STANDARD

ANSI/ASHRAE Standard 62.2-2016
(Supersedes ANSI/ASHRAE Standard 62.2-2013)
Includes ANSI/ASHRAE addenda listed in Appendix D

Ventilation and Acceptable Indoor Air Quality in Residential Buildings

See Appendix D for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, and the American National Standards Institute.

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c. offering constructive criticism for improving the Standard, or
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ANSI/ASHRAE Standard 62.2-2016, Ventilation and Acceptable Indoor Air Quality in Residential Buildings

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

Standard 62.2 was first published in 2003 as the first national ventilation and indoor air quality (IAQ) standard developed specifically for low-rise residential buildings via the ANSI process. It has been maintained using the ANSI and ASHRAE continuous maintenance procedures. Readers are encouraged to use these procedures to propose changes to the standard. The committee will consider and take formal action on every proposal received. Forms and procedures for submitting change proposals may be found on ASHRAE's website at www.ashrae.org or at the end of this standard. When proposed addenda are available for public review and when approved addenda are published, notices will be published on ASHRAE's website. The standard is now published in its entirety every third year and includes all approved addenda and errata. This procedure allows users to have certainty about when the new editions will be published. This 2016 edition incorporates the contents of 17 addenda into the 2013 edition, which were processed by the committee and approved by ASHRAE and ANSI. For brief descriptions of the addenda to ANSI/ASHRAE Standard 62.2-2013, see Informative Appendix D.

Since 2007 extensive experience has been gained in the application of this standard due to its adoption by various building codes and use in numerous building programs. Additionally, the science regarding indoor air quality and its relationship to health has advanced significantly. As such, many clarifications and improvements have been identified and incorporated, including through the approved addenda for the 2016 edition. Major changes since the 2013 edition include two scope changes: the inclusion of unvented space heaters as a potential contaminant source that the standard can address, and the expansion of covered dwellings to include all multifamily dwelling units regardless of building height. Other major changes include a de minimus calculated mechanical ventilation rate of 15 cfm to require the installation of mechanical ventilation in existing homes (addendum b); a distinction between range hoods and other kitchen ventilation options (addendum c); a method for determining an infiltration credit for horizontally attached multifamily dwelling units (addendum j); and a method for determining requirements for a variety of noncontinuous ventilation strategies (addendum v). Addendum v also implements a maximum short-term relative exposure limit for the first time, in addition to the traditional use of annual dose.

As in previous editions of this standard, there are three primary sets of requirements and a number of secondary ones. The three primary sets involve whole-building ventilation, local demand-controlled exhaust, and source control. Whole-building ventilation is intended to dilute the unavoidable contaminant emissions from people, from materials, and from background processes. Local demand-controlled exhaust is intended to remove contaminants from kitchens and bathrooms that, because of their design function, are expected to contain sources of contaminants. Other source control measures are included to deal with those sources that can be reasonably anticipated to be found in a residence. The standard's secondary requirements focus on properties of specific items that are needed to achieve the main objectives of the standard. Examples include sound and flow ratings for fans, controls, and labeling requirements.

This standard does not address specific pollutant concentration levels. It also does not address certain potential pollutant sources such as contamination from outdoor sources or from episodic occupant-controlled events such as painting, smoking, cleaning, or other high-polluting events. For information on residential ventilation and IAQ beyond the minimum requirements contained in this standard, users may wish to consult the companion guideline, which was also developed by the Standard 62.2 committee. ASHRAE Guideline 24-2015, Ventilation and Indoor Air Quality in Low-Rise Residential Buildings*, provides explanatory and educational material not appropriate for a code-intended standard and addresses IAQ and ventilation issues where consensus could not be achieved for inclusion in the standard.*

1. PURPOSE

This standard defines the roles of and minimum requirements for mechanical and natural ventilation systems and the building envelope intended to provide acceptable indoor air quality (IAQ) in residential buildings.

2. SCOPE

This standard applies to dwelling units in residential occupancies in which the occupants are nontransient.

2.1 This standard considers chemical, physical, and biological contaminants that can affect air quality. Thermal comfort requirements are not included in this standard.

Informative Note: See ANSI/ASHRAE Standard 55-2013, *Thermal Environmental Conditions for Human Occupancy*.

2.2 While acceptable IAQ is the goal of this standard, it will not necessarily be achieved even if all requirements are met

a. because of the diversity of sources and contaminants in indoor air and the range of susceptibility in the population;

b. because of the many other factors that may affect occupant perception and acceptance of IAQ, such as air temperature, humidity, noise, lighting, and psychological stress;

c. if the ambient air is unacceptable and this air is brought into the building without first being cleaned (cleaning of ambient outdoor air is not required by this standard);

d. if the system or systems are not operated and maintained as designed; or

e. when high-polluting events occur.

3. DEFINITIONS

acceptable indoor air quality: air toward which a substantial majority of occupants express no dissatisfaction with respect to odor and sensory irritation and in which there are not likely to be contaminants at concentrations that are known to pose a health risk.

air cleaning: the use of equipment that removes particulate, microbial, or gaseous contaminants (including odors) from air.

air, exhaust: air discharged from any space to the outside by an exhaust system.

air, indoor: air in an occupiable space.

air, outdoor: air from outside the building taken into a ventilation system or air from outside the building that enters a space through infiltration or natural ventilation openings.

air, transfer: air moved from one occupiable space to another, usually through doorways or grilles.

air, ventilation: outdoor air delivered to a space that is intended to dilute airborne contaminants.

air change rate: airflow in volume units per hour divided by the volume of the space on which the air change rate is based in identical units (normally expressed in air changes per hour [ach]).

annual exposure: the time-integrated concentration taken over one year that would occur for a constant source strength.

balanced system: one or more fans that supply outdoor air and exhaust building air at substantially equal rates.

bathroom: any room containing a bathtub, a shower, a spa, or a similar source of moisture.

climate, hot, humid: climate in which the wet-bulb temperature is 67°F (19°C) or higher for 3500 h or more, or 73°F (23°C) or higher for 1750 h or more, during the warmest six consecutive months of a year that is typical for that geographic area.

climate, very cold: climates that have more than 9000 annual heating degree-days base 65°F-day (5000 annual heating degree-days base 18°C-day).

conditioned space: the part of a building that is capable of being thermally conditioned for the comfort of occupants.

contaminant: a constituent of air that may reduce acceptability of that air.

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, attached: a dwelling unit sharing demising walls, floors, ceilings, or common corridors with another dwelling unit or occupiable space.

effective annual average infiltration rate: the constant air infiltration rate that would result in the same average indoor pollutant concentration over the annual period as actually occurs under varying conditions.

exhaust system: one or more fans that remove air from the building, causing outdoor air to enter by ventilation inlets or normal leakage paths through the building envelope.

exhaust flow, net: flow through an exhaust system minus the compensating outdoor airflow through any supply system that is interlocked to the exhaust system.

floor area: all above- and below-grade finished areas as defined in ANSI Standard Z765 [1].

habitable space: building space intended for continual human occupancy; such space generally includes areas used for living, sleeping, dining, and cooking but does not generally include bathrooms, toilets, hallways, storage areas, closets, or utility rooms.

heating degree-day: the difference in temperature between the outdoor mean temperature over a 24 h period and a given base temperature of a building space; that is, for heating degree-day base 65°F (18°C), for any one day, when the mean temperature is less than 65°F (18°C), there are as many heating degree-days as degrees Fahrenheit (Celsius) temperature difference between the mean temperature for the day and 65°F (18°C). Annual heating degree-days are the sum of the heating degree-days over a calendar year.

high-polluting events: isolated and occupant controllable events that release pollutants in excess quantities. Typical cooking, bathing, and laundry activities are not considered high-polluting events.

infiltration: uncontrolled inward leakage of air through cracks and interstices in any building element and around windows and doors of a building.

intermittent ventilation: intermittently operated whole-building ventilation that is automatically controlled.

kitchen: any room containing cooking appliances.

kitchen, enclosed: a kitchen whose permanent openings to interior adjacent spaces do not exceed a total of 60 ft^2 (6 m^2).

mechanical cooling: reducing the temperature of a fluid by using vapor compression, absorption, desiccant dehumidification combined with evaporative cooling, or other energy-driven thermodynamic means. Indirect or direct evaporative cooling alone is not considered mechanical cooling.

mechanical ventilation: the active process of supplying air to or removing air from an indoor space by powered equipment such as motor-driven fans and blowers but not by devices such as wind-driven turbine ventilators and mechanically operated windows.

mixed-use building: a building containing commercial space (corridors, parking garages, and other common spaces may be present but are not classified as commercial space) in addition to dwelling units.

natural ventilation: ventilation occurring as a result of only natural forces, such as wind pressure or differences in air density, through intentional openings such as open windows and doors.

nontransient: occupancy of a dwelling unit or sleeping unit for more than 30 days.

occupiable space: any enclosed space inside the pressure boundary and intended for human activities, including but not limited to all habitable spaces, toilets, closets, halls, storage and utility areas, and laundry areas.

pressure boundary: primary air enclosure boundary separating indoor and outdoor air. For example, a volume that has more leakage to the outside than to the conditioned space would be considered outside the pressure boundary. Exposed earth in a crawlspace or basement shall not be considered part of the pressure boundary.

readily accessible: capable of being quickly and easily reached for operation, maintenance, and inspection.

residential occupancies: occupancies that are not classified as institutional by the authority having jurisdiction and that also contain permanent provisions for sleeping.

sleeping unit: a room or space in which people sleep that 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.

source: an indoor object, person, or activity from which indoor air contaminants are released, or a route of entry of contaminants from outdoors or sub-building soil.

supply system: one or more fans that supply outdoor air to the building, causing indoor air to leave by normal leakage paths through the building envelope.

system: equipment and other components that collectively perform a specific function, such as mechanical cooling or ventilation.

time average airflow rate: the total volume of air provided during a period of time divided by the time period.

toilet: space containing a toilet, water closet, urinal, or similar sanitary service.

utility: laundry, lavatory, or other utility room containing sinks or washing equipment.

ventilation: the process of supplying outdoor air to or removing indoor air from a dwelling by natural or mechanical means. Such air may or may not have been conditioned.

4. DWELLING-UNIT VENTILATION

A dwelling-unit ventilation system shall be installed in compliance with Sections 4.1 through 4.4, Section 4.5, or Section 4.6.

4.1 Ventilation Rate. A mechanical exhaust system, supply system, or combination thereof shall be installed to operate for each dwelling unit to provide continuous dwelling-unit ventilation with outdoor air at a rate not less than specified in Section 4.1.1.

4.1.1 Total Ventilation Rate. The total required ventilation rate (Q_{tot}) shall be as specified in Table 4.1a or Table 4.1b or, alternatively, calculated using Equation 4.1a or Equation 4.1b.

$$Q_{tot} = 0.03A_{floor} + 7.5(N_{br} + 1) \qquad \text{(I-P)} \quad (4.1a)$$

where

Q_{tot} = total required ventilation rate, cfm

A_{floor} = dwelling-unit floor area, ft^2

N_{br} = number of bedrooms (not to be less than 1)

$$Q_{tot} = 0.15A_{floor} + 3.5(N_{br} + 1) \qquad \text{(SI)} \quad (4.1b)$$

where

Q_{tot} = total required ventilation rate, L/s

A_{floor} = dwelling-unit floor area, m^2

N_{br} = number of bedrooms (not to be less than 1)

Exceptions: Dwelling-unit mechanical ventilation systems are not required if the authority having jurisdiction determines that window operation is a locally permissible method of providing ventilation and provided that at least one of the following conditions is met:

1. the building has no mechanical cooling and is in zone 1 or 2 of the climate zone map shown in Figure 8.1 or
2. the building is thermally conditioned for human occupancy for less than 876 h per year.

4.1.2 Infiltration Credit. If a blower door test has been performed then a credit for estimated infiltration may be taken for nonattached dwelling units using the procedure in Section 4.1.2(a). Horizontally attached single-family dwelling units shall be permitted to utilize a blower door test result that includes common walls to take this credit, subject to the reduction factor A_{ext} in Equation 4.6.

a. **Effective Annual Average Infiltration Rate (Q_{inf}).** Effective Annual Average Infiltration Rate (Q_{inf}) shall be calculated using the normalized leakage calculated from measurements of envelope leakage using either ASTM E779 [2] or CGSB 149.10 [3]. The authority having jurisdiction may approve other means of calculating effective leakage area (ELA), such as the RESNET *Mortgage Industry National Home Energy Rating Systems Standard* [4].

b. **ASTM Procedure.** To calculate the ELA from ASTM E779 [2], the leakage area for pressurization and depressurization (using a 4 Pa reference pressure) shall be averaged using Equation 4.2:

$$\text{ELA} = (L_{press} + L_{depress})/2 \qquad (4.2)$$

where

ELA = effective leakage area, ft^2 (m^2)

L_{press} = leakage area from pressurization, ft^2 (m^2)

$L_{depress}$ = leakage area from depressurization, ft^2 (m^2)

c. **CGSB Procedure.** To calculate the ELA from CGSB 149.10 [3], the following modifications to the test procedure must be made.

1. All vents and intentional openings must be in the same configuration as specified in ASTM E779 [2] (i.e., HVAC dampers and registers should be in the normal operating position; fireplace and other dampers should be closed unless they are required for test operation).
2. Height and floor area must be reported consistently with the definitions of this standard.

TABLE 4.1a (I-P) Ventilation Air Requirements, cfm

	Bedrooms				
Floor Area, ft²	**1**	**2**	**3**	**4**	**5**
<500	30	38	45	53	60
501–1000	45	53	60	68	75
1001–1500	60	68	75	83	90
1501–2000	75	83	90	98	105
2001–2500	90	98	105	113	120
2501–3000	105	113	120	128	135
3001–3500	120	128	135	143	150
3501–4000	135	143	150	158	165
4001–4500	150	158	165	173	180
4501–5000	165	173	180	188	195

TABLE 4.1b (SI) Ventilation Air Requirements, L/s

	Bedrooms				
Floor Area, m²	**1**	**2**	**3**	**4**	**5**
<47	14	18	21	25	28
47–93	21	24	28	31	35
94–139	28	31	35	38	42
140–186	35	38	42	45	49
187–232	42	45	49	52	56
233–279	49	52	56	59	63
280–325	56	59	63	66	70
326–372	63	66	70	73	77
373–418	70	73	77	80	84
419–465	77	80	84	87	91

3. The leakage area as calculated from the CGSB procedure must be converted using Equation 4.3:

$$ELA = 0.61 \times (0.4)^{n-0.5} \times L_{cgsb} \quad (4.3)$$

where

n = exponent measured from the CGSB 149.10 [3]

L_{cgsb} = CGSB leakage area, as modified above, ft² (m²)

d. **Normalized Leakage.** Normalized leakage shall be calculated using Equation 4.4:

$$NL = 1000 \times \frac{ELA}{A_{floor}} \times \left[\frac{H}{H_r}\right]^z \quad (4.4)$$

where

NL = normalized leakage

ELA = effective leakage area, ft² (m²)

A_{floor} = floor area of residence, ft² (m²)

H = vertical distance between the lowest and highest above-grade points within the pressure boundary, ft (m)

H_r = reference height, 8.2 ft (2.5 m)

z = 0.4 for the purpose of calculating the Effective Annual Infiltration Rate

e. **Effective Annual Average Infiltration Rate (Q_{inf}).** Effective Annual Average Infiltration Rate (Q_{inf}) shall be calculated using Equation 4.5a or Equation 4.5b:

$$Q_{inf}(\text{cfm}) = \frac{NL \times wsf \times A_{floor}}{7.3} \quad \text{(I-P)} \quad (4.5a)$$

where

NL = normalized leakage

wsf = weather and shielding factor from Normative Appendix B

A_{floor} = floor area of residence, ft²

$$Q_{inf}(\text{L/s}) = \frac{NL \times wsf \times A_{floor}}{1.44} \quad \text{(SI)} \quad (4.5b)$$

where

NL = normalized leakage

wsf = weather and shielding factor from Normative Appendix B

A_{floor} = floor area of residence, m²

f. **Required Mechanical Ventilation Rate (Q_{fan}).** Required Mechanical Ventilation Rate (Q_{fan}) shall be calculated using Equation 4.6:

$$Q_{fan} = Q_{tot} - (Q_{inf} \times A_{ext}) \quad (4.6)$$

where

Q_{fan} = required mechanical ventilation rate, cfm (L/s)

Q_{tot} = total required ventilation rate, cfm (L/s)

Q_{inf} = may be no greater than $2/3 \times Q_{tot}$ (see Normative Appendix A for exceptions for existing buildings)

A_{ext} = 1 for single-family detached homes, or the ratio of exterior envelope surface area that is not attached to garages or other dwelling units to total envelope surface area for single-family attached homes

4.1.3 Different Occupant Density. Tables 4.1a and 4.1b and Equations 4.1a and 4.1b assume two persons in a studio or one-bedroom dwelling unit and an additional person for each additional bedroom. Where higher occupant densities are known, the rate shall be increased by 7.5 cfm (3.5 L/s) for each additional person. When approved by the authority having jurisdiction, lower occupant densities may be used.

