

SECTION 301—DEFINED TERMS AND ACRONYMS

301.1 Definitions.¹

AHRI REFERENCE NUMBER. The unique identifier assigned by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) to a specific piece of equipment or combination of equipment that it has certified.

AIR CONDITIONER. A vapor-compression refrigeration device that transfers heat from a location being cooled to another location using the physical properties of an evaporating and condensing fluid known as a refrigerant.

ARCHITECTURAL OPTION. An optional modification to a portion of an *architectural plan*.

ARCHITECTURAL PLAN. An architectural drawing defining the room quantity, room type and dimensions of a *dwelling*.

ATTIC. A space volume directly below the roof assembly that is not included in the *conditioned floor area*. Attics may be either vented or air sealed.²

AUTHORITY HAVING JURISDICTION. The agency or agent responsible for enforcing this standard.

BEDROOM. For one- and two-family *dwelling*s and *townhouses*, a room or space 70 square feet (6.5 m²) of floor area or greater, with an *egress window* or skylight, and with a doorway to the main body of the *dwelling unit* that can be used for sleeping.³ For all other *dwelling units* a bedroom is a room or space that can be used for sleeping. For all *dwelling* or *sleeping units*, the number of *bedrooms* shall not be less than one.

BLOWER FAN. The fan inside the equipment of a *forced-air HVAC system* that forces the heated or cooled air to be distributed within a *dwelling unit*.

BOILER. A space-heating appliance in which liquid is heated by burning fuel or converting electrical energy.

CLIMATE CONDITION. The classification of a climate, as defined by ACCA Manual S, into Condition A or B. Condition B represents climates for which the sensible heat ratio is greater than or equal to 0.95 and the ratio of heating degree days to cooling degree days is greater than or equal to 2.0.⁴ Climates that do not meet Condition B are considered to be Condition A.

CONDENSING TEMPERATURE. The refrigerant *saturation temperature* measured at the service valve at the condenser coil entrance.

CONDENSING TEMPERATURE OVER AMBIENT (CTOA). A constant value that represents the difference between the *condensing temperature* and the outdoor air used to cool the refrigerant in the condenser coil.

CONDITIONED FLOOR AREA (CFA).⁵ The floor area of the *conditioned space volume* within a building or *dwelling unit*, not including the floor area of *attics* or crawl spaces, and basements below air sealed and insulated floors. The following specific spaces are addressed to ensure consistent application of this definition:

1. The CFA shall include the floor area of the full width of a wall assembly that is within the *conditioned space volume*.

Exception: If the subject *dwelling unit* shares a wall assembly⁶ with another *dwelling unit*, then the CFA of the subject *dwelling unit* shall extend to the midpoint of that shared wall assembly.
2. The CFA shall include the floor area of a basement only if it is contiguous with and dedicated⁷ to the subject *dwelling unit* and the party conducting the evaluation has either:
 - 2.1. Obtained an ACCA Manual J, S, and either B or D report and verified that both the heating and cooling equipment and distribution system are designed to offset the entire design load of the volume.
 - 2.2. Verified through visual inspection that both the heating and cooling equipment and distribution system serve the volume and, in the judgment of the party conducting evaluations, are capable of maintaining space conditions at 78°F (26°C) for cooling and 68°F (20°C) for heating.
3. The CFA shall exclude the floor area of a garage, even when it is conditioned.
4. The CFA shall exclude the floor area of a thermally isolated sunroom.
5. The CFA shall exclude the floor area of an *attic*, even when it is *conditioned space volume*.⁸
6. The CFA shall exclude the floor area of a crawl space, even when it is *conditioned space volume*.

1. (Informative Note) When used in this standard, italicization indicates that the term is defined in Section 301.1.

2. (Normative Note) *Conditioned space volume* that is intended for human activities, including but not limited to those for living, sleeping, dining or cooking, as well as toilets, closets, halls, utility areas and above the main *dwelling unit* (for example, a "Cape Cod" home), is not considered *attic* space and shall be included in the *conditioned floor area*.

3. (Informative Note) A "den," "library," "home office" or other similar rooms with a closet, *egress window*, and doorway to the main body of the *dwelling unit* as well as 70 square feet (6.5 m²) of floor area or greater are considered a *bedroom*. However, living rooms, foyers and other rooms not intended for sleeping are not. The number of rooms identified as *bedrooms* is used to determine the number of occupants.

4. (Informative Note) ACCA uses a base temperature of 65°F (18°C) for heating and 50°F (10°C) for cooling.

5. (Informative Note) Informative Annex A of ANSI/RESNET/ICC 380 contains a table that summarizes parts of a *dwelling unit* that are included in *conditioned floor area*.

