INDOOR AIR QUALITY MANAGEMENT PLAN (DURING CONSTRUCTION)

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COMMUNICATION

This document has been prepared to meet the LEED Credit EQ 3.1, Construction IAQ Management Plan: During Construction.

Provide advance notice and information about this component of the project to all subcontractors. This helps build trust and avoid misunderstandings. Communication should include information about who will be affected, and how (e.g., disruption of normal routines). Input into the process and expression of concerns should be encouraged. Periodic updates should be given to keep all informed.

Designate an individual to provide a timely response to IAQ problems that might arise during construction. Ensure that emergency response plans are appropriate for the work performed. For example, if an emergency exit is blocked, an alternative must be identified. Appropriate signs should be posted to alert occupants.

GENERAL ACTIVITIES

Use plastic sheeting, portable fans, and a mechanical ventilation strategy (where applicable) to prevent dust and fumes from contaminating other parts of the building through hallways, doors, windows, and the ventilation system (for additional details, see the activity groups on this Checklist). Even during unoccupied times, the ventilation and containment strategies mentioned above should be used to prevent the spread of contaminants through the building

During periods of construction activity, heightened housekeeping practices may be necessary, not only in the immediate construction area, but also in the rest of the building.

Replace all HVAC filtration media frequently. Filtration media should be replaced prior to the onset of construction activities (MERV 8); upon completion of construction activities (MERV 8); upon completion of construction activities (prior to building flush-out)(MERV 8); and prior to occupancy (MERV 13).

Give attention to workers and equipment leaving work areas to avoid carrying dust and fibers to other parts of the building. Walk-off mats, the use of removable coveralls, and wiping down equipment before exiting the work area are all effective practices.

Avoid exposure to mold. If mold is observed in/on any surface within the structure, immediately contact an environmental professional about remediation and adequate protective measures to ensure both worker and occupant safety.

Note: Even dead mold can potentially still cause allergic reactions and other health effects. \

The project team has considered the effects of construction on ventilation and mixing of air in rooms. During construction we will not cut off a room from its supply of outdoor air, enclose a pollutant source (like photocopiers) in a room with inadequate exhaust or supply air, or erect barriers, such as new walls, that could prevent adequate movement of air throughout the room.

This project will minimize and provide for off-gassing from new products. New products contain volatile organic constituents, such as resins, solvents, and binders, which off-gas volatile organic compounds for a period of time. This process is called "off-gassing." Whenever possible, we have obtained information on emissions from potential new products to be installed in the facility and have selected low VOC emitting products when available. Whenever new products with the potential for off-gassing are installed, we will allow adequate time for off-gassing before re-occupying the area, and increase ventilation with outdoor air until off-gassing odors and any irritation symptoms no longer occur. Examples of products which will potentially off-gas include:

- Wall paneling.
- Draperies
- Composite wood furniture and cabinets.
- Cubicle dividers.
- Carpet and vinyl flooring.
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PAINT AND FINISHES

There are many factors to consider before beginning a painting project. Special care should be taken when sanding a surface to prepare for painting, due to the dust released into the air. The dust may contain potentially harmful particles.

The type of paint is an important decision. For instance, both solvent-based and water-based paints give off volatile organic compounds (VOC's) that could lead to IAQ problems. Water-based paints produce less VOC's than solvent-based paints, but produce them over a longer period of time.

Durability is important -- a relatively low-emitting paint might create more IAQ problems in the long run than a higher-emitting paint, if the low-emitting paint requires repainting more often. In addition, many water-based paints (even interior paints) have, until recently, used mercury as a fungicide. Any paint that contains mercury should not be used indoors.

The project team has evaluated all new prior to purchase. The project team has expressed its indoor air quality concerns to paint suppliers and have used their technical personnel as a resource. We will keep doors adjacent to work areas closed as much as possible.

We will allow time for paint odors to dissipate before occupants and workers are allowed to return to the area. *If the area being painted has a heating, cooling, and ventilation system which is shared with other areas, those areas will also be unoccupied and/or all ductwork and HVAC equipment blocked off.*

We will use supply and exhaust fans to sweep paint fumes out of the building. We will operate supply fans continuously (24 hours/day, 7 days/week), at the highest possible outdoor air supply setting, from the beginning of the painting work until several days after painting has been completed.

We will block return openings to prevent air from circulating from the work area to other areas within the structure.

We will seal containers carefully after use.

We will keep paint containers in designated storage areas equipped with exhaust ventilation, never in heating, ventilation, and air conditioning equipment rooms.