4.2 System Type. The dwelling-unit mechanical ventilation system shall consist of one or more supply or exhaust fans and associated ducts and controls. Local exhaust fans shall be permitted to be part of a mechanical exhaust system. Where local exhaust fans are used to provide dwelling-unit ventilation, the local exhaust airflow may be credited toward the dwelling-unit

ventilation airflow requirement. Outdoor air ducts connected to the return side of an air handler shall be permitted as supply ventilation if manufacturers' requirements for return air temperature are met. See Section 10 of ASHRAE Guideline 24 [5] for guidance on selection of methods.

4.3 Airflow Measurement. The airflow required by this section is the quantity of outdoor ventilation air supplied and/or indoor air exhausted by the mechanical ventilation system as installed and shall be measured according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring device at the mechanical ventilation fan's inlet terminals/grilles, outlet terminals/grilles, or in the connected ventilation ducts. Ventilation airflow of systems with multiple operating modes shall be tested in all modes designed to meet this section.

4.4 Control and Operation. A readily accessible manual ON-OFF control, including but not limited to a fan switch or a dedicated branch-circuit overcurrent device, shall be provided. Controls shall include text or an icon indicating the system's function.

Exception: For multifamily dwelling units, the manual ON-OFF control shall not be required to be readily accessible.

4.5 Variable Mechanical Ventilation. Dwelling-unit mechanical ventilation systems designed to provide variable ventilation shall comply with Section 4.5.1, 4.5.2, or 4.5.3. Sections 4.5.2 and 4.5.3 also require compliance with Normative Appendix C and require verification with supporting documentation from the manufacturer, designer, or specifier of the ventilation control system that the system meets the requirements of these sections. Where the dwelling-unit ventilation rate varies based on occupancy, occupancy shall be determined by occupancy sensors or by an occupant-programmable schedule.

4.5.1 Short-Term Average Ventilation. To comply with this section, a variable ventilation system shall be installed to provide an average dwelling-unit ventilation rate over any three-hour period that is greater than or equal to Q_{fan} as calculated using Section 4.

4.5.2 Scheduled Ventilation. This section may only be used when one or more fixed patterns of designed ventilation are known at the time compliance to this standard is being determined. Such patterns include those both clock-driven and driven by typical meteorological data. Compliance with this section can be demonstrated with either Section 4.5.2.1 or 4.5.2.2.

4.5.2.1 Annual Average Schedule. An annual schedule of ventilation complies with this section when the annual average relative exposure during occupied periods is no more than unity as calculated in Normative Appendix C.

4.5.2.2 Block Scheduling. The schedule of ventilation complies with this section if it is broken into blocks of time and each block individually has an average relative exposure during occupied periods that is no more than unity as calculated in Normative Appendix C.

4.5.2.2.1 Short Blocks. For each block that is less than 2 days in duration but does not meet the requirements of Section 4.5.1, the procedure in Normative Appendix C shall be run multiple times. For any runs after the first run, the relative exposure at the end of the prior run shall be used as the initial condition in the current run. The block complies if the average relative exposure during occupied periods in the final run is no more than unity. Blocks that are less than 18 hours in duration must be run at least 3 times. Other blocks must be run at least twice.

4.5.3 Real-Time Control. A real-time ventilation controller complies with this section when it is designed to adjust the ventilation system based on real-time input to the ventilation calculations so that the average relative exposure during occupied periods is no more than unity as calculated in Normative Appendix C. The averaging period shall be at least one day but no more than one year and shall be based on simple, recursive or running average, but not extrapolation.

4.6 Equivalent Ventilation. A dwelling-unit ventilation system shall be designed and operated in such a way as to provide the same or lower annual exposure as would be provided by complying with Section 4.1. The calculations shall be based on a single zone with a constant contaminant emission rate. The manufacturer, specifier, or designer of the equivalent ventilation system shall certify that the system meets this intent and provide supporting documentation.

5. LOCAL EXHAUST

5.1 Local Mechanical Exhaust. A local mechanical exhaust system shall be installed in each kitchen and bathroom. Non-enclosed kitchens shall be provided with a demand-controlled mechanical exhaust system meeting the requirements of Section 5.2. Each local ventilation system for all other kitchens and bathrooms shall be either one of the following two:

a. A demand-controlled mechanical exhaust system meeting the requirements of Section 5.2
b. A continuous mechanical exhaust system meeting the requirements of Section 5.3

Exception: *Alternative Ventilation*. Other design methods may be used to provide the required exhaust rates when approved by a licensed design professional.

5.2 Demand-Controlled Mechanical Exhaust. A local mechanical exhaust system shall be designed to be operated as needed.

5.2.1 Control and Operation. A readily accessible manual ON-OFF control shall be provided for each demand-controlled mechanical exhaust system. Automatic control devices, including but not limited to the following, shall be permitted, provided they do not impede manual ON-OFF control: humidity sensors, shut-off timers, occupancy sensors, multiple-speed fans, combined switching, IAQ sensors, etc.

Exception: For multifamily dwelling units, an automatic control device shall be permitted to override manual OFF control, provided that it does not override manual ON control.

5.2.2 Ventilation Rate. The minimum airflow rating shall be at least the amount indicated in Table 5.1.

5.3 Continuous Mechanical Exhaust. A mechanical exhaust system shall be installed to operate continuously. The system may be part of a balanced mechanical system. See

TABLE 5.1 Demand-Controlled Local Ventilation Exhaust Airflow Rates

Application	Airflow
Enclosed Kitchen	• Vented range hood (including appliance-range hood combinations): 100 cfm (50 L/s) • Other kitchen exhaust fans, including downdraft: 300 cfm (150 L/s) or a capacity of 5 ach
Nonenclosed Kitchen	• Vented range hood (including appliance-range hood combinations): 100 cfm (50 L/s) • Other kitchen exhaust fans, including downdraft: 300 cfm (150 L/s)
Bathroom	50 cfm (25 L/s)

TABLE 5.2 Continuous Local Ventilation Exhaust Airflow Rates

Application	Airflow
Enclosed Kitchen	5 ach, based on kitchen volume
Bathroom	20 cfm (10 L/s)

TABLE 5.3 Prescriptive Duct Sizing

Duct Type	Flex Duct								Smooth Duct							
Fan Airflow Rating, cfm @ 0.25 in. of water (L/s @ 62.5 Pa)	50 (25)	80 (40)	100 (50)	125 (65)	150 (75)	200 (100)	250 (125)	300 (150)	50 (25)	80 (40)	100 (50)	125 (65)	150 (75)	200 (100)	250 (125)	300 (150)
Diameter [a], in. (mm)	**Maximum Length [b,c,d], ft (m)**															
3 (75)	×	×	×	×	×	×	×	×	5 (2)	×	×	×	×	×	×	×
4 (100)	56 (17)	4 (1)	×	×	×	×	×	×	114 (35)	31 (9)	10 (3)	×	×	×	×	×
5 (125)	NL	81 (25)	42 (9)	16 (5)	2 (0.6)	×	×	×	NL	152 (46)	91 (28)	51 (16)	28 (9)	4 (1)	×	×
6 (150)	NL	NL	158 (48)	91 (28)	55 (17)	18 (5)	1 (0.3)	×	NL	NL	NL	168 (51)	112 (34)	53 (16)	25 (8)	9 (3)
7 (175)	NL	NL	NL	NL	161 (49)	78 (24)	40 (12)	19 (6)	NL	NL	NL	NL	NL	148 (45)	88 (27)	54 (16)
8 (200) and above	NL	NL	NL	NL	NL	189 (58)	111 (34)	69 (21)	NL	NL	NL	NL	NL	NL	198 (60)	133 (41)

a. For noncircular ducts, calculate the diameter as four times the cross-sectional area divided by the perimeter.
b. This table assumes no elbows. Deduct 15 ft (5 m) of allowable duct length for each elbow.
c. NL = no limit on duct length of this size.
d. × = not allowed; any length of duct of this size with assumed turns and fitting will exceed the rated pressure drop.

Chapter 10 of ASHRAE Guideline 24 [5] for guidance on selection of methods.

5.3.1 Control and Operation. A readily accessible manual ON-OFF control shall be provided for each continuous mechanical exhaust system. The system shall be designed to operate during all occupiable hours.

Exception: For multifamily dwelling units, the manual ON-OFF control shall not be required to be readily accessible.

5.3.2 Ventilation Rate. The minimum delivered ventilation shall be at least the amount indicated in Table 5.2 during each hour of operation.

5.4 Airflow Measurement. The airflow required by this section is the quantity of indoor air exhausted by the ventilation system as installed and shall be measured according to the ventilation equipment manufacturer's instructions, or by using a flow hood, flow grid, or other airflow measuring device at the mechanical ventilation fan's inlet terminals, outlet terminals, or in the connected ventilation ducts.

Exception: The airflow rating, according to Section 7.1, at a pressure of 0.25 in. of water (62.5 Pa) may be used, provided the duct sizing meets the prescriptive requirements of Table 5.3 or manufacturer's design criteria.

6. OTHER REQUIREMENTS

6.1 Adjacent Spaces and Transfer Air. Measures shall be taken to minimize air movement across envelope components to dwelling units from adjacent spaces such as garages, unconditioned crawlspaces, unconditioned attics, and other dwelling

units. Pressure boundary wall, ceiling, and floor penetrations shall be sealed, as shall any vertical chases adjacent to dwelling units. Doors between dwelling units and common hallways shall be gasketed or made substantially airtight.

Supply and balanced ventilation systems shall be designed and constructed to provide ventilation air directly from the outdoors.

6.1.1 Compliance for Attached Dwelling Units. One method of demonstrating compliance with Section 6.1 shall be to verify a leakage rate below a maximum of 0.3 cfm per ft^2 (150 L/s per 100 m^2) of the dwelling unit envelope area (i.e., the sum of the area of walls between dwelling units, exterior walls, ceiling, and floor) at a test pressure of 50 Pa by a blower door test conducted in accordance with either ANSI/ASTM-E779 [2] or ANSI/ASTM-E1827 [6]. The test shall be conducted with the dwelling unit as if it were exposed to outdoor air on all sides, top, and bottom by opening doors and windows of adjacent dwelling units.

6.2 Instructions and Labeling. Information on the ventilation design and/or ventilation systems installed, instructions on their proper operation to meet the requirements of this standard, and instructions detailing any required maintenance (similar to that provided for HVAC systems) shall be provided to the owner and the occupant of the dwelling unit. Controls shall be labeled as to their function (unless that function is obvious, such as toilet exhaust fan switches). See Section 13 of ASHRAE Guideline 24 [5] for information on instructions and labeling.

6.3 Clothes Dryers. Clothes dryers shall be exhausted directly to the outdoors.

Exception: Condensing dryers plumbed to a drain.

6.4 Combustion and Solid-Fuel-Burning Appliances. Combustion and solid-fuel-burning appliances must be provided with adequate combustion and ventilation air and installed in accordance with manufacturers' installation instructions; NFPA 54/ANSI Z223.1, *National Fuel Gas Code* [7]; NFPA 31, *Standard for the Installation of Oil-Burning Equipment* [8]; or NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid-Fuel Burning Appliances* [9], or other equivalent code acceptable to the building official. Where atmospherically vented combustion appliances or solid-fuel-burning appliances are located inside the pressure boundary, the total net exhaust flow of the two largest exhaust fans (not including a summer cooling fan intended to be operated only when windows or other air inlets are open) shall not exceed 15 cfm per 100 ft^2 (75 L/s per 100 m^2) of occupiable space when in operation at full capacity. If the designed total net flow exceeds this limit, the net exhaust flow must be reduced by reducing the exhaust flow or providing compensating outdoor air. Gravity or barometric dampers in nonpowered exhaust makeup air systems shall not be used to provide compensating outdoor air. Atmospherically vented combustion appliances do not include direct-vent appliances.

6.5 Airtightness Requirements

6.5.1 Garages. When an occupiable space adjoins a garage, the design must prevent migration of contaminants to the adjoining occupiable space. Air seal the walls, ceilings, and floors that separate garages from occupiable space. To be considered air-sealed, all joints, seams, penetrations, openings between door assemblies and their respective jambs and framing, and other sources of air leakage through wall and ceiling assemblies separating the garage from the residence and its attic area shall be caulked, gasketed, weather stripped, wrapped, or otherwise sealed to limit air movement. Doors between garages and occupiable spaces shall be gasketed or made substantially airtight with weather stripping.

6.5.2 Space-Conditioning System Ducts. All air distribution joints located outside the pressure boundary shall be sealed. HVAC systems that serve occupiable space shall not be designed to supply air to or return air from the garage. HVAC systems that include air handlers or ducts located outside the pressure boundary shall have total air leakage of no more than 6% of total fan flow when measured at 0.1 in. of water (25 Pa) using California Title 24 [10] or equivalent. Method D of ASTM E1554 [11] may be used to meet this requirement. If the air handler, ducts, or both are located in the garage, the garage door shall be open to the outside when the duct leakage is tested.

6.6 Ventilation Opening Area. Spaces shall have ventilation openings as listed in the following subsections. Such openings shall meet the requirements of Section 6.8.

Exception: Attached dwelling units and spaces that meet the local ventilation requirements set for bathrooms in Section 5.

6.6.1 Habitable Spaces. Each habitable space shall be provided with ventilation openings with an openable area not less than 4% of the floor area or less than 5 ft^2 (0.5 m^2).

6.6.2 Toilets and Utility Rooms. Toilets and utility rooms shall be provided with ventilation openings with an openable area not less than 4% of the room floor area or less than 1.5 ft^2 (0.15 m^2).

Exceptions:

1. Utility rooms with a dryer exhaust duct.
2. Toilet compartments in bathrooms.

6.7 Minimum Filtration. Mechanical systems that supply air to an occupiable space through ductwork exceeding 10 ft (3 m) in length and through a thermal conditioning component, except evaporative coolers, shall be provided with a filter having a designated minimum efficiency of MERV 6 or better when tested in accordance with ANSI/ASHRAE Standard 52.2, *Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size* [12], or a minimum Particle Size Efficiency of 50% in the 3.0 to 10 μm range in accordance with AHRI Standard 680, *Performance Rating of Residential Air Filter Equipment* [13]. The system shall be designed such that all recirculated and mechanically supplied outdoor air is filtered before passing through the thermal conditioning components. The filter shall be located and installed in such a manner as to facilitate access and regular service by the owner.

6.7.1 Filter Pressure Drop. New mechanical and distribution systems covered by Section 6.7 shall be designed to accommodate the clean-filter pressure drop as rated using AHRI Standard 680, *Performance Rating of Residential Air Filter Equipment* [13], for the system design flow. The filter

locations shall be labeled with the design airflow and maximum allowable clean-filter pressure drop. The label shall be visible to a person replacing the filter.

6.8 Air Inlets. Air inlets that are part of the ventilation design shall be located a minimum of 10 ft (3 m) from known sources of contamination such as a stack, vent, exhaust hood, or vehicle exhaust. The intake shall be placed so that entering air is not obstructed by snow, plantings, or other material. Forced air inlets shall be provided with rodent/insect screens (mesh not larger than 1/2 in. [13 mm]).

Exceptions:

1. Ventilation openings in the wall may be as close as a stretched-string distance of 3 ft (1 m) from sources of contamination exiting through the roof or dryer exhausts.
2. No minimum separation distance shall be required between windows and local exhaust outlets in kitchens and bathrooms.
3. Vent terminations covered by and meeting the requirements of the *National Fuel Gas Code* (NFPA 54/ANSI Z223.1)[7] or equivalent.
4. Where a combined exhaust/intake termination is used to separate intake air from exhaust air originating in a living space other than kitchens, no minimum separation distance between these two openings is required. For these combined terminations, the exhaust air concentration within the intake airflow shall not exceed 10%, as established by the manufacturer.

6.8.1 Ventilation Openings. Operable windows, skylights, through-the-wall inlets, window air inlets, or similar devices shall be readily accessible to occupants. Where openings are covered with louvers or otherwise obstructed, openable area shall be based on the free, unobstructed area through the opening.

6.9 Carbon Monoxide Alarms. A carbon monoxide alarm shall be installed in each dwelling unit in accordance with NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment* [14], and shall be consistent with requirements of applicable laws, codes, and standards.