6. (Informative Note) For example, a common or demising wall.

7. (Informative Note) That is, it does not span multiple *dwelling units* undivided.

8. (Informative Note) *Conditioned space volume* that is intended for human activities, including but not limited to those for living, sleeping, dining or cooking, as well as toilets, closets, halls, utility areas and above the main *dwelling unit* (for example, a "Cape Cod" home), is not considered *attic* space and shall be included in the *conditioned floor area*.

DEFINITIONS

CONDITIONED SPACE VOLUME (CSV).⁹ The volume within a *dwelling unit* serviced by a space heating or cooling system designed to maintain space conditions at 78°F (26°C) for cooling and 68°F (20°C) for heating. The following specific spaces are addressed to ensure consistent application of this definition:

1. If the volume both above and below a floor assembly meets this definition and is part of the subject *dwelling unit*, then the CSV shall include the volume of the full depth of the floor assembly. Otherwise, the volume of the full depth of the floor assembly shall be excluded.

Exception: The wall height used to determine the volume shall extend from the finished floor to the bottom surface of the floor decking above the rated *dwelling unit* for all floors other than the top floor. For *dwelling units* on the top floor, this dimension shall extend from the top surface of the finished floor to the interior surface of the enclosure air barrier.

2. If the volume of at least one of the spaces horizontally adjacent to a wall assembly meets this definition, and that volume is part of the subject *dwelling unit*, CSV shall include the volume of the full width of the wall assembly. Otherwise, the volume of the full width of the wall assembly shall be excluded.

Exception: If the subject *dwelling unit* shares a wall assembly¹⁰ with another *dwelling unit*, then the CSV of the subject *dwelling unit* shall include half the volume of the full width of that shared wall assembly.

3. The CSV shall exclude the volume of a garage, even when it is conditioned.
4. The CSV shall exclude the volume of a thermally isolated sunroom.
5. The CSV shall include the volume of an *attic*, crawl space or a basement only if it is contiguous with and dedicated¹¹ to the subject *dwelling unit* and the party conducting evaluations has either:
 - 5.1. Obtained an ACCA Manual J, S, and either B or D report and verified that both the heating and cooling equipment and distribution system are designed to offset the entire design load of the volume.
 - 5.2. Verified through visual inspection that both the heating and cooling equipment and distribution system serve the volume and, in the judgment of the party conducting evaluations, are capable of maintaining space conditions at 78°F (26°C) for cooling and 68°F (20°C) for heating.
6. The CSV shall include the volume of an adjacent mechanical closet, regardless of access location, only if it is contiguous with and dedicated¹² to the subject *dwelling unit*, only includes equipment serving the subject *dwelling unit*, and the party conducting evaluations has either:
 - 6.1. Obtained an ACCA Manual J, S, and either B or D report and verified that both the heating and cooling equipment and distribution system are designed to offset the entire design load of the volume.
 - 6.2. Verified through visual inspection that both the heating and cooling equipment and distribution system serve the volume and, in the judgment of the party conducting evaluations, are capable of maintaining space conditions at 78°F (26°C) for cooling and 68°F (20°C) for heating.

DESIGN TEMPERATURE DIFFERENCE (DTD). A constant value that represents the difference between the evaporator coil refrigerant's *saturation temperature* and the return air dry-bulb temperature within normal operating load conditions.

DEVIATION. The measured percent change from a design condition whereby the measured value minus the design value is divided by the design value and expressed as a percent change.

DIRECT-VENT APPLIANCE. Appliances that are constructed and installed so that all air for combustion is derived from the outdoor atmosphere and all flue gases are discharged to the outdoor atmosphere.

DWELLING. Any building that contains one or two *dwelling units* used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes.

DWELLING UNIT. A single unit providing complete independent living facilities for one or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

DWELLING-UNIT MECHANICAL VENTILATION SYSTEM. A *ventilation* system, operating continuously or through a programmed intermittent schedule, consisting of powered *ventilation* equipment,¹³ related mechanical components¹⁴ and automated control devices¹⁵ that provides *dwelling unit ventilation* at a known or measured airflow rate.

9. (Informative Note) Informative Annex A of ANSI/RESNET/ICC 380 contains a table that summarizes parts of a dwelling unit that are included in conditioned space volume.

10. (Informative Note) For example, a common or demising wall.

11. (Informative Note) That is, it does not span multiple dwelling units undivided.

12. (Informative Note) That is, it does not span multiple dwelling units undivided.

13. (Informative Note) Such as motor-driven fans and blowers.

14. (Informative Note) Such as ducts, inlets, dampers or filters.

