

IAQP Air Cleaner Compliance Checklist

The following checklist has been developed to help consulting engineers and code officials confidently select and approve air cleaning technologies that comply with Standard 62.1 Addendum n testing requirements. The items in this checklist are drawn directly from the latest version of Standard 62.1. Consulting engineers must ensure all requirements in this checklist are met to ensure sign-off by code officials. Before approving projects, code officials must also ensure all the requirements are met and sign off on the use of any national consensus standards not listed by ASHRAE or custom efficiency tests from manufacturers.

Instructions: When Standard 52.2 or ISO 16890 testing is used for particulate matter filters and Standard 145.2 or ISO 10121-2 is used for gas-phase air cleaners, complete steps 1 and 3 only. For all other test methodologies, complete sections 1-3.

Step 1: Air Cleaning Test Method Checklist

Per Addendum n to Standard 62.1-2022, Section 6.3.4: "Where particulate matter or gas-phase air cleaning is included in the design, the removal efficiencies shall be specified as follows" and "Gas-phase air cleaners shall report an efficiency test for all compounds included in the design..." Addendum aa to 62.1-2019 prescribes a minimum list of compounds (see Table 1).

Type of Air Cleaning	Approved Test Methods	Air Cleaner Efficiency Test Method (check all that apply)
Particulate matter filters	MERV per ASHRAE Standard 52.2 or ISO 16890	☐ ASHRAE Standard 52.2 ☐ ISO 16890
Gas-phase air cleaners (e.g., sorbents)	Efficiency per ASHRAE Standard 145.2 or ISO 10121-2	☐ ASHRAE Standard 145.2 ☐ ISO 10121-2
Other gas-phase air cleaners	Efficiency per ASHRAE Standard 145.2, other "national consensus standard" approved by AHJ, or "custom efficiency test" approved by AHJ	☐ ASHRAE Standard 145.2 ☐ National consensus standard approved by the local AHJ (complete Step 2a) ☐ Custom efficiency test approved by the local AHJ (complete step 2b)

Reminder: Step 2 only applies when test methods other than ASHRAE 52.2 / ISO 16890 or ASHRAE 145.2 / ISO 10121-2 are used to determine air cleaning efficiency for any of the Design Compounds shown in Appendix A.

Step 2a: Applies if a "national consensus standard" is used to determine air cleaning efficiency

Per Addendum n to Standard 62.1-2022, Section 6.3.4(d), testing to a national consensus standard must be approved by the authority having jurisdiction.

National consensus standard(s) used: _____

Approval: AHJ _____ Approver name _____ Approval date _____

Step 2b: Applies if a "custom efficiency test" is used to determine air cleaning efficiency

Per Addendum n to Standard 62.1-2022, Section 6.3.4(e), "For technologies not covered by any of the above, tests developed to demonstrate the removal efficiency shall be performed by a third party. The custom efficiency test shall be conducted for all compounds included in the design¹, and shall comply with the following" and "Any custom efficiency test description...shall be documented and approved by the authority having jurisdiction."

Testing requirements for each the design compounds (DCs) and PM2.5 specified in Table 6-5 (see Appendix A)	Approved by AHJ
Conducted by third-party lab	☐ Yes (compliant) ☐ No (non-compliant)
Test of the background concentration without the air cleaning in operation	☐ Yes (compliant) ☐ No (non-compliant)
Test of the output concentration with the air cleaning in operation	☐ Yes (compliant) ☐ No (non-compliant)
Test conducted under air cleaning operating conditions that match the IAQP design operating conditions ²	☐ Yes (compliant) ☐ No (non-compliant)
Test conducted using the relevant laboratory methods for analysis and quantification specified in Table 7-1 (see Appendix A)	☐ Yes (compliant) ☐ No (non-compliant)
Ozone Generating Devices – UL 2998 certification for air-cleaning devices that generate ozone (see 62.1-2019, Section 5.7)	☐ Yes (compliant) ☐ No (non-compliant)

1. Addendum aa to 62.1-2019, Sections 6.3.1 states "The system design shall be based on the design compounds (DCs) and PM2.5 specified in Table 6-5". See Table 1..

2. Informative Note: Air cleaning operating conditions include fan voltage, flow rate, and other settings that are consistent with the manufacturer's operating specifications.