7. AIR-MOVING EQUIPMENT

All air-moving equipment used to comply with this standard shall meet the criteria of the following subsections.

7.1 Selection and Installation. Ventilation devices and equipment serving individual dwelling units shall be tested in accordance with ANSI/ASHRAE Standard 51/AMCA 210, *Laboratory Methods of Testing Fans for Aerodynamic Performance Rating* [15], and ANSI/AMCA Standard 300, *Reverberant Room Method for Sound Testing of Fans* [16], and rated in accordance with the airflow and sound rating procedures of the Home Ventilating Institute (HVI) (HVI 915, *Loudness Testing and Rating Procedure* [17]; HVI 916, *Air Flow Test Procedure* [18]; and HVI 920, *Product Performance Certification Procedure Including Verification and Challenge* [19]). Installations of systems or equipment shall be carried out in accordance with manufacturers' design requirements and installation instructions.

7.2 Sound Ratings for Fans. Ventilation fans shall be rated for sound at no less than the minimum airflow rate required by this standard as noted below. These sound ratings shall be at a minimum of 0.1 in. of water (25 Pa) static pressure in accordance with the HVI procedures referenced in Section 7.1.

Exception: HVAC air handlers and remote mounted fans need not meet sound requirements. To be considered for this exception, a remote mounted fan must be mounted outside the habitable spaces, bathrooms, toilets, and hallways, and there must be at least 4 ft (1 m) of ductwork between the fan and the intake grille.

7.2.1 Dwelling-Unit Ventilation or Continuous Local Exhaust Fans. These fans shall be rated for sound at a maximum of 1.0 sone.

7.2.2 Demand-Controlled Local Exhaust Fans. Bathroom exhaust fans used to comply with Section 5.2 shall be rated for sound at a maximum of 3 sone. Kitchen exhaust fans used to comply with Section 5.2 shall be rated for sound at a maximum of 3 sones at one or more airflow settings greater than or equal to 100 cfm (47 L/s).

Exception: Fans with a minimum airflow setting exceeding 400 cfm (189 L/s) need not comply.

7.3 Exhaust Ducts

7.3.1 Multiple Exhaust Fans Using One Duct. Exhaust fans in separate dwelling units shall not share a common exhaust duct. If more than one of the exhaust fans in a single dwelling unit shares a common exhaust duct, each fan shall be equipped with a backdraft damper to prevent the recirculation of exhaust air from one room to another through the exhaust ducting system.

7.3.2 Single Exhaust Fan Ducted to Multiple Inlets. Where exhaust inlets are commonly ducted across multiple dwelling units, one or more exhaust fans located downstream of the exhaust inlets shall be designed and intended to run continuously, or a system of one or more backdraft dampers shall be installed to isolate each dwelling unit from the common duct when the fan is not running.

7.4 Supply Ducts. Where supply outlets are commonly ducted across multiple dwelling units, one or more supply fans located upstream of all the supply outlets shall be designed and intended to run continuously, or a system of one or more backdraft dampers shall be installed to isolate each dwelling unit from the common duct when the fan is not running.

8. CLIMATE DATA

The climate zones for U.S. locations are shown in Figure 8.1.

9. REFERENCES

1. *ANSI/NAHB Z765-2003, Square Footage—Method for Calculating*. Upper Marlboro, MD: National Association of Home Builders Research Center, Inc.

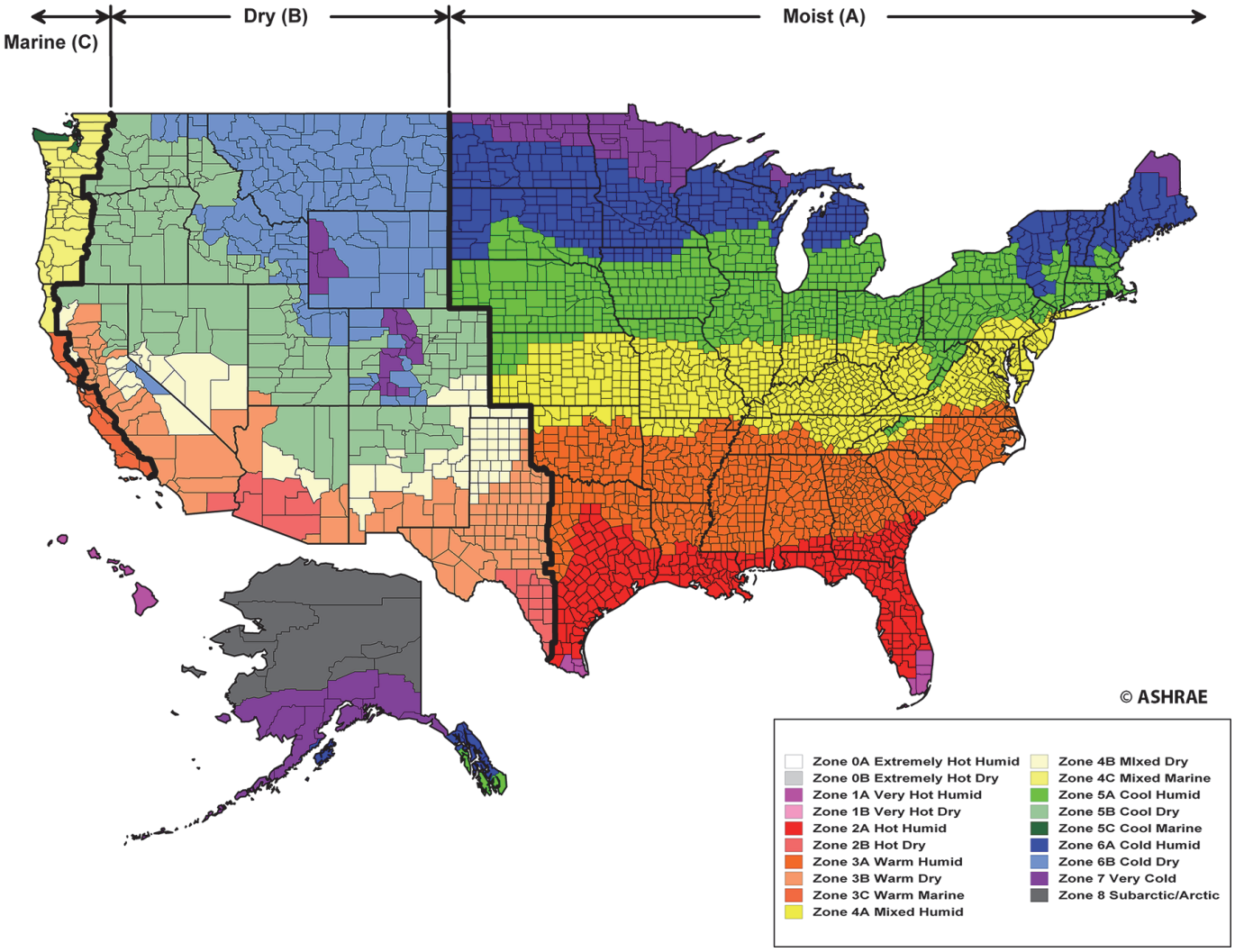

FIGURE 8.1 Climate zones for U.S. locations.

2. *ANSI/ASTM E779-2010, Standard Test Method for Determining Air Leakage Rate by Fan Pressurization.* ASTM International, West Conshohocken, PA.
3. *CAN/CGSB 149.10-M86, Determination for the Airtightness of Building Envelopes by the Fan Depressurization Method*. Canadian General Standard Board, Gatineau, Quebec, Canada.
4. *RESNET. 2013. Mortgage Industry National Home Energy Rating Systems Standard*. Residential Energy Services Network.
5. *ASHRAE Guideline 24-2015, Ventilation and Indoor Air Quality in Low-Rise Residential Buildings.* ASHRAE, Atlanta, GA.
6. *ANSI/ASTM E1827-2011, Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door*. ASTM International, West Conshohocken, PA.
7. *NFPA 54/ANSI Z223.1-2015, National Fuel Gas Code.* National Fire Protection Association and American Gas Association, Quincy, MA, and Washington, DC.
8. *NFPA 31-2011, Standard for the Installation of Oil-Burning Equipment*. National Fire Protection Association, Quincy, MA.
9. *NFPA 211-2013, Standard for Chimneys, Fireplaces, Vents, and Solid-Fuel Burning Appliances*. National Fire Protection Association, Quincy, MA.
10. *California Energy Commission. 2013. California Title 24 Standards, Reference Appendix RA3*. Sacramento, CA.
11. *ANSI/ASTM E1554-2013/E1554M, Standard Test Methods for Determining External Air Leakage of Air Distribution Systems by Fan Pressurization.*ASTM International, West Conshohocken, PA.
12. *ANSI/ASHRAE Standard 52.2-2012 (with 2015 Supplement), Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.* ASHRAE, Atlanta, GA.
13. *AHRI Standard 680-2009, Performance Rating of Residential Air Filter Equipment*. Air-Conditioning, Heating, and Refrigerating Institute, Arlington, VA.
14. *NFPA 720-2015, Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment.* National Fire Protection Association, Quincy, MA.

15. *ANSI/ASHRAE Standard 51/AMCA Standard 210-1999, Laboratory Methods of Testing Fans for Aerodynamic Performance Rating.* American Air Movement and Control Association International, Inc., and ASHRAE, Arlington Heights, IL, and Atlanta, GA.

16. *ANSI/AMCA Standard 300-2014, Reverberant Room Method for Sound Testing of Fans.* American Air Movement and Control Association International, Inc., Arlington Heights, IL.

17. *HVI 915-2015, Loudness Testing and Rating Procedure.* Home Ventilating Institute, Arlington Heights, IL.

18. *HVI 916-2013, Air Flow Test Procedure.* Arlington Home Ventilating Institute, Arlington Heights, IL.

19. *HVI 920-2015, Product Performance Certification Procedure Including Verification and Challenge*. Home Ventilating Institute, Arlington Heights, IL.

20. *ANSI/ASHRAE Standard 62.1-2013, Ventilation for Acceptable Indoor Air Quality*. ASHRAE, Atlanta, GA.

(This is a normative appendix and is part of the standard.)

NORMATIVE APPENDIX A
EXISTING BUILDINGS

A1. SUMMARY

This appendix provides an alternative compliance path for existing buildings and the associated ventilation equipment in existing buildings. This section is intended for buildings that have already been occupied without meeting the provisions of this standard. The authority having jurisdiction shall decide under what circumstances the provisions of this appendix are applicable. Use of this appendix as an alternate to sections of the main body of the standard does not provide an exemption from compliance with the remainder of the standard.

A2. DWELLING-UNIT MECHANICAL VENTILATION RATE

The required mechanical ventilation rate Q_{fan} shall be the rate Q_{tot} in Section 4.1.1 plus the required additional airflow calculated in accordance with Section A3. If the airtightness of the building envelope has been measured, the required mechanical ventilation rate may be reduced as described in Section 4.1.2. In these cases, Section A3 shall be applied before Section 4.1.2 when determining the final mechanical ventilation rate. For existing buildings, if Q_{fan} is less than or equal to 15 cfm (7 L/s), then dwelling-unit mechanical ventilation is not required.

A3. LOCAL EXHAUST

When replacing equipment, and for any kitchens and bathrooms being renovated, all Section 5 requirements shall be met. For other existing kitchens and bathrooms, when the existing equipment does not meet those requirements, this section may be used to compensate for insufficient exhaust airflow for each room requiring local exhaust by adjusting the dwelling-unit mechanical ventilation rate in Section A2.

A3.1 Initial Room Airflow Deficit. The airflow deficit for each bathroom shall be 50 cfm (24 L/s), less the airflow rating from Section A4.2 of the exhaust equipment. The airflow deficit for each kitchen shall be 100 cfm (47 L/s), less the airflow rating from Section A4.2 of the exhaust equipment. If there is no exhaust device or if the existing device can neither be measured nor rated, the exhaust device airflow shall be assumed to be zero.

A3.2 Window Opening Credit. If the local authority having jurisdiction determines that window operation is a permissible method of providing local exhaust, the deficit may be reduced as follows: if there is an operable window in the room, the airflow deficit may be reduced by 20 cfm (10 L/s).

A3.3 Required Additional Airflow. The total airflow deficit is the sum of all the final airflow deficits from all bathrooms and kitchens. The required additional dwelling-unit mechanical ventilation airflow is equal to one-quarter of the total airflow deficit.

A4. AIR-MOVING EQUIPMENT

For all replacement equipment and for any equipment in a room being renovated, all Section 6 and 7 requirements shall be met. For existing equipment, the following exceptions may be used.

A4.1 Selection, Installation, and Sound Rating. Sections 7.1 and 7.2 are not applicable to existing local exhaust fans being retained via the alternate compliance path of this appendix.

A4.2 Airflow Rating

A4.2.1 Existing fans intended for use as dwelling-unit mechanical ventilation must be measured consistent with the requirements of Section 4.3.

A4.2.2 Existing fans intended for local exhaust only shall be measured consistent with the requirements of Section 5.4.

Exception: If the fan flow rate cannot be measured and fan airflow ratings at 0.25 in. of water (62.5 Pa) are not available, but fan airflow ratings are available for 0.1 in. of water (25 Pa) and the duct sizing requirements of Table 5.3 can be verified, those ratings may be used, provided they are reduced by 25%.

(This is a normative appendix and is part of the standard.)

NORMATIVE APPENDIX B
INFILTRATION EFFECTIVENESS
WEATHER AND SHIELDING FACTORS

TABLE B1 U.S. Climates

TMY3	wsf	Weather Station	Latitude	Longitude	State
722230	0.42	Mobile Regional AP	30.68	–88.25	Alabama
722235	0.42	Mobile Downtown AP	30.63	–88.07	Alabama
722260	0.39	Montgomery Dannelly Field	32.30	–86.40	Alabama
722265	0.40	Maxwell AFB	32.38	–86.35	Alabama
722267	0.34	Troy Af	31.87	–86.02	Alabama
722268	0.41	Dothan Municipal AP	31.23	–85.43	Alabama
722269	0.36	Cairns Field Fort Rucker	31.27	–85.72	Alabama
722280	0.41	Birmingham Municipal AP	33.57	–86.75	Alabama
722284	0.35	Auburn–Opelika Apt	32.62	–85.43	Alabama
722285	0.38	Gadsen Muni (AWOS)	33.97	–86.08	Alabama
722286	0.39	Tuscaloosa Municipal AP	33.22	–87.62	Alabama
722287	0.37	Anniston Metropolitan AP	33.58	–85.85	Alabama
723230	0.45	Huntsville Intl/Jones Field	34.65	–86.78	Alabama
723235	0.39	Muscle Shoals Regional AP	34.75	–87.60	Alabama
700197	0.88	Selawik	66.60	–160.00	Alaska
700260	1.14	Barrow W Post–W Rogers Arpt [NSA – ARM]	71.32	–156.62	Alaska
700637	1.05	Deadhorse	70.20	–148.48	Alaska
701043	1.11	Point Hope (AWOS)	68.35	–166.80	Alaska
701195	1.01	Shishmaref (AWOS)	66.27	–166.05	Alaska
701330	0.98	Kotzebue Ralph Wein Memorial	66.88	–162.60	Alaska
701625	0.93	Anaktuvuk Pass	68.13	–151.73	Alaska
701718	0.78	Ambler	67.10	–157.85	Alaska
701740	0.76	Bettles Field	66.92	–151.52	Alaska
701780	0.75	Tanana Ralph M Calhoun Mem AP	65.17	–152.10	Alaska
701940	0.74	Fort Yukon	66.57	–145.27	Alaska
702000	0.88	Nome Municipal Arpt	64.52	–165.45	Alaska
702005	0.89	Saint Mary’s (AWOS)	62.07	–163.30	Alaska
702035	0.98	Savoonga	63.68	–170.50	Alaska
702040	1.14	Gambell	63.78	–171.75	Alaska
702070	0.91	Unalakleet Field	63.88	–160.80	Alaska
702075	0.71	Anvik	62.65	–160.18	Alaska
702084	0.83	Emmonak	62.78	–164.50	Alaska
702185	0.99	Mekoryuk	60.37	–166.27	Alaska
702186	1.00	Hooper Bay	61.52	–166.15	Alaska
702190	0.89	Bethel Airport	60.78	–161.83	Alaska
702225	0.76	Huslia	65.70	–156.38	Alaska