FLOORING

As is the case with other building materials and furnishings, flooring materials have the potential to impact indoor air quality; therefore selection of flooring materials is an important consideration during the renovation process. Potential pollutants from flooring materials which can impact IAQ include volatile organic compounds (VOC's) that off-gas directly from many flooring materials, and the cleaning products used to maintain the flooring. Dirty and persistently damp floor materials can become a location for the growth of biological contaminants, such as mold. Proper cleaning and maintenance of flooring materials helps to improve IAQ.

This project will use only low-emitting adhesives.

We will follow manufacturers' recommendations for ventilating the work area.

We have asked manufacturers to submit information about product constituents and emissions that may adversely impact IAQ.

If practical, we will unwrap and unroll flooring products and cushion (if any) in a well-ventilated location prior to installation, preferably in a location other than the work area, such as a ventilated warehouse.

Wherever possible we will exhaust the air from the space directly to the outdoors and maintain the room under negative pressure relative to the surrounding rooms and hallways.

The typical recommendation is to continuously operate the building ventilation system at normal temperature and maximum outdoor air during installation and for at least 72 hours after installation is completed. The Carpet and Rug Institute Standard for Installation of Commercial Textile Floor Covering Materials (CRI 104) addresses airing and other installation procedures for carpet.

We will avoid recirculating air from the installation area through the heating, ventilation, and air conditioning system, and into occupied areas. We will seal return air grilles, open doorways, stairways, and use exhaust fans to remove airborne contaminants.

We will vacuum new flooring after installation to remove loose matter and particles generated by the installation process and general construction in the area.

We will not install carpet near water sources or areas where there is a perpetual moisture problem, i.e., by drinking fountains, sinks, or concrete floors with leaks or frequent condensation.

ROOFING

Roofing work often involves the use of tar or other pollutant-producing chemicals which may cause indoor air problems if fumes enter the building. The project team and roofers will cooperate to prevent these problems.

Modify ventilation to avoid introducing odors and contaminants.

Advise staff and Jackson CC employees to keep doors and windows closed until the roofing work is finished.

It may be advisable to temporarily close the outdoor air intakes of air handlers; particularly rooftop units in the vicinity of (and downwind from) the work area. (NOTE: To avoid creating IAQ problems from under-ventilation, we will provide a temporary means [fans and/or ducts] to supply unaffected outdoor air, and reduce pollutant generating activities indoors.).

PROJECT COMPLETION & COMMISSIONING

The project team will establish IAQ-related procedures and criteria that must be met at the completion of this renovation project. Areas that will be covered include:

- General cleaning, including the wet wiping of surfaces and vacuuming (high efficiency vacuuming for fine or potentially toxic dusts, such as asbestos, lead or mold).
- Cleaning building system components, including those in the ventilation system which have been contaminated during the work. This includes the disposal and replacement of filters.
- Balancing and testing the ventilation system if it has been modified, or if areas served by the ventilation system have been altered (e.g., if a partition wall was installed or removed).

CONSTRUCTION ADMINISTRATION

Owners should include contract specifications which reflect the recommendations in this information and checklist. Oversight should be used to ensure the specifications are being met. Possible contract specification topics include:

- Notification and communication.
- Scheduling to minimize occupant exposure.
- Selection of building materials.
- Protection of building systems and furnishings, including the ventilation system.
- Use of isolation techniques, including barriers and negative pressure.
- Ventilation and filtration requirements.
- Work practices and housekeeping.
- Material storage.
- Close-out and commissioning criteria.

NEW CONSTRUCTION CHECKLIST

GENERAL ACTIVITIES

Pre-Construction	
Plan isolation strategy for:	
☐	Jackson employees and construction staff.
☐	Non-work areas of building.
☐	Ventilation system.
☐	Arrange for increased housekeeping activities.
☐	Consider ventilation implications, supply and exhaust for all affected rooms, in and out of work area.
☐	Select products to minimize off-gassing.
☐	Put IAQ-related specifications in construction contracts.
☐	Evaluate work areas for signs of potential hidden mold. Signs include must or moldy odors, visible water damage, or a history of leaks in the area.

During Construction	
	Replace all HVAC filtration media frequently
☐	Prior to Startup of HVAC (MERV 8 minimum)
☐	After gypsum installation and finish, prior to painting (MERV 8 Minimum)
☐	After interior finish and prior to flush-out (MERV 8 minimum)
☐	Prior to occupancy (MERV 13 minimum)
☐	Avoid exposure to mold and bacteria. For large areas of contamination, consult with an environmental professional about protective measures and special close-out procedures.
☐	Implement isolation plan.
☐	Verify that housekeeping activities are sufficient to control dirt and dust.
☐	Verify that contract specifications are being adhered to.

Close-out	
☐	Clean surfaces with wet-wiping and vacuuming (high efficiency vacuuming for fine or potentially toxic dusts, such as lead, asbestos, or molds).
☐	Clean building system components as needed.
☐	Ventilation system filters changed.
☐	If HVAC system has been modified, or if rooms served by system have been altered, balance and test HVAC system.

