

Building Air Quality Action Plan Verification Checklist

STEP 1: DESIGNATE AN IAQ MANAGER	For Guidance, refer to:
☐ (1) An IAQ Manager has been designated. Name: Title:	<i>Building Air Quality</i> , Page 33
☐ (2) The IAQ Manager has been educated on the contents of <i>Building Air Quality: A Guide for Building Owners and Facility Managers</i> by reading carefully and possibly receiving training in the fundamentals of IAQ. Notes: _____ _____ _____ _____	Some training courses and materials are listed in Appendix 2
STEP 2: DEVELOP AN IAQ PROFILE OF YOUR BUILDING	For Guidance, refer to:
1. Identify and Review Existing Records	<i>Building Air Quality</i> , Pages 19–22
☐ (3) Up-to-date manufacturers' operating instructions and maintenance records for HVAC system components have been reviewed and filed.	<i>Building Air Quality</i> , Page 21 (note-box)
☐ (4) Up-to-date schedules and procedures for facility operations and maintenance have been reviewed and filed	<i>Building Air Quality</i> , Page 21
☐ (5) HVAC "as built" blueprints have been updated to indicate current HVAC configuration and filed	<i>Building Air Quality</i> , Page 21
☐ (6) Drawings of tenant build-out and interior building renovations have been updated and	<i>Building Air Quality</i> , Page 21
☐ (7) Information on major space use changes (e.g., office space to kitchen or laboratory, significant increases or decreases in occupant density) has been updated and filed.	<i>Building Air Quality</i> , Page 22
☐ (8) The HVAC system was designed to deliver _____ CFM of outside air which translates into _____ CFM of outside air per occupant.	<i>Building Air Quality</i> , Pages 8, 136, and 137
☐ (9) The HVAC system is actually delivering _____ CFM of outside air which translates into _____ CFM of outside air per occupant.	<i>Building Air Quality</i> , Pages 8, 136-7 and Ventilation Worksheet, Pages 169 and 179 (to be used in conjunction with Zone/Room Record Form, Page 177)
☐ (10) A review of occupant thermal comfort complaints and indoor temperature and relative humidity readings indicates that current peak heating and cooling loads do not exceed HVAC system capacity.	<i>Building Air Quality</i> , Page 122
☐ (11) Information on pressure relationships between areas and/or zones within the building has been examined, updated, and filed.	<i>Building Air Quality</i> , Pages 8–10 and Pollutant Pathway Record Form, Pages 169 and 175
☐ (12) The building's most recent test and balancing report has been filed. Date of report: _____	<i>Building Air Quality</i> , Pages 21 and 123
☐ (13) Material Safety Data Sheets (MSDS) for products used in the building are requested from suppliers and kept on file.	<i>Building Air Quality</i> , Pages 28, 35, and 39; 29 CFR 1910.1200 Hazardous Communication Standard, OSHA
☐ (14) Documentation of HVAC control system set points and ranges has been reviewed and	<i>Building Air Quality</i> , Pages 21 (note-box)
☐ (15) The building records (items #3-14) above are revised as needed, particularly with any renovation/construction activities.	<i>Building Air Quality</i> , Pages 21-22