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
702310	0.73	McGrath Arpt	62.95	–155.60	Alaska
702320	0.73	Aniak Airport	61.58	–159.53	Alaska
702460	0.65	Minchumina	63.88	–152.28	Alaska
702495	0.66	Hayes River	61.98	–152.08	Alaska
702510	0.68	Talkeetna State Arpt	62.32	–150.10	Alaska
702590	0.75	Kenai Municipal AP	60.58	–151.23	Alaska
702595	0.67	Soldotna	60.47	–151.03	Alaska
702600	0.70	Nenana Municipal AP	64.55	–149.10	Alaska
702606	0.73	Chulitna	62.88	–149.83	Alaska
702607	0.65	Hoonah	58.08	–135.45	Alaska
702610	0.70	Fairbanks Intl Arpt	64.82	–147.85	Alaska
702647	0.72	Healy River Airport	63.88	–149.02	Alaska
702650	0.68	Fairbanks/Eielson A	64.65	–147.10	Alaska
702670	0.73	Big Delta Allen AAF	64.00	–145.72	Alaska
702710	0.78	Gulkana Intermediate Field	62.15	–145.45	Alaska
702720	0.66	Anchorage/Elmendorf	61.25	–149.80	Alaska
702725	0.66	Lake Hood Seaplane	61.18	–149.97	Alaska
702730	0.71	Anchorage Intl AP	61.18	–150.00	Alaska
702735	0.61	Anchorage Merrill Field	61.22	–149.85	Alaska
702740	0.67	Palmer Municipal	61.60	–149.08	Alaska
702746	0.63	Birchwood	61.42	–149.52	Alaska
702750	0.70	Valdez Wso	61.13	–146.35	Alaska
702756	0.67	Valdez Pioneer Fiel	61.13	–146.27	Alaska
702757	0.75	Whittier	60.77	–148.68	Alaska
702770	0.75	Seward	60.12	–149.45	Alaska
702910	0.73	Northway Airport	62.97	–141.93	Alaska
702960	0.68	Cordova	60.50	–145.50	Alaska
702986	0.70	Big River Lake	60.82	–152.30	Alaska
703080	0.98	St Paul Island Arpt	57.17	–170.22	Alaska
703160	0.99	Cold Bay Arpt	55.20	–162.72	Alaska
703165	0.80	Sand Point	55.32	–160.52	Alaska
703210	0.76	Dillingham (AMOS)	59.05	–158.52	Alaska
703260	0.82	King Salmon Arpt	58.68	–156.65	Alaska
703330	0.90	Port Heiden	56.95	–158.62	Alaska
703400	0.78	Iliamna Arpt	59.75	–154.92	Alaska
703407	0.66	Sleetmute	61.72	–157.15	Alaska
703410	0.73	Homer Arpt	59.65	–151.48	Alaska
703430	0.80	Middleton Island Aut	59.47	–146.32	Alaska
703500	0.75	Kodiak Airport	57.75	–152.50	Alaska
703606	0.82	Togiac Village AWOS	59.05	–160.40	Alaska

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
703610	0.69	Yakutat State Arpt	59.52	–139.63	Alaska
703620	0.76	Skagway Airport	59.47	–135.30	Alaska
703670	0.67	Gustavus	58.42	–135.70	Alaska
703710	0.68	Sitka Japonski AP	57.05	–135.37	Alaska
703810	0.69	Juneau Intl Arpt	58.35	–134.58	Alaska
703855	0.66	Kake Seaplane Base	56.97	–133.95	Alaska
703860	0.64	Petersburg	56.80	–132.95	Alaska
703870	0.63	Wrangell	56.48	–132.37	Alaska
703884	0.71	Hydaburg Seaplane	55.20	–132.83	Alaska
703950	0.68	Ketchikan Intl AP	55.37	–131.72	Alaska
703980	0.66	Annette Island AP	55.05	–131.57	Alaska
704140	1.02	Shemya AFB	52.72	174.12	Alaska
704540	0.89	Adak NAS	51.88	–176.65	Alaska
704890	0.81	Dutch Harbor	53.90	–166.55	Alaska
699604	0.44	Yuma MCAS	32.65	–114.62	Arizona
722735	0.48	Douglas Bisbee–Douglas Intl A	31.47	–109.60	Arizona
722740	0.48	Tucson International AP	32.13	–110.95	Arizona
722745	0.45	Davis Monthan AFB	32.17	–110.88	Arizona
722747	0.48	Safford (AMOS)	32.82	–109.68	Arizona
722748	0.45	Casa Granda (AWOS)	32.95	–111.77	Arizona
722780	0.43	Phoenix Sky Harbor Intl AP	33.45	–111.98	Arizona
722784	0.45	Deer Valley/Phoenix	33.68	–112.08	Arizona
722785	0.47	Luke AFB	33.55	–112.37	Arizona
722789	0.41	Scottsdale Muni	33.62	–111.92	Arizona
722800	0.43	Yuma Intl Arpt	32.67	–114.60	Arizona
723700	0.57	Kingman (AMOS)	35.27	–113.95	Arizona
723710	0.45	Page Muni (AMOS)	36.93	–111.45	Arizona
723723	0.51	Prescott Love Field	34.65	–112.42	Arizona
723740	0.55	Winslow Municipal AP	35.03	–110.72	Arizona
723747	0.59	Show Low Municipal	34.27	–110.00	Arizona
723755	0.59	Flagstaff Pulliam Arpt	35.13	–111.67	Arizona
723783	0.61	Grand Canyon Natl P	35.95	–112.15	Arizona
723403	0.44	Little Rock Adams Field	34.75	–92.23	Arkansas
723405	0.40	Little Rock AFB	34.92	–92.15	Arkansas
723406	0.45	Walnut Ridge (AWOS)	36.13	–90.92	Arkansas
723407	0.47	Jonesboro Muni	35.83	–90.65	Arkansas
723415	0.42	Memorial Fld	34.47	–93.10	Arkansas
723416	0.45	Stuttgart (AWOS)	34.60	–91.57	Arkansas
723417	0.44	Pine Bluff Faa AP	34.17	–91.93	Arkansas
723418	0.42	Texarkana Webb Field	33.45	–94.00	Arkansas

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723419	0.41	El Dorado Goodwin Field	33.22	–92.82	Arkansas
723434	0.49	Springdale Muni	36.18	–94.12	Arkansas
723440	0.45	Fort Smith Regional AP	35.33	–94.37	Arkansas
723443	0.48	Siloam Spring (AWOS)	36.18	–94.48	Arkansas
723444	0.46	Bentonville (AWOS)	36.35	–94.22	Arkansas
723445	0.44	Fayetteville Drake Field	36.00	–94.17	Arkansas
723446	0.46	Harrison Faa AP	36.27	–93.15	Arkansas
723447	0.39	Flippin (AWOS)	36.30	–92.47	Arkansas
723448	0.41	Batesville (AWOS)	35.73	–91.65	Arkansas
723449	0.48	Rogers (AWOS)	36.37	–94.10	Arkansas
690150	0.50	Twentynine Palms	34.30	–116.17	California
722860	0.43	March AFB	33.90	–117.25	California
722868	0.45	Palm Springs Intl	33.83	–116.50	California
722869	0.42	Riverside Muni	33.95	–117.45	California
722880	0.39	Burbank–Glendale–Pasadena AP	34.20	–118.35	California
722885	0.39	Santa Monica Muni	34.02	–118.45	California
722886	0.39	Van Nuys Airport	34.22	–118.48	California
722895	0.55	Lompoc (AWOS)	34.67	–120.47	California
722897	0.51	San Luis Co Rgnl	35.23	–120.63	California
722899	0.45	Chino Airport	33.97	–117.63	California
722900	0.38	San Diego Lindbergh Field	32.73	–117.17	California
722903	0.39	San Diego/Montgomery	32.82	–117.13	California
722904	0.40	Chula Vista Brown Field NAAS	32.58	–116.98	California
722906	0.39	San Diego North Island NAS	32.70	–117.20	California
722926	0.40	Camp Pendleton MCAS	33.30	–117.35	California
722927	0.38	Carlsbad/Palomar	33.13	–117.28	California
722930	0.39	San Diego Miramar NAS	32.87	–117.13	California
722950	0.42	Los Angeles Intl Arpt	33.93	–118.40	California
722956	0.38	Jack Northrop Fld H	33.92	–118.33	California
722970	0.38	Long Beach Daugherty Fld	33.83	–118.17	California
722976	0.34	Fullerton Municipal	33.87	–117.98	California
722977	0.36	Santa Ana John Wayne AP	33.68	–117.87	California
723805	0.51	Needles Airport	34.77	–114.62	California
723810	0.59	Edwards AFB	34.90	–117.87	California
723815	0.58	Daggett Barstow–Daggett AP	34.85	–116.80	California
723816	0.62	Lancaster Gen Wm Fox Field	34.73	–118.22	California
723820	0.57	Palmdale Airport	34.63	–118.08	California
723830	0.68	Sandberg	34.75	–118.72	California
723840	0.43	Bakersfield Meadows Field	35.43	–119.05	California
723890	0.45	Fresno Yosemite Intl AP	36.78	–119.72	California

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723895	0.42	Porterville (AWOS)	36.03	–119.07	California
723896	0.43	Visalia Muni (AWOS)	36.32	–119.40	California
723910	0.45	Point Mugu Nf	34.12	–119.12	California
723925	0.44	Santa Barbara Municipal AP	34.43	–119.85	California
723926	0.43	Camarillo (AWOS)	34.22	–119.08	California
723927	0.45	Oxnard Airport	34.20	–119.20	California
723940	0.52	Santa Maria Public Arpt	34.92	–120.47	California
723965	0.53	Paso Robles Municipal Arpt	35.67	–120.63	California
724800	0.55	Bishop Airport	37.37	–118.35	California
724815	0.46	Merced/Macready Fld	37.28	–120.52	California
724830	0.51	Sacramento Executive Arpt	38.50	–121.50	California
724837	0.45	Beale AFB	39.13	–121.43	California
724838	0.50	Yuba Co	39.10	–121.57	California
724839	0.51	Sacramento Metropolitan AP	38.70	–121.58	California
724915	0.49	Monterey Naf	36.60	–121.87	California
724917	0.54	Salinas Municipal AP	36.67	–121.60	California
724920	0.50	Stockton Metropolitan Arpt	37.90	–121.23	California
724926	0.47	Modesto City–County AP	37.63	–120.95	California
724927	0.53	Livermore Municipal	37.70	–121.82	California
724930	0.54	Oakland Metropolitan Arpt	37.72	–122.22	California
724935	0.47	Hayward Air Term	37.67	–122.12	California
724936	0.53	Concord–Buchanan Field	38.00	–122.05	California
724940	0.60	San Francisco Intl AP	37.62	–122.40	California
724945	0.48	San Jose Intl AP	37.37	–121.93	California
724955	0.55	Napa Co. Airport	38.22	–122.28	California
724957	0.49	Santa Rosa (AWOS)	38.52	–122.82	California
725845	0.44	Blue Canyon AP	39.30	–120.72	California
725846	0.66	Truckee–Tahoe	39.32	–120.13	California
725847	0.64	South Lake Tahoe	38.90	–120.00	California
725905	0.47	Ukiah Municipal AP	39.13	–123.20	California
725910	0.50	Red Bluff Municipal Arpt	40.15	–122.25	California
725920	0.47	Redding Municipal Arpt	40.52	–122.32	California
725945	0.56	Arcata Airport	40.98	–124.10	California
725946	0.60	Crescent City Faa Ai	41.78	–124.23	California
725955	0.55	Montague Siskiyou County AP	41.78	–122.47	California
725958	0.59	Alturas	41.50	–120.53	California
745090	0.45	Mountain View Moffett Fld NAS	37.40	–122.05	California
745160	0.67	Travis Field AFB	38.27	–121.93	California
746120	0.52	China Lake Naf	35.68	–117.68	California
747020	0.50	Lemoore Reeves NAS	36.33	–119.95	California

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
747185	0.46	Imperial	32.83	–115.58	California
747187	0.46	Palm Springs Thermal AP	33.63	–116.17	California
747188	0.48	Blythe Riverside Co Arpt	33.62	–114.72	California
724620	0.67	Alamosa San Luis Valley Rgnl	37.43	–105.87	Colorado
724625	0.58	Durango/La Plata Co	37.15	–107.75	Colorado
724635	0.63	La Junta Municipal AP	38.05	–103.53	Colorado
724636	0.62	Lamar Municipal	38.07	–102.68	Colorado
724640	0.61	Pueblo Memorial AP	38.28	–104.50	Colorado
724645	0.61	Trinidad Las Animas County AP	37.27	–104.33	Colorado
724660	0.63	Colorado Springs Muni AP	38.82	–104.72	Colorado
724665	0.66	Limon	39.18	–103.72	Colorado
724666	0.61	Denver/Centennial [Golden – NREL]	39.74	–105.18	Colorado
724673	0.74	Leadville/Lake Co.	39.22	–106.32	Colorado
724675	0.63	Eagle County AP	39.65	–106.92	Colorado
724676	0.64	Aspen Pitkin Co Sar	39.22	–106.87	Colorado
724677	0.66	Gunnison Co. (AWOS)	38.53	–106.93	Colorado
724695	0.60	Aurora Buckley Field ANGB	39.72	–104.75	Colorado
724698	0.67	Akron Washington Co AP	40.17	–103.23	Colorado
724699	0.58	Broomfield/Jeffco [Boulder – Surfrad]	40.13	–105.24	Colorado
724760	0.57	Grand Junction Walker Field	39.13	–108.53	Colorado
724765	0.56	Montrose Co. Arpt	38.50	–107.90	Colorado
724767	0.58	Cortez/Montezuma Co	37.30	–108.63	Colorado
724768	0.60	Greeley/Weld (AWOS)	40.43	–104.63	Colorado
724769	0.59	Fort Collins (AWOS)	40.45	–105.02	Colorado
725650	0.59	Denver Intl AP	39.83	–104.65	Colorado
725700	0.64	Craig–Moffat	40.50	–107.53	Colorado
725715	0.66	Hayden/Yampa (AWOS)	40.48	–107.22	Colorado
725717	0.56	Rifle/Garfield Rgnl	39.53	–107.72	Colorado
725029	0.50	Oxford (AWOS)	41.48	–73.13	Connecticut
725040	0.59	Bridgeport Sikorsky Memorial	41.18	–73.15	Connecticut
725045	0.52	New Haven Tweed Airport	41.27	–72.88	Connecticut
725046	0.53	Groton New London AP	41.33	–72.05	Connecticut
725080	0.53	Hartford Bradley Intl AP	41.93	–72.68	Connecticut
725086	0.51	Danbury Municipal	41.37	–73.48	Connecticut
725087	0.48	Hartford Brainard Fd	41.73	–72.65	Connecticut
724088	0.47	Dover AFB	39.13	–75.47	Delaware
724089	0.52	Wilmington New Castle Cnty AP	39.67	–75.60	Delaware
722010	0.49	Key West Intl Arpt	24.55	–81.75	Florida
722015	0.41	Key West NAS	24.58	–81.68	Florida
722016	0.39	Marathon Airport	24.73	–81.05	Florida

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
722020	0.41	Miami Intl AP	25.82	–80.30	Florida
722024	0.38	Miami/Opa Locka	25.90	–80.28	Florida
722025	0.41	Fort Lauderdale Hollywood Int	26.07	–80.15	Florida
722026	0.33	Homestead AFB	25.48	–80.38	Florida
722029	0.37	Miami/Kendall–Tamia	25.65	–80.43	Florida
722030	0.41	West Palm Beach Intl Arpt	26.68	–80.10	Florida
722038	0.35	Naples Municipal	26.15	–81.77	Florida
722039	0.40	Fort Lauderdale	26.20	–80.17	Florida
722040	0.38	Melbourne Regional AP	28.12	–80.65	Florida
722045	0.38	Vero Beach Municipal Arpt	27.65	–80.42	Florida
722050	0.39	Orlando Intl Arpt	28.43	–81.33	Florida
722053	0.38	Orlando Executive AP	28.55	–81.33	Florida
722055	0.32	Ocala Muni (AWOS)	29.17	–82.22	Florida
722056	0.37	Daytona Beach Intl AP	29.18	–81.07	Florida
722057	0.38	Orlando Sanford Airport	28.78	–81.25	Florida
722060	0.38	Jacksonville Intl Arpt	30.50	–81.70	Florida
722065	0.41	Jacksonville NAS	30.23	–81.67	Florida
722066	0.41	Mayport Ns	30.40	–81.42	Florida
722068	0.39	Jacksonville/Craig	30.33	–81.52	Florida
722103	0.35	St Lucie Co Intl	27.48	–80.37	Florida
722104	0.42	St Petersburg Albert Whitted	27.77	–82.63	Florida
722106	0.35	Fort Myers Page Field	26.58	–81.87	Florida
722108	0.37	Southwest Florida I	26.53	–81.75	Florida
722110	0.37	Tampa International AP	27.97	–82.53	Florida
722115	0.38	Sarasota Bradenton	27.38	–82.55	Florida
722116	0.43	St Petersburg Clear	27.90	–82.68	Florida
722119	0.34	Lakeland Linder Rgn	27.98	–82.02	Florida
722140	0.37	Tallahassee Regional AP [ISIS]	30.38	–84.37	Florida
722146	0.38	Gainesville Regional AP	29.70	–82.28	Florida
722210	0.42	Valparaiso Elgin AFB	30.48	–86.52	Florida
722215	0.35	Crestview Bob Sikes AP	30.78	–86.52	Florida
722223	0.41	Pensacola Regional AP	30.48	–87.18	Florida
722225	0.42	Pensacola Forest Sherman NAS	30.35	–87.32	Florida
722226	0.39	Whiting Field NAAS	30.72	–87.02	Florida
722245	0.39	Panama City Bay Co	30.20	–85.68	Florida
747750	0.41	Tyndall AFB	30.07	–85.58	Florida
747770	0.42	Valparaiso Hurlburt	30.42	–86.68	Florida
747880	0.38	MacDill AFB	27.85	–82.52	Florida
747946	0.35	NASA Shuttle Fclty	28.62	–80.72	Florida
722070	0.40	Savannah Intl AP	32.12	–81.20	Georgia