☐	**No Problems to Report.**
	I have completed the activities on the New Construction Checklist, and I do not need help in any areas.
Name:	
Date Completed:	
Signature:	

NEW CONSTRUCTION CHECKLIST

PAINTING

Pre-Construction	
☐	Confirm that the painted surface is lead-free before preparing a surface for repainting.
○	**Paint contains lead or testing is needed to determine if lead is in existing paint.**
☐	Select a low-VOC emitting paint that is free of lead and mercury.
☐	Schedule painting to occur when building is unoccupied, if possible.

During Construction	
☐	Minimize occupant exposure to odors and contaminants.
☐	Use exhaust and supply ventilation to sweep fumes out of building.
☐	Block ventilation return openings to prevent circulating air from the work area to other areas of the building.
☐	Use proper storage and disposal practices for paints, solvents, and supplies. Keep container lids sealed when not in use.

Close-out	
☐	Allow paint odors to dissipate before occupants into the area.
☐	Use supply and exhaust fans to sweep fumes out of the building. Operate supply fans continuously at the highest possible outdoor air supply setting until several days after the painting has been completed.
☐	Use appropriate storage and disposal practices for paints, solvents, and clean-up materials. Keep container lids sealed when not in use.
☐	Use appropriate waste disposal method to dispose of any old paints containing lead or mercury.
☐	Follow EPA National Emission Standards for Hazardous Air Pollutant rules of disposal of asbestos-containing materials.
☐	**No Problems to Report.**
	I have completed the activities on the New Construction Checklist, and I do not need help in any areas.
Name:	
Date Completed:	
Signature:	

NEW CONSTRUCTION CHECKLIST

FLOORING

Pre-Installation

- ☐ Select low-emitting adhesive when installing glue-down flooring.
- ☐ Obtain information about product constituents and emissions that may adversely impact IAQ from manufacturers.
- ☐ Select low-emitting adhesive.
- ☐ Select low-emitting flooring materials.
- ○ **Need additional information for selecting low-emitting adhesive and flooring materials.**
- ☐ Do not install carpet near water sources.
- ☐ When possible, schedule installation for time when building is unoccupied.

During Installation

- ☐ Use low-emitting adhesives.
- ☐ Use low-emitting flooring materials.
- ☐ Air new products before installation.
- ○ **Need help arranging the airing out of flooring products.**
- ☐ Follow manufacturers' recommendations for ventilating the work area during and after flooring installation.
- ☐ Install carpet, vinyl, and related flooring materials only when the building is not in use or maintain the room under negative pressure relative to the surrounding rooms and hallways.
- ☐ Avoid re-circulating air from the installation area, through the heating, ventilation, and air conditioning system, and into occupied areas. Seal return air grilles, open door ways, stairways, and use exhaust fans to remove airborne contaminants.
- ○ **Need help arranging the airing out of space during and after installation.**
- ☐ Seal joints of hard surfaces and/or entire surface of porous flooring installed near water sources.

Post-Installation

- ☐ Vacuum new flooring after installation to remove loose matter and particles generated by the installation process and general construction in the area.
- ☐ Follow manufacturers' recommendations for ventilating the work area space during and after flooring installation. (Typical recommendation is maximum outdoor air for 72 hours after installation.)

- ☐ **No Problems to Report.**

I have completed the activities on the New Construction Checklist, and I do not need help in any areas.

Name:

Date Completed:

Signature:

NEW CONSTRUCTION CHECKLIST

ROOFING

Pre-Construction

- ☐ Schedule pollutant-producing activities for unoccupied periods.
  - ○ **Need help to minimize occupant exposure.**

During Construction

- ☐ Put "hot pots" of tar and other pollutant-producing materials away from outdoor air intakes.
- ☐ Consider wind patterns at the work site, and arrange equipment so prevailing winds carry odors away from the building.
  - ○ **There is not a good location for pollutant-producing materials during this renovation.**
- ☐ Modify ventilation to avoid introducing odors and contaminants.
- ☐ Advise staff to keep doors and windows closed until the roofing work is finished.
- ☐ It may be advisable to temporarily close the outdoor air intakes of air handlers, particularly rooftop units in the vicinity of (and downwind from) the work area. (NOTE: To avoid creating IAQ problems from under-ventilation, provide a temporary means [fans and/or ducts] to supply unaffected outdoor air, and reduce pollutant generating activities indoors).
  - ○ **Need help to modify ventilation.**

- ☐ **No Problems to Report.**
  - I have completed the activities on the New Construction Checklist, and I do not need help in any areas.

Name:

Date Completed:

Signature: