



Indoor airPLUS Version 2 Highlights

Summary of Proposed Updates

The following is a summarized list of proposed updates to “Version 2” of the Indoor airPLUS Construction Specifications. The list below is not exhaustive of all of the updates in Version 2 but intends to capture the most notable updates from Version 1 (Revision 04). Please refer to both documents to review specific text changes and proposed updates for public comment.

General Updates to Eligibility, Verification Requirements, and Specifications Format

- All buildings eligible for ENERGY STAR under the Certified Homes or Multifamily New Construction (MFNC) programs would also be eligible for Indoor airPLUS (IAP) under Version 2.
- For all Multifamily (MF) buildings, requirements apply to common spaces where noted.
- Some sections are reorganized (e.g. Moisture Control includes sub-sections, following the format of the original Version 1.0), and various specification items have been re-numbered.
- Terminology is updated in some cases (e.g. Section 4 uses the term “HAC” rather than “HVAC” in many instances, underscoring the importance of ventilation, often as a separate system from heating/cooling).

1. Moisture Control

- 1.3 Locate a trapped drain in the lowest area of basement or crawlspace.
- 1.4 Capillary break included under or on top of footers (e.g. poly, bituminous membrane, liquid waterproofing).
- 1.8 Moisture zones A and C: provide active dehumidification OR conditioned air for basements and crawlspaces.
- 1.13 More explicit requirements for low sloped or flat roofs (<2:12 pitch), including insulated drains.

2. Radon

- 2.1 Radon mitigation, testing or education requirements for ALL Radon Zones (RZ):
 - RZ 1 – Active system OR passive system plus radon test.
 - RZ 2 – Passive system OR radon test.
 - RZ 3 – Any option above OR for single-family homes/townhouses, provide EPA’s Citizen’s Guide to Radon.
- 2.2 Verification requirements for radon-resistant features:
 - Additional clarification for fan location and electrical panel label.
 - Active systems must have monitors to notify occupants or building manager and include:
 - Negative pressure meter; AND,
 - Audible fan alarm or remote telemetry notification.

3. Pest Barriers

- 3.1 Foundation and slab requirements for Moderate to Very Heavy termite regions.
- 3.2 Screens provided for all operable windows.
- 3.3 Multifamily Pest Management
 - Pest Management Plan for multifamily projects or documented contract with pest management company.
 - Sanitary floor drains in common trash/recycle rooms.

4. Heating, Cooling, and Ventilation Systems

4.1 Heating and Cooling (HAC) Sizing and Design

- Heating and cooling design loads are required to be calculated for all dwelling units, regardless of system type.
- Manual S is required for sizing equipment that was previously exempt, such as boilers and mini-splits. Accommodations are provided for sizing space heating systems that also provide water heating.
- Heating and cooling design loads in multifamily common spaces are now required to be calculated. ANSI/ASHRAE/ACCA Standard 183 shall be used for the calculations and common space HAC systems shall be sized based on those loads.

4.2 Duct System Design and Installation

- In multifamily, common space HAC duct systems are required to be sized in accordance with ASHRAE Handbook of Fundamentals. While leakage testing is not required, visual inspections for duct sealing are required.

4.3 Location of Air Handling Equipment and Ductwork

- All HAC air handling equipment and ductwork must be installed within the thermal and air barrier boundary of the dwelling unit (see exceptions for jump ducts, embedded ducts, dehumidified spaces, and shared HAC systems).
- Air handling equipment located to facilitate cleaning, filter replacement, access to cores and condensate pan.

4.5 Dwelling-Unit Mechanical Ventilation

- Must provide a BALANCED ventilation system (exhaust-only or supply-only not allowed).
 - System is considered 'balanced' if the supply and exhaust flows measure within 10% or 10cfm.
- Outdoor air passes through a MERV 13 filter, in accessible location for maintenance/replacement.
- Increases minimum dwelling-unit mechanical ventilation rates to align with ASHRAE 62.2-2013.

4.6 Dwelling Unit Bathroom and Kitchen Exhaust

- Requires automatic controls, based on occupancy or RH, for intermittent bathroom exhaust fans and maximum of 2 sones at 50 cfm.
- Recommends automatic controls for kitchen exhaust fans and requires maximum of 2 sones at 100 cfm.
- Demand-controlled kitchen exhaust fan at each range (minimum 100 cfm or 300 cfm if downdraft), vented to outdoors required for one- and two-family homes and townhouses. NOTE: Multifamily may still use continuous exhaust (in kitchen "area") if it has a MERV 3 or washable filter and a recirculating range hood with charcoal filter installed above the stove.

4.7 Common Spaces and Other Ventilation

- In multifamily, common spaces are required to meet ASHRAE 62.1-2010 for minimum outdoor air and exhaust. Outdoor air must pass through a MERV 13 filter.

4.8 Filtration for Ducted HAC

- Increases filter rating from MERV 8 to MERV 13 and extends filter requirement to HAC systems serving common spaces in multifamily.
- Electronic air cleaners must not exceed ozone emission limits.

4.10 Humidity Control

- Provide humidity monitor with digital display of indoor temp, relative humidity (RH) and ability to record data (exception, multifamily projects with remote RH monitoring).
- CZ 1-4 Moist (A) must install equipment to maintain indoor RH at or below 60% (i.e. whole-home dehumidification or HAC with variable capacity & controls integrated with humidity sensor).

5. Combustion Pollutant Control

5.1 Combustion Appliances

- No unvented combustion appliances within the pressure boundary (except for ranges/ovens).
- If solid fuel burning appliances are installed, provide monitoring device capable of monitoring PM_{2.5} and CO₂.

5.2 Carbon Monoxide Alarms

- ALL homes include an alarm with minimum 10-year non-replaceable batteries.

5.4 Pollutant Control through Minimized Air Infiltration

- In all attached dwelling units, including apartments, townhouses and two-family homes, air infiltration is no greater than 0.23 CFM50/sf of dwelling unit enclosure area. (Note: for ES MFNC projects, the current threshold is 0.3 CFM50/sf. For projects following ES Certified Homes, this is a new test threshold/metric).
- In all detached homes, air infiltration is no greater than 3 ACH50.

5.5 Attached Garages and Parking Structures

- For projects following ES MFNC, meet the following MFNC requirements:
 - When sampling compartmentalization testing, include a minimum of 20% of units adjacent to garage.
- In ALL detached one- and two-family homes and townhouses:
 - Install an exhaust fan in the garage, minimum 100 cfm (rater verified) OR test house pressure difference.

6. Low-Emission Materials

6.2 Interior Paints, Finishes, and Coatings

- Products must meet:
 - The emission-based standard of California Department of Public Health (CDPH) Standard Method V1.2-2017 (*removed previously referenced standards and certifications*); AND
 - VOC content limits, including colorants, per SCAQMD Rule 1113 or CARB's Suggested Control Measure for Architectural Coatings (May 2020).

6.3 Carpets and Cushions

- Products must meet CDPH Standard Method V 1.2-2017 (*removed previously referenced certification*).

6.4 Adhesives and Sealants

- Products must meet CDPH Standard Method V1.2-2017 AND VOC limits in SCAQMD Rule 1168.

6.5 Hard Surface Flooring

- Products must meet CDPH Standard Method V1.2-2017.

6.6 Gypsum Board

- Products must meet CDPH Standard Method V 1.2-2017.

6.7 Insulation

- Products must meet CDPH Standard Method V 1.2-2017.