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
722135	0.37	Alma Bacon County AP	31.53	–82.50	Georgia
722136	0.40	Brunswick Golden Is	31.25	–81.47	Georgia
722137	0.40	Brunswick Malcolm McKinnon AP	31.15	–81.38	Georgia
722160	0.38	Albany Dougherty County AP	31.53	–84.18	Georgia
722166	0.36	Valdosta Wb Airport	30.78	–83.28	Georgia
722170	0.41	Macon Middle Ga Regional AP	32.68	–83.65	Georgia
722175	0.39	Warner Robins AFB	32.63	–83.60	Georgia
722180	0.41	Augusta Bush Field	33.37	–81.97	Georgia
722190	0.46	Atlanta Hartsfield Intl AP	33.63	–84.43	Georgia
722195	0.37	Fulton Co Arpt Brow	33.77	–84.52	Georgia
722196	0.39	Dekalb Peachtree	33.87	–84.30	Georgia
722250	0.35	Fort Benning Lawson	32.35	–85.00	Georgia
722255	0.39	Columbus Metropolitan Arpt	32.52	–84.95	Georgia
722270	0.40	Marietta Dobbins AFB	33.92	–84.52	Georgia
723110	0.40	Athens Ben Epps AP	33.95	–83.33	Georgia
723200	0.38	Rome R B Russell AP	34.35	–85.17	Georgia
747804	0.40	Hunter AAF	32.00	–81.15	Georgia
747810	0.36	Moody AFB/Valdosta	30.97	–83.20	Georgia
912120	0.49	Guam Wfo	13.48	144.80	Guam
912180	0.46	Andersen AFB	13.57	144.92	Guam
911650	0.51	Lihue Airport	21.98	–159.33	Hawaii
911760	0.35	Kaneohe Bay MCAS	21.45	–157.78	Hawaii
911780	0.35	Barbers Point NAS	21.32	–158.07	Hawaii
911820	0.42	Honolulu Intl Arpt	21.32	–157.93	Hawaii
911860	0.45	Molokai (AMOS)	21.15	–157.10	Hawaii
911900	0.48	Kahului Airport	20.90	–156.43	Hawaii
911904	0.55	Kapalua	20.95	–156.63	Hawaii
911905	0.47	Lanai	20.78	–156.95	Hawaii
911975	0.36	Kona Intl At Keahol	19.73	–156.05	Hawaii
912850	0.29	Hilo International AP	19.72	–155.05	Hawaii
725780	0.68	Pocatello Regional AP	42.92	–112.57	Idaho
725785	0.68	Idaho Falls Fanning Field	43.52	–112.07	Idaho
725786	0.60	Malad City	42.15	–112.28	Idaho
725865	0.61	Hailey/Friedman Mem	43.50	–114.30	Idaho
725866	0.65	Joslin Fld Magic Va [Twin Falls – UO]	42.55	–114.35	Idaho
725867	0.60	Burley Municipal Arpt	42.53	–113.77	Idaho
725868	0.70	Soda Springs/Tigert	42.65	–111.58	Idaho
726810	0.56	Boise Air Terminal [UO]	43.62	–116.21	Idaho
726813	0.55	Caldwell (AWOS)	43.63	–116.63	Idaho
726815	0.63	Mountain Home AFB	43.05	–115.87	Idaho

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
726865	0.58	Salmon/Lemhi (AWOS)	45.12	–113.88	Idaho
727830	0.51	Lewiston Nez Perce Cnty AP	46.37	–117.02	Idaho
727834	0.60	Coeur D'Alene (AWOS)	47.77	–116.82	Idaho
724335	0.44	Mount Vernon (AWOS)	38.32	–88.87	Illinois
724336	0.44	Southern Illinois	37.77	–89.25	Illinois
724338	0.48	Belleville Scott AFB	38.55	–89.85	Illinois
724339	0.47	Marion Regional	37.75	–89.02	Illinois
724390	0.57	Springfield Capital AP	39.85	–89.68	Illinois
724396	0.51	Quincy Muni Baldwin Fld	39.93	–91.20	Illinois
724397	0.60	Central Illinois Rg	40.47	–88.92	Illinois
725300	0.60	Chicago Ohare Intl AP	41.98	–87.92	Illinois
725305	0.58	W. Chicago/Du Page	41.92	–88.25	Illinois
725314	0.45	Cahokia/St. Louis	38.57	–90.15	Illinois
725315	0.57	Univ Of Illinois Wi [Bondville – Surfrad]	40.06	–88.37	Illinois
725316	0.56	Decatur	39.83	–88.87	Illinois
725320	0.55	Peoria Greater Peoria AP	40.67	–89.68	Illinois
725326	0.51	Sterling Rockfalls	41.75	–89.67	Illinois
725340	0.56	Chicago Midway AP	41.78	–87.75	Illinois
725347	0.59	Chicago/Waukegan	42.42	–87.87	Illinois
725430	0.58	Rockford Greater Rockford AP	42.20	–89.10	Illinois
725440	0.58	Moline Quad City Intl AP	41.47	–90.52	Illinois
744655	0.57	Aurora Municipal	41.77	–88.47	Illinois
724320	0.48	Evansville Regional AP	38.05	–87.53	Indiana
724365	0.45	Huntingburg	38.25	–86.95	Indiana
724373	0.50	Terre Haute Hulman Regional A	39.45	–87.30	Indiana
724375	0.47	Monroe Co	39.13	–86.62	Indiana
724380	0.54	Indianapolis Intl AP	39.72	–86.27	Indiana
724386	0.53	Lafayette Purdue Univ AP	40.42	–86.93	Indiana
725330	0.57	Fort Wayne Intl AP	41.00	–85.20	Indiana
725335	0.54	Grissom Arb	40.65	–86.15	Indiana
725336	0.53	Delaware Co Johnson	40.23	–85.40	Indiana
725350	0.57	South Bend Michiana Rgnl AP	41.70	–86.33	Indiana
725450	0.56	Cedar Rapids Municipal AP	41.88	–91.72	Iowa
725453	0.54	Atlantic	41.40	–95.05	Iowa
725454	0.54	Washington	41.28	–91.67	Iowa
725455	0.54	Burlington Municipal AP	40.78	–91.12	Iowa
725456	0.48	Keokuk Muni	40.47	–91.43	Iowa
725457	0.59	Algona	43.08	–94.27	Iowa
725460	0.58	Des Moines Intl AP	41.53	–93.67	Iowa
725463	0.56	Charles City	43.07	–92.62	Iowa

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
725464	0.55	Newton Muni	41.68	–93.02	Iowa
725465	0.60	Ottumwa Industrial AP	41.10	–92.45	Iowa
725467	0.52	Shenandoah Muni	40.75	–95.42	Iowa
725468	0.57	Carroll	42.05	–94.78	Iowa
725469	0.53	Chariton	41.03	–93.37	Iowa
725470	0.59	Dubuque Regional AP	42.40	–90.70	Iowa
725473	0.57	Clinton Muni (AWOS)	41.83	–90.33	Iowa
725474	0.57	Creston	41.02	–94.37	Iowa
725475	0.52	Monticello Muni	42.23	–91.17	Iowa
725476	0.46	Decorah	43.28	–91.73	Iowa
725477	0.56	Denison	41.98	–95.38	Iowa
725478	0.58	Webster City	42.43	–93.87	Iowa
725479	0.49	Clarinda	40.72	–95.03	Iowa
725480	0.62	Waterloo Municipal AP	42.55	–92.40	Iowa
725483	0.47	Fort Madison	40.67	–91.33	Iowa
725484	0.53	Le Mars	42.78	–96.20	Iowa
725485	0.65	Mason City Municipal Arpt	43.15	–93.33	Iowa
725486	0.57	Boone Muni	42.05	–93.85	Iowa
725487	0.49	Muscatine	41.37	–91.15	Iowa
725488	0.57	Oelwen	42.68	–91.97	Iowa
725489	0.58	Orange City	42.98	–96.07	Iowa
725490	0.55	Fort Dodge (AWOS)	42.55	–94.18	Iowa
725493	0.50	Knoxville	41.30	–93.12	Iowa
725494	0.55	Red Oak	41.02	–95.27	Iowa
725495	0.59	Sheldon	43.22	–95.83	Iowa
725496	0.60	Storm Lake	42.60	–95.23	Iowa
725497	0.51	Council Bluffs	41.27	–95.77	Iowa
725570	0.65	Sioux City Sioux Gateway AP	42.38	–96.38	Iowa
726498	0.56	Fair Field	41.05	–91.98	Iowa
726499	0.66	Estherville Muni	43.40	–94.75	Iowa
726500	0.67	Spencer	43.17	–95.15	Iowa
724468	0.52	Olathe/Johnson Co.	38.85	–94.73	Kansas
724475	0.57	Olathe Johnson Co Industrial	38.83	–94.88	Kansas
724500	0.62	Wichita Mid–Continent AP	37.65	–97.43	Kansas
724504	0.58	Wichita/Col. Jabara	37.75	–97.22	Kansas
724505	0.61	McConnell AFB	37.62	–97.27	Kansas
724506	0.56	Hutchinson Municipal AP	38.07	–97.87	Kansas
724507	0.54	Chanute Martin Johnson AP	37.67	–95.48	Kansas
724509	0.60	Newton (AWOS)	38.05	–97.28	Kansas
724510	0.75	Dodge City Regional AP	37.77	–99.97	Kansas

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
724515	0.69	Garden City Municipal AP	37.93	–100.72	Kansas
724516	0.67	Liberal Muni	37.03	–100.97	Kansas
724517	0.65	Great Bend (AWOS)	38.35	–98.87	Kansas
724518	0.65	Hays Muni (AWOS)	38.85	–99.27	Kansas
724550	0.50	Fort Riley Marshall AAF	39.05	–96.77	Kansas
724555	0.53	Manhattan Rgnl	39.13	–96.67	Kansas
724556	0.61	Emporia Municipal AP	38.33	–96.18	Kansas
724560	0.55	Topeka Municipal AP	39.07	–95.63	Kansas
724565	0.54	Topeka Forbes Field	38.95	–95.67	Kansas
724580	0.63	Concordia Blosser Muni AP	39.55	–97.65	Kansas
724585	0.68	Russell Municipal AP	38.88	–98.82	Kansas
724586	0.61	Salina Municipal AP	38.82	–97.67	Kansas
724650	0.73	Goodland Renner Field	39.37	–101.70	Kansas
724655	0.61	Hill City Municipal AP	39.38	–99.83	Kansas
724210	0.50	Cincinnati Northern Ky AP	39.05	–84.67	Kentucky
724220	0.48	Lexington Bluegrass AP	38.03	–84.60	Kentucky
724230	0.47	Louisville Standiford Field	38.18	–85.73	Kentucky
724235	0.41	Louisville Bowman Field	38.23	–85.67	Kentucky
724236	0.38	Jackson Julian Carroll AP	37.58	–83.32	Kentucky
724238	0.47	Henderson City	37.82	–87.68	Kentucky
724240	0.45	Fort Knox Godman AAF	37.90	–85.97	Kentucky
724243	0.42	London–Corbin AP	37.08	–84.08	Kentucky
724350	0.46	Paducah Barkley Regional AP	37.05	–88.77	Kentucky
724354	0.38	Somerset (AWOS)	38.00	–84.60	Kentucky
746710	0.44	Fort Campbell AAF	36.67	–87.48	Kentucky
746716	0.43	Bowling Green Warren Co AP	36.98	–86.43	Kentucky
722310	0.41	New Orleans Intl Arpt	30.00	–90.25	Louisiana
722314	0.41	New Iberia NAAS	30.03	–91.88	Louisiana
722315	0.47	New Orleans Lakefront AP	30.05	–90.03	Louisiana
722316	0.35	New Orleans Alvin Callender F	29.82	–90.02	Louisiana
722317	0.39	Baton Rouge Ryan Arpt	30.53	–91.15	Louisiana
722329	0.37	Patterson Memorial	29.72	–91.33	Louisiana
722390	0.36	Fort Polk AAF	31.05	–93.18	Louisiana
722400	0.42	Lake Charles Regional Arpt	30.12	–93.23	Louisiana
722404	0.42	Lake Charles Wb Airp	30.22	–93.17	Louisiana
722405	0.42	Lafayette Regional AP	30.20	–91.98	Louisiana
722406	0.37	Houma–Terrebonne	29.57	–90.67	Louisiana
722480	0.44	Shreveport Regional Arpt	32.45	–93.82	Louisiana
722484	0.41	Shreveport Downtown	32.53	–93.75	Louisiana
722485	0.39	Barksdale AFB	32.50	–93.67	Louisiana

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
722486	0.40	Monroe Regional AP	32.52	–92.03	Louisiana
722487	0.36	Alexandria Esler Regional AP	31.40	–92.30	Louisiana
747540	0.38	England AFB	31.32	–92.55	Louisiana
726060	0.60	Portland Intl Jetport	43.65	–70.30	Maine
726064	0.57	Sanford Muni (AWOS)	43.40	–70.72	Maine
726073	0.55	Waterville (AWOS)	44.53	–69.68	Maine
726077	0.62	Bar Harbor (AWOS)	44.45	–68.37	Maine
726079	0.57	Rockland/Knox (AWOS)	44.07	–69.10	Maine
726083	0.65	Northern Aroostook	47.28	–68.32	Maine
726088	0.58	Bangor International AP	44.80	–68.82	Maine
726184	0.56	Auburn–Lewiston	44.05	–70.28	Maine
726185	0.58	Augusta Airport	44.32	–69.80	Maine
726196	0.52	Millinocket Municipal AP	45.65	–68.68	Maine
727033	0.61	Houlton Intl Arpt	46.12	–67.80	Maine
727120	0.66	Caribou Municipal Arpt	46.87	–68.03	Maine
727130	0.66	Presque Isle Municip	46.68	–68.05	Maine
727135	0.50	Wiscasset	43.97	–69.72	Maine
743920	0.59	Brunswick NAS	43.90	–69.93	Maine
724040	0.45	Patuxent River NAS	38.30	–76.42	Maryland
724045	0.47	Salisbury Wicomico Co AP	38.33	–75.52	Maryland
724060	0.50	Baltimore Blt–Washngtn Int'l	39.17	–76.68	Maryland
724066	0.46	Hagerstown Rgnl Ric	39.70	–77.73	Maryland
745940	0.49	Andrews AFB	38.82	–76.87	Maryland
725060	0.60	Otis ANGBb	41.65	–70.52	Massachusetts
725063	0.61	Nantucket Memorial AP	41.25	–70.07	Massachusetts
725064	0.53	Plymouth Municipal	41.92	–70.73	Massachusetts
725065	0.54	New Bedford Rgnl	41.67	–70.95	Massachusetts
725066	0.59	Marthas Vineyard	41.40	–70.62	Massachusetts
725067	0.60	Barnstable Muni Boa	41.67	–70.28	Massachusetts
725073	0.59	Provincetown (AWOS)	42.07	–70.22	Massachusetts
725075	0.52	North Adams	42.70	–73.17	Massachusetts
725088	0.58	Beverly Muni	42.58	–70.92	Massachusetts
725090	0.66	Boston Logan Intl Arpt	42.37	–71.02	Massachusetts
725095	0.59	Worchester Regional Arpt	42.27	–71.88	Massachusetts
725098	0.52	Norwood Memorial	42.18	–71.18	Massachusetts
744904	0.55	Lawrence Muni	42.72	–71.12	Massachusetts
744910	0.49	Chicopee Falls Westo	42.20	–72.53	Massachusetts
744915	0.50	Westfield Barnes Muni AP	42.15	–72.72	Massachusetts
725370	0.60	Detroit Metropolitan Arpt	42.22	–83.35	Michigan
725374	0.56	Ann Arbor Municipal	42.22	–83.75	Michigan