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STEP 2: DEVELOP AN IAQ PROFILE OF YOUR BUILDING (continued)	For Guidance, refer to:
<u>2. Conduct a Walkthrough to Assess the Current IAQ Situation</u>	
☐ (16) A building walkthrough inspection has been conducted, including both occupied areas and mechanical rooms.	<i>Building Air Quality</i> , Pages 22–29
☐ (17) During the walkthrough, a pollutant/source inventory has been completed.	<i>Building Air Quality</i> , Pollutant Source Inventory Form, Page 26, and Pages 213–219
During the walkthrough, IAQ problem indicators have been checked for and noted on a floor plan or comparable drawing, including:	<i>Building Air Quality</i> , Pages 23–25
☐ (18) • Odors	<i>Building Air Quality</i> , Pages 23–25
☐ (19) • Dirty or unsanitary conditions	"
☐ (20) • Visible fungal growth or moldy odors	"
☐ (21) • Evident moisture in inappropriate locations (e.g., moisture on walls, floors, or	"
☐ (22) • Staining or discoloration of building material(s)	"
☐ (23) • Smoke damage	"
☐ (24) • Presence of hazardous substances	<i>Building Air Quality</i> , Pages 23-25 and Chemical Inventory Form, Pages 169 and 221
☐ (25) • Potential for soil gas entry (e.g., cracks or holes in building surfaces adjacent to	<i>Building Air Quality</i> , Pages 23–25
☐ (26) • Unusual noises from light fixtures or equipment	"
☐ (27) • Poorly-maintained filters	"
☐ (28) • Uneven temperatures	"
☐ (29) • Overcrowding	"
☐ (30) • Personal air cleaners (e.g., ozone generators, portable filtration units) or fans	"
☐ (31) • Inadequate ventilation	"
☐ (32) • Inadequate exhaust air flow	"
☐ (33) • Blocked vents	"
☐ (34) • Other conditions that could impact IAQ, especially risk factors that need regular inspection to prevent IAQ problems from occurring (e.g., drain pans that do not fully drain).	"
The condition and operations of the HVAC system have been inspected, including:	<i>Building Air Quality</i> , Page 25 and HVAC Checklist - Long Form, Pages 169 and 185
☐ (35) • Components that need to be repaired, adjusted, cleaned, or replaced have been and work orders prepared.	<i>Building Air Quality</i> , Pages 23–25
☐ (36) • Actual control settings and operating schedules for each air handling unit have been recorded and filed, and checked against the design intent.	"
☐ (37) Areas with significant sources of contaminants (e.g., copy rooms, food service areas, printing/photographic areas) are provided with adequate exhaust. Other sources are moved as close to exhaust as possible.	<i>Building Air Quality</i> , Page 25
Notes: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	

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STEP 3: ADDRESS EXISTING AND POTENTIAL IAQ PROBLEMS	For Guidance, refer to:
Identified IAQ problems have either been corrected or steps have been taken to control them, including: ☐ (38) • source-related IAQ problems ☐ (39) • ventilation-related IAQ problems. ☐ (40) Weaknesses have been identified and steps taken to prevent them from becoming Notes: _____ _____ _____ _____ _____ _____	<i>Building Air Quality</i>, Pages 45–108 <i>Building Air Quality</i>, Pages 45–108 <i>Building Air Quality</i>, Pages 45–108 <i>Building Air Quality</i>, Pages 45–108
STEP 4: EDUCATE BUILDING PERSONNEL ABOUT IAQ MANAGEMENT	For Guidance, refer to:
☐ (41) In-house and contractor personnel whose functions could impact IAQ (e.g., housekeeping staff, maintenance contractors) have been identified. ☐ (42) IAQ training or information has been provided to in-house personnel and contractors--especially regarding use of hazardous chemicals. Additional training or information is provided periodically, and plans for continual improvement have been established. Notes: _____ _____ _____ _____ _____ _____	<i>Building Air Quality</i>, Pages 23 and 32–34 <i>Building Air Quality</i>, Pages 33–34 and 167; 29 CFR 1910.1200 Hazard Communication Standard, OSHA.
STEP 5: DEVELOP AND IMPLEMENT A PLAN FOR FACILITY OPERATIONS AND MAINTENANCE	For Guidance, refer to:
1. HVAC Operations ☐ (43) Operating schedules for HVAC equipment, ensuring that the HVAC system is operating during significant occupancy periods, have been written and are updated as needed. ☐ (44) The HVAC operating schedule provides for an adequate flush of the building, with as much outside air as is feasible, prior to occupants' arrival. Notes: _____ _____ _____ _____ _____ _____	<i>Building Air Quality</i>, Page 34 <i>Building Air Quality</i>, Page 34 and ASHRAE 62-1989, or latest publication

