measures included below will be implemented to mitigate any impacts on indoor air quality. The following control measures will be performed prior to occupancy of the spaces under construction or renovation, and during construction to limit IAQ impacts on surrounding areas.

- Sequence Scheduling and Material Storage:
  - Properly schedule installation of absorptive and VOC containing materials to limit the materials' exposure to dust and moisture, and to also limit occupant exposure during construction
  - Schedule the installation of VOC containing materials (paints, coatings, adhesives, and sealants) prior to the installation of absorbent products and materials
  - Safely store all absorbent products in separate areas that protect them from VOCs, dust, and moisture
  - If materials get wet/become saturated, avoid enclosing them during construction and ensure that they can be dried or replaced prior to installation
  - Safely store products with VOCs in separate areas from absorbent products and materials
- HVAC Protection:
  - Prevent dust and construction debris from accumulating in HVAC ducts that will be permanently installed. Wrap HVAC ducts and registers in plastic during and after installation until use, and store ductwork, raised and covered, in dust free areas before installing.
- Source Control:
  - Address the sources of construction pollution and reduce them. Low-VOC materials, paints, coatings, adhesives, sealants
  - Exhaust gas-fueled construction equipment directly to the outside, use electrically powered equipment instead of gas or diesel wherever possible
- Pathway Interruption:
  - Use negative pressure, closed doors, and/or temporary hanging plastic to contain areas that may generate excessive construction dust, like wood-cutting and drywall-cutting areas for example, to limit exposure to other areas including other occupied areas, outdoor areas, etc.
  - Use entryway systems at all construction site entrances, both indoors and outdoors, to limit exposure to particulates in construction areas, areas surrounding the site, and in any nearby occupied spaces
- Housekeeping
  - Keep a clean work site by sweeping, wet mopping and using low-VOC cleaners
  - **Outdoor Emissions** 
    - Wherever possible, only use gas- or diesel-powered equipment more than 50 feet away from doors, windows, or ventilation system openings of occupied spaces to protect those areas from outdoor construction activity fumes
    - Use pathway interruption techniques like hanging curtain walls, tarps, etc., entryway overhead blowers, or other protective measures at entrances to occupied spaces that are near areas where outdoor construction activities are taking place
- Other Best Practices
  - No smoking within the construction site.
  - Implement measures to reduce noise and vibrations from construction equipment.
  - Ensure that construction crews wear protective gear.



#### **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.

### **Contruction and Renovations**

Create a plan for managing indoor air quality during any construction and major renovations and prior to occupancy. The plan must at a minimum control for the following categories: Moisture, particulates, VOCs, outdoor emissions, tobacco, and noise and vibrations. Additionally, ensure that construction crews wear protective gear.



## Appendix A:

#### Accepted Certification and Testing Standards for Building Product Procurement

- Certified to UL GREENGUARD Gold (accepted for all categories' VOC emission requirements except Composite Wood)
- California Department of Public Health Standard Method V1.2 2017 (accepted for all categories' VOC emission requirements except Furniture and Composite Wood)
- California Air Resources Board (CARB) 2007 Suggested Control Measure (SCM) for Architectural Coatings (accepted for Paints and Coatings VOC content requirements)
- California Air Resources Board (CARB) requirements for ultra-low-emitting formaldehyde (ULEF) resins or no-added formaldehyde based resins (Accepted for Composite Wood)
- South Coast Air Quality Management District SCAQMD Rule 1113 (accepted for Paints and Coatings VOC content requirements)
- South Coast Air Quality Management District SCAQMD Rule 1168 (accepted for Adhesives and Sealants VOC content requirements)
- ANSI/BIFMA e3 2019 credits 7.6.1, 7.6.2, and 7.6.3 (accepted for Furniture)
- EPA TSCA Title VI for ultra-low-emitting formaldehyde (ULEF) resins or no added formaldehyde resins (NAF) (accepted for Composite Wood)
- AgBB Testing and Evaluation Scheme 2010 (accepted for all categories' VOC emissions requirements except Furniture)
- EN16402 (accepted for Paints and Coatings VOC content requirements) EN13999 (Parts 1-4) (accepted for Adhesives and Sealants VOC content requirements)
- Green Star Interiors v1.2 credit 12 for Indoor Pollutants to show compliance with lowemitting materials (accepted for Paints and Coatings, Adhesives and Sealants, and Composite Wood)