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
725375	0.56	Detroit City Airport	42.40	–83.00	Michigan
725376	0.57	Detroit Willow Run AP	42.23	–83.53	Michigan
725377	0.55	Mount Clemens Selfridge Fld	42.62	–82.83	Michigan
725378	0.50	Howell	42.63	–83.98	Michigan
725384	0.51	St.Clair County Int	42.92	–82.53	Michigan
725390	0.63	Lansing Capital City Arpt	42.78	–84.58	Michigan
725395	0.54	Jackson Reynolds Field	42.27	–84.47	Michigan
725396	0.55	Battle Creek Kellogg AP	42.30	–85.25	Michigan
726350	0.60	Grand Rapids Kent County Int'	42.88	–85.52	Michigan
726355	0.53	Benton Harbor/Ross	42.13	–86.43	Michigan
726357	0.53	Kalamazoo Battle Cr	42.23	–85.55	Michigan
726360	0.61	Muskegon County Arpt	43.17	–86.23	Michigan
726370	0.60	Flint Bishop Intl Arpt	42.97	–83.75	Michigan
726375	0.57	Oakland Co Intl	42.67	–83.42	Michigan
726379	0.59	Saginaw Tri City Intl AP	43.53	–84.08	Michigan
726380	0.59	Houghton Lake Roscommon Co Ar	44.37	–84.68	Michigan
726384	0.58	Cadillac Wexford Co AP	44.28	–85.42	Michigan
726385	0.53	Manistee (AWOS)	44.27	–86.25	Michigan
726387	0.61	Traverse City Cherry Capital	44.73	–85.58	Michigan
726390	0.61	Alpena County Regional AP	45.07	–83.58	Michigan
726395	0.60	Oscoda Wurtsmith AFB	44.45	–83.40	Michigan
726480	0.64	Escanaba (AWOS)	45.75	–87.03	Michigan
726487	0.57	Menominee (AWOS)	45.13	–87.63	Michigan
727340	0.65	Sault Ste Marie Sanderson Fie	46.47	–84.35	Michigan
727344	0.66	Chippewa Co Intl	46.25	–84.47	Michigan
727347	0.59	Pellston Emmet County AP	45.57	–84.78	Michigan
727437	0.56	Iron Mountain/Ford	45.82	–88.12	Michigan
727440	0.67	Hancock Houghton Co AP	47.17	–88.50	Michigan
727445	0.62	Ironwood (AWOS)	46.53	–90.13	Michigan
726440	0.70	Rochester International Arpt	43.90	–92.50	Minnesota
726544	0.61	Orr, MN	48.02	–92.87	Minnesota
726547	0.62	Glenwood (ASOS)	45.65	–95.32	Minnesota
726550	0.59	St Cloud Regional Arpt	45.55	–94.05	Minnesota
726555	0.57	Brainerd/Wieland	46.40	–94.13	Minnesota
726556	0.64	Redwood Falls Muni	44.55	–95.08	Minnesota
726557	0.67	Alexandria Municipal AP	45.88	–95.40	Minnesota
726558	0.61	Cloquet (AWOS)	46.70	–92.50	Minnesota
726559	0.66	Marshall/Ryan (AWOS)	44.45	–95.82	Minnesota
726560	0.64	Fergus Falls (AWOS)	46.28	–96.15	Minnesota
726563	0.57	Faribault Muni AWOS	44.33	–93.32	Minnesota

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
726564	0.55	Red Wing	44.58	–92.48	Minnesota
726565	0.66	Morris Muni (AWOS)	45.57	–95.97	Minnesota
726566	0.63	Pipestone (AWOS)	43.98	–96.32	Minnesota
726567	0.61	New Ulm Muni (AWOS)	44.32	–94.50	Minnesota
726568	0.59	Owatonna (AWOS)	44.12	–93.25	Minnesota
726569	0.60	Hutchinson (AWOS)	44.87	–94.38	Minnesota
726575	0.58	Minneapolis/Crystal	45.07	–93.35	Minnesota
726576	0.59	Willmar	45.12	–95.08	Minnesota
726578	0.58	Little Falls (AWOS)	45.95	–94.35	Minnesota
726579	0.58	Flying Cloud	44.82	–93.45	Minnesota
726580	0.63	Minneapolis–St Paul Intl Arp	44.88	–93.23	Minnesota
726583	0.53	Litchfield Muni	45.10	–94.50	Minnesota
726584	0.57	St Paul Downtown AP	44.93	–93.05	Minnesota
726585	0.61	Mankato (AWOS)	44.22	–93.92	Minnesota
726586	0.66	Fairmont Muni (AWOS)	43.65	–94.42	Minnesota
726587	0.67	Worthington (AWOS)	43.65	–95.58	Minnesota
726588	0.51	Winona Muni (AWOS)	44.08	–91.70	Minnesota
726589	0.55	Albert Lea (AWOS)	43.68	–93.37	Minnesota
726603	0.51	South St Paul Muni	44.85	–93.15	Minnesota
727444	0.60	Two Harbors	47.05	–91.75	Minnesota
727450	0.70	Duluth International Arpt	46.83	–92.22	Minnesota
727452	0.67	Crookston Muni Fld	47.85	–96.62	Minnesota
727453	0.65	Park Rapids Municipal AP	46.90	–95.07	Minnesota
727455	0.64	Hibbing Chisholm–Hibbing AP	47.38	–92.85	Minnesota
727457	0.63	Detroit Lakes (AWOS)	46.83	–95.88	Minnesota
727458	0.60	Grand Rapids (AWOS)	47.22	–93.52	Minnesota
727459	0.58	Ely Muni	47.82	–91.83	Minnesota
727470	0.65	International Falls Intl AP	48.57	–93.40	Minnesota
727473	0.57	Crane Lake (AWOS)	46.27	–92.57	Minnesota
727474	0.63	Eveleth Muni (AWOS)	47.40	–92.50	Minnesota
727475	0.54	Mora Muni (AWOS)	45.88	–93.27	Minnesota
727476	0.62	Baudette International AP	48.72	–94.60	Minnesota
727477	0.65	Roseau Muni (AWOS)	48.85	–95.70	Minnesota
727478	0.68	Hallock	48.78	–96.95	Minnesota
727503	0.54	Cambridge Muni	45.57	–93.27	Minnesota
727504	0.58	Aitkin Ndb (AWOS)	46.55	–93.68	Minnesota
727505	0.61	Fosston (AWOS)	47.58	–95.77	Minnesota
727507	0.62	Benson Muni	45.32	–95.65	Minnesota
727533	0.66	Wheaton Ndb (AWOS)	45.70	–96.50	Minnesota
727550	0.62	Bemidji Municipal	47.50	–94.93	Minnesota

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
727555	0.66	Thief River (AWOS)	48.07	–96.18	Minnesota
727556	0.62	Silver Bay	47.20	–91.40	Minnesota
727566	0.55	Austin Muni	43.67	–92.93	Minnesota
722340	0.41	Meridian Key Field	32.33	–88.75	Mississippi
722345	0.34	Meridian NAAS	32.55	–88.57	Mississippi
722348	0.35	Hattiesburg Laurel	31.47	–89.33	Mississippi
722350	0.42	Jackson International AP	32.32	–90.08	Mississippi
722356	0.44	Greenville Municipal	33.48	–90.98	Mississippi
722357	0.36	Natchez/Hardy (AWOS)	31.62	–91.30	Mississippi
722358	0.36	McComb Pike County AP	31.23	–90.47	Mississippi
722359	0.41	Greenwood Leflore Arpt	33.50	–90.08	Mississippi
723306	0.42	Columbus AFB	33.65	–88.45	Mississippi
723307	0.40	Golden Tri (AWOS)	33.45	–88.58	Mississippi
723320	0.43	Tupelo C D Lemons Arpt	34.27	–88.77	Mississippi
747685	0.38	Gulfport Biloxi Int	30.40	–89.07	Mississippi
747686	0.38	Keesler AFB	30.42	–88.92	Mississippi
723300	0.43	Poplar Bluff (AMOS)	36.77	–90.47	Missouri
723489	0.47	Cape Girardeau Municipal AP	37.23	–89.57	Missouri
723495	0.53	Joplin Municipal AP	37.15	–94.50	Missouri
724340	0.54	St Louis Lambert Intl Arpt	38.75	–90.37	Missouri
724345	0.48	St Louis Spirit Of St Louis A	38.65	–90.65	Missouri
724400	0.53	Springfield Regional Arpt	37.23	–93.38	Missouri
724450	0.54	Columbia Regional Airport	38.82	–92.22	Missouri
724454	0.45	Farmington	37.77	–90.40	Missouri
724455	0.53	Kirksville Regional AP	40.10	–92.55	Missouri
724456	0.52	Vichy Rolla Natl Arpt	38.13	–91.77	Missouri
724457	0.44	Ft Lnrd Wd AAF	37.75	–92.15	Missouri
724458	0.46	Jefferson City Mem	38.58	–92.15	Missouri
724459	0.45	Kaiser Mem (AWOS)	38.10	–92.55	Missouri
724460	0.60	Kansas City Intl Arpt	39.30	–94.72	Missouri
724463	0.51	Kansas City Downtown AP	39.12	–94.60	Missouri
724467	0.53	Whiteman AFB	38.72	–93.55	Missouri
724490	0.56	St Joseph Rosecrans Memorial	39.77	–94.90	Missouri
726676	0.69	Glendive (AWOS)	47.13	–104.80	Montana
726770	0.66	Billings Logan Intl Arpt	45.80	–108.55	Montana
726776	0.67	Lewistown Municipal Arpt	47.05	–109.45	Montana
726785	0.68	Butte Bert Mooney Arpt	45.95	–112.50	Montana
726797	0.62	Bozeman Gallatin Field	45.80	–111.15	Montana
726798	0.78	Livingston Mission Field	45.70	–110.45	Montana
727680	0.70	Glasgow Intl Arpt	48.22	–106.62	Montana

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
727686	0.66	Wolf Point Intl [Fort Peck – Surfrad]	48.31	–105.10	Montana
727687	0.66	Sidney–Richland	47.70	–104.20	Montana
727720	0.63	Helena Regional Airport	46.60	–111.97	Montana
727730	0.61	Missoula International AP	46.92	–114.10	Montana
727750	0.71	Great Falls Intl Arpt	47.47	–111.38	Montana
727770	0.70	Havre City–County AP	48.55	–109.77	Montana
727790	0.62	Kalispell Glacier Pk Intl Ar	48.32	–114.25	Montana
727796	0.76	Cut Bank Muni AP	48.60	–112.37	Montana
742300	0.67	Miles City Municipal Arpt	46.43	–105.88	Montana
725500	0.58	Omaha Eppley Airfield	41.32	–95.90	Nebraska
725510	0.60	Lincoln Municipal Arpt	40.83	–96.77	Nebraska
725515	0.58	Beatrice Municipal	40.30	–96.75	Nebraska
725520	0.66	Grand Island Central Ne Region	40.97	–98.32	Nebraska
725524	0.61	Ord/Sharp Field	41.62	–98.95	Nebraska
725525	0.61	Hastings Municipal	40.60	–98.43	Nebraska
725526	0.65	Kearney Muni (AWOS)	40.73	–99.00	Nebraska
725527	0.59	Tekamah (ASOS)	41.77	–96.17	Nebraska
725530	0.55	Omaha Wsfo	41.37	–96.02	Nebraska
725533	0.55	Falls City/Brenner	40.08	–95.60	Nebraska
725540	0.51	Bellevue Offutt AFB	41.12	–95.92	Nebraska
725555	0.66	Broken Bow Muni	41.43	–99.65	Nebraska
725556	0.66	Ainsworth Municipal	42.58	–100.00	Nebraska
725560	0.66	Norfolk Karl Stefan Mem Arpt	41.98	–97.43	Nebraska
725564	0.56	Fremont Muni Arpt	41.45	–96.52	Nebraska
725565	0.58	Columbus Muni	41.45	–97.33	Nebraska
725566	0.68	O'Neill/Baker Field	42.47	–98.68	Nebraska
725610	0.69	Sidney Municipal AP	41.10	–102.98	Nebraska
725620	0.66	North Platte Regional AP	41.12	–100.67	Nebraska
725625	0.61	McCook Municipal	40.20	–100.58	Nebraska
725626	0.62	Imperial Faa AP	40.52	–101.62	Nebraska
725628	0.62	Brewster Field Arpt	40.45	–99.33	Nebraska
725635	0.71	Alliance Municipal	42.05	–102.80	Nebraska
725636	0.68	Chadron Municipal AP	42.83	–103.08	Nebraska
725660	0.66	Scottsbluff W B Heilig Field	41.87	–103.60	Nebraska
725670	0.64	Valentine Miller Field	42.87	–100.55	Nebraska
723860	0.55	Las Vegas McCarran Intl AP	36.08	–115.15	Nevada
723865	0.54	Nellis AFB	36.25	–115.03	Nevada
723870	0.55	Mercury Desert Rock AP [Surfrad]	36.63	–116.02	Nevada
724855	0.61	Tonopah Airport	38.07	–117.08	Nevada
724860	0.68	Ely Yelland Field	39.30	–114.85	Nevada

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
724880	0.57	Reno Tahoe International AP	39.48	–119.77	Nevada
724885	0.54	Fallon NAAS	39.42	–118.72	Nevada
725805	0.57	Lovelock Derby Field	40.07	–118.55	Nevada
725825	0.60	Elko Municipal Arpt	40.83	–115.80	Nevada
725830	0.61	Winnemucca Municipal Arpt	40.90	–117.80	Nevada
726050	0.55	Concord Municipal Arpt	43.20	–71.50	New Hampshire
726055	0.55	Pease Intl Tradepor	43.08	–70.82	New Hampshire
726116	0.52	Lebanon Municipal	43.63	–72.30	New Hampshire
726130	1.56	Mount Washington	44.27	–71.30	New Hampshire
726155	0.54	Laconia Muni (AWOS)	43.57	–71.42	New Hampshire
726160	0.57	Berlin Municipal	44.58	–71.18	New Hampshire
726165	0.50	Dillant Hopkins	42.90	–72.27	New Hampshire
743945	0.50	Manchester Airport	42.93	–71.43	New Hampshire
724070	0.53	Atlantic City Intl AP	39.45	–74.57	New Jersey
724075	0.44	Millville Municipal AP	39.37	–75.08	New Jersey
724084	0.52	Belmar Asc	40.18	–74.07	New Jersey
724094	0.44	Caldwell/Essex Co.	40.88	–74.28	New Jersey
724095	0.48	Trenton Mercer County AP	40.28	–74.82	New Jersey
724096	0.48	McGuire AFB	40.02	–74.60	New Jersey
725020	0.54	Newark International Arpt	40.72	–74.18	New Jersey
725025	0.50	Teterboro Airport	40.85	–74.07	New Jersey
745966	0.49	Cape May Co	39.00	–74.92	New Jersey
722680	0.53	Roswell Industrial Air Park	33.30	–104.53	New Mexico
722683	0.52	Sierra Blanca Rgnl	33.47	–105.53	New Mexico
722686	0.63	Clovis Cannon AFB	34.38	–103.32	New Mexico
722687	0.52	Carlsbad Cavern City Air Term	32.33	–104.27	New Mexico
722689	0.64	Clovis Muni (AWOS)	34.43	–103.08	New Mexico
722695	0.49	Las Cruces Intl	32.28	–106.92	New Mexico
722710	0.51	Truth Or Consequences Muni AP	33.23	–107.27	New Mexico
722725	0.52	Deming Muni	32.25	–107.72	New Mexico
723600	0.66	Clayton Municipal Airpark	36.45	–103.15	New Mexico
723627	0.58	Gallup Sen Clarke Fld	35.52	–108.78	New Mexico
723650	0.54	Albuquerque Intl Arpt [ISIS]	35.04	–106.62	New Mexico
723656	0.60	Santa Fe County Municipal AP	35.62	–106.08	New Mexico
723658	0.58	Farmington Four Corners Regl	36.75	–108.23	New Mexico
723663	0.63	Taos Muni Apt (AWOS)	36.45	–105.67	New Mexico
723676	0.58	Tucumcari Faa AP	35.18	–103.60	New Mexico
723677	0.66	Las Vegas Municipal Arpt	35.65	–105.15	New Mexico
747320	0.53	Holloman AFB	32.85	–106.10	New Mexico
725030	0.58	New York Laguardia Arpt	40.78	–73.88	New York