15. (Normative Note) A switch or thermostat setting that enables the occupant to turn a system on and off, is not considered automated, continuous or programmed. The presence of a ventilation override control is permitted, if the override control is labeled with text or an icon that clearly indicate its function is to turn off the ventilation system.

EGRESS WINDOW. An operable window that provides for a means of escape and access for rescue in the event of an emergency and for new construction, with all of the following attributes:

1. A sill height of not more than 44 inches (1118 mm) above the floor.
2. A minimum net clear opening of not less than 5.7 square feet (0.53 m²).
3. A net clear opening height of not less than 24 inches (610 mm).
4. A net clear opening width of not less than 20 inches (508 mm).
5. Operational from the inside of the room without the use of keys, tools or special knowledge.

FORCED-AIR HVAC SYSTEM. A type of HVAC system that incorporates a *blower fan* to move conditioned air.

FRONT ORIENTATION. The direction that the front door of a *dwelling* is facing.

FURNACE. A space-heating appliance in which air is heated by burning fuel or converting electrical energy.

HEAT PUMP. A vapor-compression refrigeration device that includes a reversing valve and optimized heat exchangers so that the direction of heat flow is reversed in order to transfer heat from one location to another using the physical properties of an evaporating and condensing fluid known as a refrigerant.¹⁶

HVAC SYSTEM. Cooling-only, heating-only or combined cooling-heating equipment, including any supply or return distribution systems.

INDEPENDENT VERIFICATION REPORT. A report provided by a party operating under a third-party quality control program.

INFILTRATION VOLUME.¹⁷ The sum of the following spaces of the subject *dwelling unit*:

1. The *conditioned space volume*, excluding any *attics*, basements, crawl spaces and adjacent mechanical closets.
2. The *conditioned space volume* and *unconditioned space volume* of the following adjacent spaces if included¹⁸ during the airtightness measurement of the enclosure: *attics*, crawl spaces and the full depth of their floor assemblies above, basements and the full depth of their floor assemblies above, and adjacent mechanical closets and the full width of their wall assemblies between them and the subject *dwelling unit*.

MECHANICAL DRAFT SYSTEM. A venting system designed to remove flue or vent gases by mechanical means that consists of an induced-draft portion under nonpositive static pressure or a forced-draft portion under positive static pressure.

MINI-SPLIT AIR CONDITIONER (MNAC). An *air conditioner* that has variable refrigerant flow and distributed refrigerant technology with a single outdoor unit serving a single indoor unit. The outdoor unit contains a single compressor or multiple compressors or a variable capacity compressor. The indoor unit has a coil, an air movement device¹⁹ intended for single zone air distribution and a temperature sensing control. The units are matched with a zone temperature control device.

MINI-SPLIT HEAT PUMP (MNHP). A *heat pump* that has variable refrigerant flow and distributed refrigerant technology with a single outdoor unit serving a single indoor unit. The outdoor unit contains a single compressor or multiple compressors or a variable capacity compressor. The indoor unit has a coil, an air movement device²⁰ intended for single zone air distribution and a temperature sensing control. The units are matched with a zone temperature control device.

MULTI-SPLIT AIR CONDITIONER (MTAC). An *air conditioner* that has variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor units with a single outdoor unit. The outdoor unit contains a single compressor, multiple compressors or a variable capacity compressor. Each indoor unit has a coil, an air movement device²¹ intended for single zone air distribution and a temperature sensing control. The units are matched with a zone temperature control device.

MULTI-SPLIT HEAT PUMP (MTHP). A *heat pump* that has variable refrigerant flow and distributed refrigerant technology with the capability of serving multiple indoor units with a single outdoor unit. The outdoor unit contains a single compressor, multiple compressors or a variable capacity compressor. Each indoor unit has a coil, an air movement device²² intended for single zone air distribution and a temperature sensing control. The units are matched with a zone temperature control device.

NATURAL DRAFT SYSTEM. A venting system designed to remove flue or vent gases under nonpositive static vent pressure entirely by natural draft.

OEM STATIC PRESSURE TABLE. Documentation produced by a *forced-air HVAC system* equipment manufacturer that indicates the *blower fan* airflow at specified fan-speed settings, static pressure values and, in some instances, voltage.

OTHER EQUIPMENT TYPE. Any HVAC equipment type that is not an *air conditioner*, *boiler*, *furnace* or *heat pump*.

OTHER MOTOR TYPE. Any *blower fan* motor type that is not a permanent split capacitor (PSC) or electronically commutated motor (ECM).

OTHER VENTILATION STANDARD. Any *ventilation* standard that is not ASHRAE 62.2—2010 or later edition.