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STEP 5: DEVELOP AND IMPLEMENT A PLAN FOR FACILITY OPERATIONS AND MAINTENANCE (continued)	
For Guidance, refer to:	
2. Housekeeping ☐ (45) All housekeeping equipment and products used in the building are known to the IAQ Manager. ☐ (46) The products used in this building that may produce strong odors, are potential irritants, or may have other IAQ impacts have been determined, and, where possible, have been replaced by products without such impacts. ☐ (47) Housekeeping procedures that detail proper use, storage, and purchase of cleaning materials have been written and are updated as needed. The housekeeping staff or contractors have been educated about the IAQ implications, appropriate use, and application of the following to improve IAQ: ☐ (48) • Proper cleaning methods ☐ (49) • Cleaning schedules ☐ (50) • Purchasing ☐ (51) • Proper materials storage and use ☐ (52) • Proper trash disposal. <u>3. HVAC Preventive Maintenance</u> ☐ (53) A preventive maintenance plan that includes equipment maintenance schedules has been written or computerized and is followed and updated as needed. A preventive maintenance plan or contract includes at least the following maintenance ☐ (54) • Outside air intakes (inspected for nearby sources of contaminants) ☐ (55) • Air distribution dampers (cleared of obstruction and operating properly) ☐ (56) • Air filters (pressure drops monitored, replacement or cleaning performed regularly) ☐ (57) • Drain pans (inspected and cleaned to ensure proper drainage) ☐ (58) • Heating and cooling coils (inspected and cleaned) ☐ (59) • Interior of air handling units (inspected and cleaned, as warranted) ☐ (60) • Fan motor and belts (inspected) ☐ (61) • Air humidification and controls (inspected and regularly cleaned) ☐ (62) • Cooling tower (inspected, cleaned, and water treated according to schedule) ☐ (63) • Air distribution pathways and VAV boxes (inspected and cleaned as needed). ☐ (64) The preventive maintenance plan and operations manuals are updated when equipment is added, removed, or replaced. <u>4. Unscheduled Maintenance</u> ☐ (65) Procedures for unscheduled maintenance events (e.g., equipment failure) have been written and communicated to building staff. They include: ☐ (66) • Building maintenance personnel immediately tell the IAQ Manager that an maintenance event has occurred. ☐ (67) • Notification to occupants/tenants is provided in a timely manner, addressing how quality is being protected. ☐ (68) • Necessary remedial action is taken. Notes: _____ _____ _____ _____	<i>Building Air Quality</i> , Pages 36-37 See Material Safety Data Sheets <i>Building Air Quality</i> , Pages 36-37 <i>Building Air Quality</i> , Pages 36-37 <i>Building Air Quality</i> , Pages 34, 35, 36, 43, and 121–139 <i>Building Air Quality</i> , Page 36 <i>Building Air Quality</i> , Pages 124–125 <i>Building Air Quality</i> , Pages 125–126 <i>Building Air Quality</i> , Pages 126–128 <i>Building Air Quality</i> , Page 128 <i>Building Air Quality</i> , Page 128 <i>Building Air Quality</i> , Pages 25, 26, 35, <i>Building Air Quality</i> , Page 130 <i>Building Air Quality</i> , Pages 129–130 <i>Building Air Quality</i> , Page 135 <i>Building Air Quality</i> , Pages 25-26, 36, 123-126, and 130-133 <i>Building Air Quality</i> , Page 35 <i>Building Air Quality</i> , Page 32-35, 67