Approval: AHJ _____ Approver name _____ Approval date _____

Step 3: Design Compound & Design Limit Checklist

Addendum aa, Sections 6.3.1 and 6.3.2, state, “The system design shall be based on the design compounds (DCs) and PM2.5 specified in Table 6-5”, “The concentration limits, referred to as design limits, shall be as specified in Table 6-5”, and “Design ventilation shall be such that the calculated concentration of each DC, mixture of DCs, and PM2.5 does not exceed its Limit.”

Table 1: Design Compound (DC) and PM2.5 (from Table 6-5)

Compliant designs must have a cleaning efficiency for each DC shown in Table 1 based on approved test methods. Mass balance calculations using 3rd party tested cleaning efficiencies must show that DLs are achieved for all DCs in all IAQP zones.

Design Compound (DC) or PM2.5	Test Method (options 2 and 3 require AHJ approval per above)	3 rd Party Tested Cleaning Efficiency	Design Limits (DL) (applies to all IAQP zones)
1. Acetaldehyde	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 140 µg/m3 achieved ☐ No (non-compliant)
2. Acetone	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 1,200 µg/m3 achieved ☐ No (non-compliant)
3. Benzene	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 3 µg/m3 achieved ☐ No (non-compliant)
4. Dichloromethane	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 400 µg/m3 achieved ☐ No (non-compliant)
5. Formaldehyde	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 33 µg/m3 achieved ☐ No (non-compliant)
6. Naphthalene	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 9 µg/m3 achieved ☐ No (non-compliant)
7. Phenol	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 10 µg/m3 achieved ☐ No (non-compliant)
8. Tetrachloroethylene	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 35 µg/m3 achieved ☐ No (non-compliant)
9. Toluene	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 300 µg/m3 achieved ☐ No (non-compliant)
10. 1,1,1-trichloroethane	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 1000 µg/m3 achieved ☐ No (non-compliant)
11. Xylene, total	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 500 µg/m3 achieved ☐ No (non-compliant)
12. Carbon monoxide	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 9 ppm achieved ☐ No (non-compliant)
13. PM2.5	☐ ASHRAE 52.2 / ISO 10121-2	☐ _____%	☐ 12 µg/m3 achieved ☐ No (non-compliant)
14. Ozone	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 70 ppb achieved ☐ No (non-compliant)
15. Ammonia ³	☐ ASHRAE 145.2/ ISO 16890 ☐ National consensus standard ☐ Custom efficiency test	☐ _____%	☐ 200 µg/m3 achieved ☐ No (non-compliant)

3. “Ammonia shall be included only for spaces that include nonhuman animals” (Exception to Section 6.3.2)

Table 2: Design Mixtures (from Table 6-6)

Addendum aa, Section 6.3.2, states, “For each mixture, the mixed exposure sum (Em), as determined by Equation 6-12, shall be less than 1.0”.

Design Compound (DC) or PM2.5	Mixed exposure sum (Em)
Upper Respiratory Tract Irritation (Acetaldehyde, Acetone, Xylene, Ozone)	☐ <1 (compliant) ☐ >1 (non-compliant)
Eye Irritation (Acetaldehyde, Acetone, Formaldehyde, Xylene, Ozone)	☐ <1 (compliant) ☐ >1 (non-compliant)
Central Nervous System (Acetone, Dichloromethane, Xylene, 1,1,1-trichloroethane, Toluene)	☐ <1 (compliant) ☐ >1 (non-compliant)

Appendix A: Table 7-1, ANSI/ASHRAE Standard 62.1-2022, Addendum n

Table 7-1 Allowed Laboratory Test Methods

Compound	Allowed Test Methods
VOCs except formaldehyde, acetaldehyde and acetone	ISO 16000-6; EPA IP-1, EPA TO-17; ISO 16017-1; ISO 16017-2; ASTM D6345-10
Formaldehyde, acetaldehyde and acetone	ISO 16000-3; EPA TO-11; EPA IP-6; ASTM D5197
Carbon monoxide	ISO 4224; EPA IP-3

Table 7-2 Direct Reading Instruments Minimum Specifications

	Ozone	PM2.5	Carbon Monoxide
Accuracy ($\pm$)	5 ppb	Greater of 5 $\mu\text{g}/\text{m}^3$ or 20% of reading	Greater of 3 ppm or 20% of reading
Resolution ($\pm$)	1 ppb	5 $\mu\text{g}/\text{m}^3$	1 ppm