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
725033	0.61	New York Central Prk Obs Belv	40.78	–73.97	New York
725035	0.53	Islip Long Isl MacArthur AP	40.78	–73.10	New York
725036	0.49	Poughkeepsie Dutchess Co AP	41.63	–73.88	New York
725037	0.51	White Plains Westchester Co A	41.07	–73.72	New York
725038	0.56	Stewart Field	41.50	–74.10	New York
725145	0.51	Monticello (AWOS)	41.70	–74.80	New York
725150	0.61	Binghamton Edwin A Link Field	42.20	–75.98	New York
725156	0.52	Elmira Corning Regional AP	42.17	–76.90	New York
725180	0.61	Albany County AP	42.75	–73.80	New York
725185	0.51	Glens Falls AP	43.35	–73.62	New York
725190	0.55	Syracuse Hancock Int'l Arpt	43.12	–76.10	New York
725197	0.53	Utica Oneida County AP	43.15	–75.38	New York
725235	0.57	Jamestown (AWOS)	42.15	–79.27	New York
725280	0.65	Buffalo Niagara Intl AP	42.93	–78.73	New York
725287	0.60	Niagara Falls Af	43.10	–78.95	New York
725290	0.57	Rochester Greater Rochester I	43.12	–77.68	New York
726223	0.59	Massena AP	44.93	–74.85	New York
726227	0.57	Watertown AP	44.00	–76.02	New York
726228	0.59	Adirondack Rgnl	44.38	–74.20	New York
743700	0.61	Fort Drum/Wheeler–S	44.05	–75.72	New York
744860	0.57	New York J F Kennedy Intl Ar	40.65	–73.80	New York
744864	0.53	Republic	40.72	–73.42	New York
744865	0.54	Westhampton Gabreski AP	40.85	–72.63	New York
723013	0.43	Wilmington International Arpt	34.27	–77.90	North Carolina
723030	0.43	Fayetteville Pope AFB	35.17	–79.02	North Carolina
723035	0.44	Fayetteville Rgnl G	34.98	–78.88	North Carolina
723040	0.49	Cape Hatteras Nws Bldg	35.27	–75.55	North Carolina
723046	0.50	Dare Co Rgnl	35.92	–75.70	North Carolina
723060	0.43	Raleigh Durham International	35.87	–78.78	North Carolina
723065	0.40	Pitt Greenville Arp	35.63	–77.40	North Carolina
723066	0.44	Goldsboro Seymour Johnson AFB	35.35	–77.97	North Carolina
723067	0.44	Kinston Stallings AFB	35.32	–77.63	North Carolina
723068	0.42	Rocky Mount Wilson	35.85	–77.90	North Carolina
723069	0.43	Jacksonville (AWOS)	34.83	–77.62	North Carolina
723090	0.46	Cherry Point MCAS	34.90	–76.88	North Carolina
723095	0.41	New Bern Craven Co Regl AP	35.07	–77.05	North Carolina
723096	0.43	New River MCAF	34.70	–77.38	North Carolina
723140	0.43	Charlotte Douglas Intl Arpt	35.22	–80.95	North Carolina
723143	0.41	Southern Pines AWOS	35.23	–79.40	North Carolina
723145	0.40	Hickory Regional AP	35.73	–81.38	North Carolina

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723150	0.47	Asheville Regional Arpt	35.43	–82.53	North Carolina
723170	0.43	Greensboro Piedmont Triad Int	36.10	–79.95	North Carolina
723193	0.39	Winston–Salem Reynolds AP	36.13	–80.22	North Carolina
746930	0.38	Fort Bragg Simmons AAF	35.13	–78.93	North Carolina
746943	0.50	Elizabeth City Coast Guard Ai [Nrel]	36.30	–76.25	North Carolina
727530	0.69	Fargo Hector International AP	46.93	–96.82	North Dakota
727535	0.69	Jamestown Municipal Arpt	46.92	–98.68	North Dakota
727573	0.69	Devils Lake (AWOS)	48.12	–98.92	North Dakota
727575	0.70	Grand Forks Af	47.97	–97.40	North Dakota
727576	0.66	Grand Forks International AP	47.95	–97.18	North Dakota
727640	0.67	Bismarck Municipal Arpt [ISIS]	46.77	–100.77	North Dakota
727645	0.76	Dickinson Municipal AP	46.80	–102.80	North Dakota
727670	0.68	Williston Sloulin Intl AP	48.20	–103.65	North Dakota
727675	0.72	Minot AFB	48.42	–101.35	North Dakota
727676	0.73	Minot Faa AP	48.27	–101.28	North Dakota
724280	0.49	Columbus Port Columbus Intl A	39.98	–82.88	Ohio
724286	0.48	Zanesville Municipal AP	39.95	–81.90	Ohio
724288	0.50	Ohio State University	40.07	–83.07	Ohio
724290	0.54	Dayton International Airport	39.90	–84.22	Ohio
724297	0.47	Cincinnati Municipal AP Lunki	39.10	–84.42	Ohio
725210	0.56	Akron–Canton Reg AP	40.92	–81.43	Ohio
725240	0.58	Cleveland Hopkins Intl AP	41.40	–81.85	Ohio
725245	0.61	Burke Lakefront	41.52	–81.68	Ohio
725246	0.61	Mansfield Lahm Municipal Arpt	40.82	–82.52	Ohio
725250	0.56	Youngstown Regional Airport	41.25	–80.67	Ohio
725360	0.55	Toledo Express Airport	41.58	–83.80	Ohio
725366	0.53	Findlay Airport	41.02	–83.67	Ohio
745700	0.51	Dayton Wright Patterson AFB	39.83	–84.05	Ohio
723520	0.55	Altus AFB	34.65	–99.27	Oklahoma
723525	0.67	Hobart Municipal AP	35.00	–99.05	Oklahoma
723526	0.63	Clinton–Sherman	35.33	–99.20	Oklahoma
723527	0.65	Gage Airport	36.30	–99.77	Oklahoma
723530	0.58	Oklahoma City Will Rogers Wor	35.38	–97.60	Oklahoma
723535	0.61	Vance AFB	36.33	–97.92	Oklahoma
723540	0.56	Oklahoma City Tinker AFB	35.42	–97.38	Oklahoma
723544	0.61	Oklahoma City/Wiley	35.53	–97.65	Oklahoma
723545	0.55	Stillwater Rgnl	36.15	–97.08	Oklahoma
723546	0.56	Ponca City Municipal AP [SGP – ARM]	36.61	–97.49	Oklahoma
723550	0.56	Fort Sill Post Field Af	34.65	–98.40	Oklahoma
723560	0.54	Tulsa International Airport	36.20	–95.88	Oklahoma

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723565	0.48	Bartlesville/Philli	36.77	–96.02	Oklahoma
723566	0.45	McAlester Municipal AP	34.90	–95.78	Oklahoma
723575	0.53	Lawton Municipal	34.57	–98.42	Oklahoma
725895	0.61	Klamath Falls Intl AP [UO]	42.22	–121.74	Oregon
725970	0.50	Medford Rogue Valley Intl AP [Ashland – UO]	42.19	–122.70	Oregon
725975	0.59	Sexton Summit	42.60	–123.37	Oregon
725976	0.64	Lakeview (AWOS)	42.17	–120.40	Oregon
726830	0.61	Burns Municipal Arpt [UO]	43.52	–119.02	Oregon
726835	0.62	Redmond Roberts Field	44.25	–121.17	Oregon
726880	0.56	Pendleton E Or Regional AP	45.70	–118.83	Oregon
726884	0.61	La Grande Muni AP	45.28	–118.00	Oregon
726886	0.63	Baker Municipal AP	44.83	–117.82	Oregon
726904	0.47	Roseburg Regional AP	43.23	–123.35	Oregon
726917	0.61	North Bend Muni Airport	43.42	–124.25	Oregon
726930	0.56	Eugene Mahlon Sweet Arpt [UO]	44.05	–123.07	Oregon
726940	0.55	Salem McNary Field	44.90	–123.00	Oregon
726945	0.53	Corvallis Muni	44.48	–123.28	Oregon
726959	0.48	Aurora State	45.25	–122.77	Oregon
726980	0.52	Portland International AP	45.60	–122.62	Oregon
726985	0.51	Portland/Troutdale	45.55	–122.40	Oregon
726986	0.50	Portland/Hillsboro	45.53	–122.95	Oregon
727910	0.61	Astoria Regional Airport	46.15	–123.88	Oregon
724080	0.53	Philadelphia International AP	39.87	–75.23	Pennsylvania
724085	0.49	Philadelphia Ne Philadelphia	40.08	–75.02	Pennsylvania
724086	0.44	Willow Grove NAS	40.20	–75.15	Pennsylvania
725103	0.46	Reading Spaatz Field	40.37	–75.97	Pennsylvania
725115	0.55	Middletown Harrisburg Intl AP	40.20	–76.77	Pennsylvania
725116	0.50	Lancaster	40.12	–76.30	Pennsylvania
725117	0.47	Washington (AWOS)	40.13	–80.28	Pennsylvania
725118	0.48	Harrisburg Capital City Arpt	40.22	–76.85	Pennsylvania
725124	0.47	Butler Co. (AWOS)	40.78	–79.95	Pennsylvania
725125	0.56	Dubois Faa AP	41.18	–78.90	Pennsylvania
725126	0.51	Altoona Blair Co Arpt	40.30	–78.32	Pennsylvania
725127	0.54	Johnstown Cambria County AP	40.32	–78.83	Pennsylvania
725128	0.49	State College [Penn State–Surfrad]	40.72	–77.93	Pennsylvania
725130	0.53	Wilkes–Barre Scranton Intl AP	41.33	–75.73	Pennsylvania
725140	0.49	Williamsport Regional AP	41.25	–76.92	Pennsylvania
725170	0.55	Allentown Lehigh Valley Intl	40.65	–75.45	Pennsylvania
725200	0.53	Pittsburgh International AP	40.50	–80.23	Pennsylvania
725205	0.51	Pittsburgh Allegheny Co AP	40.35	–79.92	Pennsylvania

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
725260	0.62	Erie International AP	42.08	–80.18	Pennsylvania
725266	0.60	Bradford Regional AP	41.80	–78.63	Pennsylvania
725267	0.54	Franklin	41.38	–79.87	Pennsylvania
785140	0.41	Aquadilla/Borinquen	18.50	–67.13	Puerto Rico
785145	0.32	Eugenio Maria De Ho	18.25	–67.15	Puerto Rico
785203	0.35	Mercedita	18.00	–66.55	Puerto Rico
785260	0.38	San Juan Intl Arpt	18.42	–66.00	Puerto Rico
785263	0.36	San Juan L M Marin Intl AP	18.43	–66.00	Puerto Rico
785350	0.42	Roosevelt Roads	18.25	–65.63	Puerto Rico
725054	0.49	Pawtucket (AWOS)	41.92	–71.50	Rhode Island
725058	0.60	Block Island State Arpt	41.17	–71.58	Rhode Island
725070	0.58	Providence T F Green State Ar	41.72	–71.43	Rhode Island
722080	0.43	Charleston Intl Arpt	32.90	–80.03	South Carolina
722085	0.39	Beaufort MCAS	32.48	–80.72	South Carolina
723100	0.41	Columbia Metro Arpt	33.95	–81.12	South Carolina
723106	0.41	Florence Regional AP	34.18	–79.73	South Carolina
723119	0.42	Greenville Downtown AP	34.85	–82.35	South Carolina
723120	0.43	Greer Greenv'l–Spartanbrg AP	34.90	–82.22	South Carolina
723125	0.44	Anderson County AP	34.50	–82.72	South Carolina
747900	0.43	Sumter Shaw AFB	33.97	–80.47	South Carolina
747910	0.47	Myrtle Beach AFB	33.68	–78.93	South Carolina
747915	0.43	North Myrtle Beach Grand Stra	33.82	–78.72	South Carolina
726510	0.67	Sioux Falls Foss Field	43.58	–96.75	South Dakota
726515	0.63	Brookings (AWOS)	44.30	–96.82	South Dakota
726525	0.61	Chan Gurney Muni	42.92	–97.38	South Dakota
726540	0.68	Huron Regional Arpt	44.40	–98.22	South Dakota
726545	0.65	Mitchell (AWOS)	43.77	–98.03	South Dakota
726546	0.69	Watertown Municipal AP	44.93	–97.15	South Dakota
726590	0.66	Aberdeen Regional Arpt	45.45	–98.42	South Dakota
726620	0.72	Rapid City Regional Arpt	44.05	–103.05	South Dakota
726625	0.68	Ellsworth AFB	44.15	–103.10	South Dakota
726685	0.71	Mobridge	45.53	–100.43	South Dakota
726686	0.68	Pierre Municipal AP	44.38	–100.28	South Dakota
723183	0.40	Bristol Tri City Airport	36.47	–82.40	Tennessee
723240	0.41	Chattanooga Lovell Field AP	35.03	–85.20	Tennessee
723260	0.43	Knoxville McGhee Tyson AP	35.82	–83.98	Tennessee
723265	0.40	Crossville Memorial AP	35.95	–85.08	Tennessee
723270	0.44	Nashville International AP	36.12	–86.68	Tennessee
723340	0.46	Memphis International AP	35.07	–89.98	Tennessee
723346	0.44	Jackson McKellar–Sipes Regl A	35.60	–88.92	Tennessee

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723347	0.44	Dyersburg Municipal AP	36.02	–89.40	Tennessee
690190	0.56	Abilene Dyess AFB	32.43	–99.85	Texas
722410	0.44	Port Arthur Jefferson County	29.95	–94.02	Texas
722420	0.53	Galveston/Scholes	29.30	–94.80	Texas
722429	0.38	Houston/D.W. Hooks	30.07	–95.55	Texas
722430	0.42	Houston Bush Intercontinental	30.00	–95.37	Texas
722435	0.41	Houston William P Hobby AP	29.65	–95.28	Texas
722436	0.40	Houston Ellington AFB [Clear Lake – UT]	29.57	–95.09	Texas
722445	0.40	College Station Easterwood Fl	30.58	–96.37	Texas
722446	0.41	Lufkin Angelina Co	31.23	–94.75	Texas
722448	0.45	Tyler/Pounds Fld	32.35	–95.40	Texas
722470	0.43	Longview Gregg County AP [Overton – UT]	32.29	–94.98	Texas
722499	0.37	Nacogdoches (AWOS)	31.58	–94.72	Texas
722500	0.48	Brownsville S Padre Isl Intl	25.90	–97.43	Texas
722505	0.49	Harlingen Rio Grande Valley I	26.23	–97.65	Texas
722506	0.49	McAllen Miller Intl AP [Edinburg – UT]	26.31	–98.17	Texas
722510	0.53	Corpus Christi Intl Arpt [UT]	27.88	–97.63	Texas
722515	0.52	Corpus Christi NAS	27.68	–97.28	Texas
722516	0.44	Kingsville	27.50	–97.82	Texas
722517	0.48	Alice Intl AP	27.73	–98.03	Texas
722520	0.55	Laredo Intl AP [UT]	27.57	–99.49	Texas
722523	0.40	San Antonio/Stinson	29.33	–98.47	Texas
722524	0.45	Rockport/Aransas Co	28.08	–97.05	Texas
722526	0.44	Cotulla Faa AP	28.45	–99.22	Texas
722530	0.45	San Antonio Intl AP	29.53	–98.47	Texas
722533	0.43	Hondo Municipal AP	29.37	–99.17	Texas
722535	0.45	San Antonio Kelly Field AFB	29.38	–98.58	Texas
722536	0.43	Randolph AFB	29.53	–98.28	Texas
722540	0.41	Austin Mueller Municipal AP [UT]	30.29	–97.74	Texas
722544	0.44	Camp Mabry	30.32	–97.77	Texas
722547	0.45	Georgetown (AWOS)	30.68	–97.68	Texas
722550	0.47	Victoria Regional AP	28.87	–96.93	Texas
722555	0.48	Palacios Municipal AP	28.72	–96.25	Texas
722560	0.53	Waco Regional AP	31.62	–97.23	Texas
722563	0.48	McGregor (AWOS)	31.48	–97.32	Texas
722570	0.46	Fort Hood	31.13	–97.72	Texas
722575	0.47	Killeen Muni (AWOS)	31.08	–97.68	Texas
722576	0.49	Robert Gray AAF	31.07	–97.83	Texas
722577	0.50	Draughon Miller Cen	31.15	–97.40	Texas
722583	0.53	Dallas Love Field	32.85	–96.85	Texas