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STEP 6: MANAGE PROCESSES WITH POTENTIAL SIGNIFICANT POLLUTANT SOURCES		For Guidance, refer to:
<u>General</u> ☐ (69) When new products are purchased, information on potential indoor air contaminant emissions is requested from product suppliers. <i>[Note: Emission information may not be readily available for many products at this time. However information that is available should be collected.]</i> ☐ (70) When the services of architects, engineers, contractors, and other professionals are used, IAQ concerns, such as special exhaust needs, are discussed. 1. Remodeling and Renovation ☐ (71) Special procedures to minimize the generation and migration of contaminants or odors to occupied areas of the building are used (or required of contractors). The special procedures used in this building are: ☐ (72) • The IAQ Manager reviews designs and construction activities for all proposed remodeling and renovation activities prior to their initiation ☐ (73) • Work is scheduled during periods of minimum occupancy ☐ (74) • Ventilation is provided in order to isolate work areas ☐ (75) • Lower-emitting work processes are used (e.g., wet-sanding dry wall) ☐ (76) • Specialized cleaning procedures are used (e.g., use of HEPA vacuums) ☐ (77) • Filters are changed more frequently, especially after work is completed ☐ (78) • Emissions from new furnishings are minimized (e.g., buying lower-emitting, airing out furnishings before installation, increased amount and duration of after installation) ☐ (79) • Ventilation and distribution equipment are protected. 2. Painting ☐ (80) The exposure to paint vapors is minimized by using low-emitting products, scheduling work during periods of minimum occupancy, or increasing ventilation. 3. Pest Control ☐ (81) Integrated Pest Management procedures are used to the extent possible: ☐ (82) • The pest control products being used in the building are known. ☐ (83) • Either by written procedures or contract language, it is ensured that all people who use pest control products read and follow all label directions for proper use, mixing, storage and disposal. ☐ (84) • Non-chemical pest control strategies are used where possible. ☐ (85) • The safest available pest control products that meet the building's needs are or reviewed with pest control contractor. 4. Shipping or Receiving ☐ (86) Vehicle exhaust has been prevented from entering the building (including through air intakes and building openings) by installing barriers to airflow from loading dock areas (e.g., doors, curtains, etc.) and using pressurization to prevent mixing of vehicle exhaust. Notes: _____ _____ _____ _____ <i>Building Air Quality</i> , Page 37 <i>Building Air Quality</i> , Page 40 <i>Building Air Quality</i> , Pages 6,40, and 99 <i>Building Air Quality</i> , Pages 6,40, & 99 " " " " " " " <i>Building Air Quality</i> , Pages 6,40, & 99 <i>Building Air Quality</i> , Page 38 " " " <i>Building Air Quality</i> , Page 37		

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STEP 6: MANAGE PROCESSES WITH POTENTIAL SIGNIFICANT POLLUTANT SOURCES For Guidance, refer to:	
(continued)	
<u>5. Smoking</u> ☐ (87) A. Smoking is prohibited in all portions of this building, including tenant occupied space. OR ☐ (88) B. If smoking is permitted in the building, all smoking areas are exhausted directly to the outside, are maintained under negative pressure relative to adjacent space, and are with 60 CFM per occupant of make-up air (can be supplied by transfer air). Notes: _____ _____ _____ _____	"What You Can Do About Secondhand Smoke", EPA 1993 ASHRAE Standard 62-89, "What You Can Do About Secondhand Smoke,"
STEP 7: COMMUNICATE APPROPRIATELY WITH TENANTS/OCCUPANTS ABOUT THEIR ROLE IN MAINTAINING GOOD IAQ For Guidance, refer to:	
☐ (89) Tenants or occupants are routinely informed about building conditions and policies that may impact IAQ (e.g., practices that attract insects or smoking policy clarifications). ☐ (90) Tenants or occupants are notified about planned major renovation, remodeling, maintenance or pest control activities. Notes: _____ _____ _____ _____	<i>Building Air Quality</i> , Pages 14 and 40 <i>Building Air Quality</i> , Page 14
STEP 8: ESTABLISH PROCEDURES FOR RESPONDING TO IAQ COMPLAINTS For Guidance, refer to:	
Clear procedures for responding to IAQ complaints have been written and are followed, including: ☐ (91) • Entries such as IAQ problems are logged into the existing work-order system. ☐ (92) • Information is collected from complainants. ☐ (93) • Information and records obtained from complainants are kept confidential. ☐ (94) • The capability of in-house staff to respond to complaints is assessed. ☐ (95) • Appropriate outside sources of assistance are identified. ☐ (96) • Feedback is provided in a timely manner to complainant. ☐ (97) • Remedial actions are taken. ☐ (98) • Remedial actions are followed-up to determine if the action has been effective. ☐ (99) Building staff have been informed of these procedures. ☐ (100) Building occupants and/or tenants have been informed of these procedures and are periodically reminded of how to locate responsible staff and where to obtain complaint forms. Notes: _____ _____ _____ _____	<i>Building Air Quality</i> , Pages 15-17 <i>Building Air Quality</i> , Page 13 <i>Building Air Quality</i> , Page 14

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