SATURATION TEMPERATURE. The temperature at which the refrigerant undergoes a phase change in either the condenser or evaporator coils.

16. (Informative Note) Most commonly, heat pumps draw heat from the air or from the ground moving the heat from a low temperature heat source to a higher temperature heat sink.

17. (Informative Note) Informative Annex A of ANSI/RESNET/ICC 380 contains a table that summarizes parts of a dwelling unit that are included in infiltration volume.

18. (Informative Note) Sections 402.4, 402.5, 402.6 and 402.7 of ANSI/RESNET/ICC 380 define whether these adjacent spaces are to be included in infiltration volume.

19. (Informative Note) The air movement device is typically ductless or supports duct systems ≤ 10 feet in length.

20. (Informative Note) The air movement device is typically ductless or supports duct systems ≤ 10 feet in length.

21. (Informative Note) The air movement device is typically ductless or supports duct systems ≤ 10 feet in length.

22. (Informative Note) The air movement device is typically ductless or supports duct systems ≤ 10 feet in length.

DEFINITIONS

SINGLE PACKAGED SYSTEM. A forced-air HVAC system with a closed refrigerant loop that is charged by the manufacturer and integrated into a single factory-made enclosure.²³

SLEEPING UNIT. A room or space in which people sleep, which can also include permanent provisions for living, eating, and either sanitation or kitchen facilities but not both. Such rooms and spaces that are also part of a *dwelling unit* are not *sleeping units*.

SPECIFIC FAN POWER. A measure of the electric power that is needed to drive a fan (or collection of fans), relative to the amount of air that is circulated through the fan(s) as expressed in W/cfm.

TARGET LIQUID LINE TEMPERATURE. The calculated target temperature of the liquid line.

TARGET SUBCOOLING. The manufacturer-prescribed subcooling for the equipment being tested.

TARGET SUCTION LINE TEMPERATURE. The calculated target temperature of the suction line.

TARGET SUPERHEAT. The manufacturer-prescribed superheat for the equipment being tested.

TOWNHOUSE. A single-family *dwelling unit* constructed in a group of three or more attached units in which each unit extends from the foundation to roof and with open space on at least two sides.

UNCONDITIONED SPACE VOLUME.²⁴ The volume within a building or *dwelling unit* that is not *conditioned space volume* but which contains heat sources or sinks that influence the temperature of the area or room. The following specific spaces are addressed to ensure consistent application of this definition for inclusion in *unconditioned space volume*:

1. If one or both of the volumes above and below a floor assembly is *unconditioned space volume*, then the volume of the full depth of the floor assembly shall be included.
2. If the volume of both of the spaces horizontally adjacent to a wall assembly are *unconditioned space volume*, then the volume of the full width of the wall assembly shall be included.

Exception: If the volume of one of the spaces horizontally adjacent to a wall assembly is a *dwelling unit* other than the subject *dwelling unit*, then the volume of the full width of that wall assembly shall be evenly divided between both adjacent *dwelling units*.

3. The volume of an attached garage shall be included, even when it is conditioned.
4. The volume of a thermally isolated sunroom shall be included.
5. The volume of an *attic*, a crawl space or a basement shall be included unless it meets the definition of *conditioned space volume*.

UNITARY. One or more factory-made assemblies that may include an evaporator or cooling coil, a compressor and condenser combination, and a heating function. The equipment can be ducted or ductless; it can be a split-system or single package.

VENTILATION. The process of providing outdoor air directly to a *dwelling unit* by natural or mechanical means. Such air may or may not be conditioned.

WATER LOOP HEAT PUMP (WLHP). Vapor-compression heating and cooling equipment that uses water as its heat source and heat sink (see also “*Heat pump*”).

301.2 Acronyms. (Informational)

ACCA	Air Conditioning Contractors of America
ACH50	Air Changes per Hour at 50 Pascals
AHRI	Air-Conditioning, Heating, and Refrigeration Institute
ANSI	American National Standards Institute
ASHRAE	American Society of Heating Refrigeration and Air-Conditioning Engineers
ASTM	ASTM International, originally known as the American Society for Testing and Materials (ASTM)
CFA	Conditioned Floor Area
CFM	Cubic Feet per Minute
CMS	Cubic Meters per Second
COP	Coefficient of Performance
CSV	Conditioned Space Volume
CTOA	Condensing Temperature Over Ambient
DTD	Design Temperature Difference
ECM	Electronically Commutated Motor
EER	Energy Efficiency Ratio
EEV	Electronic Expansion Valve
ERV	Energy Recovery Ventilation
FPR	Filter Performance Rating
HRV	Heat Recovery Ventilation
HSPF	Heating Seasonal Performance Factor
HVAC	Heating Ventilation and Air Conditioning

23. (Informative Note) For example, a packaged terminal air conditioner (PTAC), packaged terminal heat pump (PTHP) or room AC.

24. (Informative Note) Informative Annex A of ANSI/RESNET/ICC 380 contains a table that summarizes parts of a dwelling unit that are included in unconditioned space volume.

IWC	Inch of Water Column
MERV	Minimum Efficiency Reporting Value
MNAC	Mini-Split Air Conditioner
MNHP	Mini-Split Heat Pump
MTAC	Multi-Split Air Conditioner
MTHP	Multi-Split Heat Pump
OEM	Original Equipment Manufacturer
Pa	Pascals
PSC	Permanent Split Capacitor
SEER	Seasonal Energy Efficiency Ration
TXV	Thermal Expansion Valve
UL	Underwriters Laboratories

TASK 1: EVALUATION OF THE DESIGN

SECTION 401—OVERVIEW

401.1 General. This procedure shall be completed by first collecting the design information specified in Section 402.1, then verifying that all required information has been provided and falls within the tolerances specified in Section 403.1.

As an alternative to completing the procedures defined in Section 402.1 and 403.1, if an *independent verification report* is obtained containing the design information specified in Section 402.1; confirmation that all required information has been provided and falls within the tolerances specified in Section 403.1, and the report is approved for use by an entity adopting and requiring the use of this standard, then the reported values shall be permitted to be used.

SECTION 402—REQUIRED DESIGN INFORMATION

402.1 General. The following design information shall be collected by the person completing the evaluation for the *dwelling*.

1. Architectural design documentation, consisting of the following:
 - 1.1. The *architectural plan*.
 - 1.2. Any *architectural options* for the plan.
2. HVAC design basis, consisting of the following:
 - 2.1. The designer name.
 - 2.2. The designer company.
 - 2.3. The date of design.
 - 2.4. The architectural scope of the HVAC design consisting of the following:
 - 2.4.1. If a *dwelling or townhouse*, or a *dwelling unit or sleeping unit* within:
 - 2.4.1.1. The name of the *architectural plan* that the HVAC design is based on or the unique address of the building.
 - 2.4.1.2. Any *architectural option(s)* used in the HVAC design, and a list of other *architectural option(s)*, if any, that the design can be used with.
 - 2.4.2. If a *dwelling unit or sleeping unit* not within a *dwelling or townhouse*:
 - 2.4.2.1. A unique identifier for the building that the unit is within.¹
 - 2.4.2.2. The name of the *architectural plan* that the HVAC design is based on and a list of other *architectural plan(s)*, if any, that the design can be used with.
 - 2.4.2.3. Any *architectural option(s)* used in the HVAC design and a list of other *architectural option(s)*, if any, that the design can be used with.
 - 2.5. If a software program was used to complete the design, the software program name and version that was used.
3. *Dwelling-unit mechanical ventilation system* design for each system that serves the *dwelling* consisting of the following:
 - 3.1. A unique name or identifier for the system.²
 - 3.2. The specified system type: supply, exhaust, balanced without recovery, ERV, HRV, *ventilation* dehumidifier or other.
 - 3.3. The specified control location for the system.³
 - 3.4. For systems serving *dwelling units or sleeping units* not within a *dwelling or townhouse*:
 - 3.4.1. The specified system manufacturer and model number.
 - 3.4.2. The unit(s) served by the system.
 - 3.5. The name of the *ventilation zone(s)*⁴ served by the system.
 - 3.6. An overview of each *ventilation zone* that the system serves consisting of the following information.
 - 3.6.1. The design basis for the ventilation airflow rate and runtime for the ventilation zone. Options are ASHRAE 62.2, including the edition year designated,⁵ or *other ventilation standard*.
 - 3.6.2. The number of *bedrooms* within the *ventilation zone*.
 - 3.6.3. The floor area of the *ventilation zone*.
 - 3.6.4. The design's *ventilation* airflow rate(s), runtime(s) per cycle and cycle time(s) for the *ventilation zone*. Multiple combinations of *ventilation* airflow rates, runtimes per cycle and cycle times are permitted to

1. (Informative Note) For example, the name of the development or the building's address.

2. (Informative Note) For example, "Bath Fan 1," "ERV 1."

3. (Informative Note) Examples of common locations include bathroom or utility room.

4. (Informative Note) Examples of *ventilation zones* include Whole Dwelling, Upper Level, Lower Level and Basement.

5. (Informative Note) For example, ASHRAE 62.2—2010 or ASHRAE 62.2—2022.