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
722587	0.48	Cox Fld	33.63	–95.45	Texas
722588	0.44	Greenville/Majors	33.07	–96.07	Texas
722590	0.53	Dallas–Fort Worth Intl AP	32.90	–97.02	Texas
722594	0.49	Fort Worth Alliance	32.98	–97.32	Texas
722595	0.49	Fort Worth NAS	32.77	–97.45	Texas
722596	0.52	Fort Worth Meacham	32.82	–97.37	Texas
722597	0.48	Mineral Wells Municipal AP	32.78	–98.07	Texas
722598	0.53	Dallas/Addison Arpt	32.97	–96.83	Texas
722599	0.50	Dallas/Redbird Arpt	32.68	–96.87	Texas
722610	0.46	Del Rio [UT]	29.38	–100.91	Texas
722615	0.46	Del Rio Laughlin AFB	29.37	–100.78	Texas
722630	0.52	San Angelo Mathis Field	31.35	–100.50	Texas
722636	0.67	Dalhart Municipal AP	36.02	–102.55	Texas
722640	0.55	Marfa AP	30.37	–104.02	Texas
722650	0.60	Midland International AP	31.95	–102.18	Texas
722656	0.54	Wink Winkler County AP	31.78	–103.20	Texas
722660	0.58	Abilene Regional AP [UT]	32.47	–99.71	Texas
722670	0.58	Lubbock International AP	33.67	–101.82	Texas
722700	0.48	El Paso International AP [UT]	31.77	–106.50	Texas
723510	0.59	Wichita Falls Municipal Arpt	33.98	–98.50	Texas
723604	0.57	Childress Municipal AP	34.43	–100.28	Texas
723630	0.68	Amarillo International AP [Canyon – UT]	34.99	–101.90	Texas
724723	0.55	Blanding	37.62	–109.48	Utah
724735	0.50	Hanksville	38.37	–110.72	Utah
724754	0.49	Saint George (AWOS)	37.08	–113.60	Utah
724755	0.60	Cedar City Municipal AP	37.70	–113.10	Utah
724756	0.70	Bryce Cnyn Faa AP	37.70	–112.15	Utah
724776	0.54	Moab/Canyonlands [UO]	38.58	–109.54	Utah
724795	0.60	Delta	39.33	–112.58	Utah
725705	0.55	Vernal	40.43	–109.52	Utah
725720	0.61	Salt Lake City Intl Arpt [ISIS]	40.77	–111.97	Utah
725724	0.56	Provo Muni (AWOS)	40.22	–111.72	Utah
725750	0.55	Ogden Hinkley Airport	41.20	–112.02	Utah
725755	0.62	Ogden Hill AFB	41.12	–111.97	Utah
725810	0.56	Wendover Usaf Auxiliary Field	40.72	–114.03	Utah
725165	0.54	Rutland State	43.52	–72.95	Vermont
726115	0.51	Springfield/Hartnes	43.35	–72.52	Vermont
726145	0.56	Montpelier AP	44.20	–72.57	Vermont
726170	0.61	Burlington International AP	44.47	–73.15	Vermont
785430	0.49	Charlotte Amalie Harry S Trum	18.35	–64.97	Virgin Islands, American

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
723075	0.49	Oceana NAS	36.82	–76.03	Virginia
723080	0.55	Norfolk International AP	36.90	–76.20	Virginia
723083	0.41	Franklin NAAS	36.70	–76.90	Virginia
723085	0.49	Norfolk NAS	36.95	–76.28	Virginia
723086	0.51	Newport News	37.13	–76.50	Virginia
724010	0.48	Richmond International AP	37.52	–77.32	Virginia
724014	0.40	Dinwiddie Co	37.18	–77.52	Virginia
724016	0.41	Charlottesville Faa	38.13	–78.45	Virginia
724017	0.40	Farmville	37.35	–78.43	Virginia
724026	0.45	Melfa/Accomack Arpt	37.65	–75.77	Virginia
724030	0.47	Washington DC Dulles Intl Ar [Sterling–ISIS]	38.98	–77.47	Virginia
724033	0.43	Shannon Arpt	38.27	–77.45	Virginia
724035	0.45	Quantico MCAS	38.50	–77.30	Virginia
724036	0.46	Manassas Muni (AWOS)	38.72	–77.52	Virginia
724037	0.40	Davison AAF	38.72	–77.18	Virginia
724050	0.51	Washington Dc Reagan AP	38.87	–77.03	Virginia
724053	0.45	Winchester Rgnl	39.15	–78.15	Virginia
724055	0.44	Leesburg/Godfrey	39.08	–77.57	Virginia
724056	0.45	Marion / Wytheville	36.90	–81.35	Virginia
724058	0.43	Abingdon	36.68	–82.03	Virginia
724100	0.44	Lynchburg Regional Arpt	37.33	–79.20	Virginia
724105	0.43	Staunton/Shenandoah	38.27	–78.90	Virginia
724106	0.43	Danville Faa AP	36.57	–79.33	Virginia
724107	0.48	Hillsville	36.77	–80.82	Virginia
724110	0.46	Roanoke Regional AP	37.32	–79.97	Virginia
724113	0.43	Virginia Tech Arpt	37.22	–80.42	Virginia
724115	0.62	Hot Springs/Ingalls	37.95	–79.83	Virginia
724116	0.43	Pulaski	37.13	–80.68	Virginia
724117	0.43	Wise/Lonesome Pine	36.98	–82.53	Virginia
745980	0.49	Langley AFB	37.08	–76.35	Virginia
745985	0.40	Martinsville	36.63	–80.02	Virginia
690230	0.61	Whidbey Island NAS	48.35	–122.67	Washington
726988	0.61	The Dalles Municipal Arpt	45.62	–121.15	Washington
727810	0.57	Yakima Air Terminal	46.57	–120.55	Washington
727815	0.66	Stampede Pass	47.28	–121.33	Washington
727825	0.57	Wenatchee/Pangborn	47.40	–120.20	Washington
727826	0.60	Ephrata AP FCWOS	47.30	–119.52	Washington
727827	0.55	Moses Lake Grant County AP	47.20	–119.32	Washington
727840	0.61	Hanford	46.57	–119.60	Washington
727845	0.54	Pasco	46.27	–119.12	Washington

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
727846	0.56	Walla Walla City County AP	46.10	–118.28	Washington
727850	0.64	Spokane International AP [Cheney – UO]	47.49	–117.59	Washington
727855	0.63	Fairchild AFB	47.63	–117.65	Washington
727856	0.56	Felts Fld	47.68	–117.32	Washington
727857	0.59	Pullman/Moscow Rgnl	46.75	–117.12	Washington
727885	0.57	William R Fairchild	48.12	–123.50	Washington
727920	0.54	Olympia Airport	46.97	–122.90	Washington
727923	0.61	Hoquiam AP	46.98	–123.93	Washington
727924	0.52	Kelso Wb AP	46.13	–122.90	Washington
727926	0.52	Toledo–Winlock Mem	46.48	–122.80	Washington
727928	0.55	Bremerton National	47.48	–122.75	Washington
727930	0.56	Seattle–Tacoma Intl A	47.47	–122.32	Washington
727934	0.51	Renton Muni	47.48	–122.22	Washington
727935	0.49	Seattle Boeing Field [ISIS]	47.68	–122.25	Washington
727937	0.54	Snohomish Co	47.90	–122.28	Washington
727938	0.53	Tacoma Narrows	47.27	–122.58	Washington
727970	0.56	Quillayute State Airport	47.93	–124.57	Washington
727976	0.58	Bellingham Intl AP	48.80	–122.53	Washington
742060	0.54	Tacoma McChord AFB	47.15	–122.48	Washington
742070	0.52	Gray AAF	47.08	–122.58	Washington
724120	0.46	Beckley Raleigh Co Mem AP	37.80	–81.12	West Virginia
724125	0.40	Bluefield/Mercer Co [Nrel]	37.27	–81.24	West Virginia
724127	0.52	Lewisburg/Greenbrie	37.87	–80.40	West Virginia
724140	0.42	Charleston Yeager Arpt	38.38	–81.58	West Virginia
724170	0.49	Elkins–Randolph Co Arp	38.88	–79.85	West Virginia
724175	0.45	Harrison Marion Rgn	39.28	–80.23	West Virginia
724176	0.43	Morgantown Hart Field	39.65	–79.92	West Virginia
724177	0.44	Martinsburg Eastern Wv Reg AP	39.40	–77.98	West Virginia
724250	0.44	Huntington Tri–State Arpt	38.38	–82.55	West Virginia
724273	0.44	Parkersburg Wood County AP	39.35	–81.43	West Virginia
724275	0.48	Wheeling Ohio County AP	40.18	–80.65	West Virginia
726400	0.65	Milwaukee Mitchell Intl AP	42.95	–87.90	Wisconsin
726404	0.59	Minocqua/Woodruff	45.93	–89.73	Wisconsin
726410	0.61	Madison Dane Co Regional Arpt [ISIS]	43.13	–89.33	Wisconsin
726415	0.59	Janesville/Rock Co.	42.62	–89.03	Wisconsin
726416	0.53	Lone Rock Faa AP	43.20	–90.18	Wisconsin
726430	0.57	La Crosse Municipal Arpt	43.87	–91.25	Wisconsin
726435	0.58	Eau Claire County AP	44.87	–91.48	Wisconsin
726450	0.60	Green Bay Austin Straubel Int	44.48	–88.13	Wisconsin
726455	0.60	Manitowac Muni AWOS	44.13	–87.68	Wisconsin

TABLE B1 U.S. Climates (Continued)

TMY3	wsf	Weather Station	Latitude	Longitude	State
726456	0.59	Wittman Rgnl	43.98	–88.55	Wisconsin
726457	0.62	Appleton/Outagamie	44.25	–88.52	Wisconsin
726458	0.61	Sturgeon Bay	44.85	–87.42	Wisconsin
726463	0.58	Wausau Municipal Arpt	44.92	–89.63	Wisconsin
726464	0.52	Watertown	43.17	–88.72	Wisconsin
726465	0.58	Mosinee/Central Wi	44.78	–89.67	Wisconsin
726467	0.55	Rice Lake Municipal	45.48	–91.72	Wisconsin
726468	0.55	Phillips/Price Co.	45.70	–90.40	Wisconsin
726574	0.58	Marshfield Muni	44.63	–90.18	Wisconsin
726626	0.60	Antigo/Lang (AWOS)	45.15	–87.15	Wisconsin
727415	0.58	Rhinelander Oneida	45.63	–89.47	Wisconsin
725640	0.72	Cheyenne Municipal Arpt	41.15	–104.80	Wyoming
725645	0.76	Laramie General Brees Field	41.32	–105.68	Wyoming
725690	0.72	Casper Natrona Co Intl AP	42.90	–106.47	Wyoming
725744	0.70	Rock Springs Arpt [Green River–UO]	41.46	–109.44	Wyoming
725745	0.76	Rawlins Municipal AP	41.80	–107.20	Wyoming
725760	0.60	Lander Hunt Field	42.82	–108.73	Wyoming
725765	0.64	Riverton Municipl AP	43.05	–108.45	Wyoming
725775	0.70	Evanston/Burns Fld	41.28	–111.03	Wyoming
725776	0.71	Jackson Hole	43.60	–110.73	Wyoming
726650	0.69	Gillette/Gillette–C	44.35	–105.53	Wyoming
726660	0.61	Sheridan County Arpt	44.77	–106.97	Wyoming
726665	0.57	Worland Municipal	43.97	–107.95	Wyoming
726700	0.60	Cody Muni (AWOS)	44.52	–109.02	Wyoming

TABLE B2 Canadian Climates

CWEC	wsf	Weather Station	Latitude	Longitude	Province
711230	0.70	Edmonton	53.53	–114.1	Alberta
712430	0.78	Lethbridge	49.63	–112.8	Alberta
718720	0.70	Medecine Hat	50.02	–110.72	Alberta
718770	0.73	Calgary	51.12	–114.02	Alberta
719320	0.66	Fort McMurray	56.65	–111.22	Alberta
719400	0.72	Grande Prairie	55.18	–118.88	Alberta
711010	0.75	Sandspit	53.25	–131.82	British Columbia
711080	0.55	Abbotsford	49.03	–122.37	British Columbia
711090	0.65	Port Hardy	50.68	–127.37	British Columbia
717680	0.57	Summerland	49.57	–119.65	British Columbia
717990	0.57	Victoria	48.65	–123.43	British Columbia
718800	0.63	Cranbrook	49.6	–115.78	British Columbia
718870	0.57	Kamloops	50.7	–120.45	British Columbia
718920	0.57	Vancouver	49.18	–123.17	British Columbia
718930	0.62	Comox	49.72	–124.9	British Columbia
718960	0.64	Prince George	53.88	–122.68	British Columbia
718980	0.70	Prince Rupert	54.3	–130.43	British Columbia
719430	0.76	Fort St John	56.23	–120.73	British Columbia
719500	0.64	Smithers	54.82	–127.18	British Columbia
711400	0.73	Brandon	49.92	–99.95	Manitoba
718520	0.72	Winniped	49.9	–97.23	Manitoba
718670	0.73	The Pas	53.97	–101.1	Manitoba
719130	0.98	Churchill	58.75	–94.07	Manitoba
716090	0.76	Saint John	45.32	–65.88	New Brunswick
717000	0.64	Fredericton	45.87	–66.53	New Brunswick
717440	0.66	Miramichi	47.02	–65.45	New Brunswick
718010	0.89	St Johns	47.62	–52.73	Newfoundland
718030	0.83	Gander	48.95	–54.57	Newfoundland
718150	0.74	Stephenville	48.53	–58.55	Newfoundland
718160	0.80	Goose	53.32	–60.37	Newfoundland
718170	1.05	Battle Harbour	52.3	–55.83	Newfoundland
719360	0.84	Yellowknife	62.47	–114.45	Northwest Territories
719570	0.86	Inuvik	68.3	–133.48	Northwest Territories
713970	0.66	Greenwood	44.98	–64.92	Nova Scotia
713980	0.67	Truro	45.37	–63.27	Nova Scotia
716000	0.84	Sable Island	43.93	–60.02	Nova Scotia
716010	0.63	Shearwater	44.63	–63.5	Nova Scotia
717070	0.82	Sydney	46.17	–60.05	Nova Scotia
719240	1.28	Resolute	74.72	–94.98	Nunavut
712600	0.67	Sault Ste Marie	46.48	–84.52	Ontario

TABLE B2 Canadian Climates *(Continued)*

CWEC	wsf	Weather Station	Latitude	Longitude	Province
715270	0.61	Simcoe	42.85	–80.27	Ontario
715380	0.57	Windsor	42.27	–82.97	Ontario
716200	0.67	Kingston	44.22	–76.6	Ontario
716210	0.61	Trenton	44.12	–77.53	Ontario
716230	0.59	London	43.03	–81.15	Ontario
716240	0.58	Toronto	43.67	–79.63	Ontario
716280	0.59	Ottawa	45.32	–75.67	Ontario
716300	0.61	Muskoka	44.97	–79.3	Ontario
716310	0.63	Mount Forest	43.98	–80.75	Ontario
717310	0.62	North Bay	46.35	–79.43	Ontario
717390	0.69	Timmins	48.57	–81.37	Ontario
717490	0.69	Thunder Bay	48.37	–89.32	Ontario
717060	0.70	Charlottetown	46.28	–63.13	Prince Edward Island
711870	0.77	Baie Comeau	49.13	–68.2	Quebec
713710	0.66	St Hubert	45.52	–73.42	Quebec
714210	0.82	Lake Eon	51.87	–63.28	Quebec
716100	0.61	Sherbrooke	45.43	–71.68	Quebec
716270	0.60	Montreal Intl AP	45.47	–73.75	Quebec
716278	0.56	Montreal Jean Brebeuf	45.5	–73.62	Quebec
716278	0.57	Montreal Mirabel	45.68	–74.03	Quebec
717140	0.62	Quebec	46.8	–71.38	Quebec
717150	0.69	Riviere du Loup	47.8	–69.55	Quebec
717180	0.77	Mont Joli	48.6	–68.22	Quebec
717200	0.61	Ste Agathe des Monts	46.05	–74.28	Quebec
717250	0.71	Val-d'Or	48.07	–77.78	Quebec
717270	0.70	Bagotville	48.33	–71	Quebec
717280	0.73	Roberval	48.52	–72.27	Quebec
718110	0.76	Sept–Iles	50.22	–66.27	Quebec
718270	0.83	La Grande Riviere	53.63	–77.7	Quebec
718280	0.90	Schefferville	54.8	–66.82	Quebec
719050	0.94	Kuujjuarapik	55.28	–77.77	Quebec
719060	0.93	Kuujuaq	58.1	–68.42	Quebec
719650	0.87	Nitchequon	53.2	–70.9	Quebec
719660	1.00	Grindstone Island	47.38	–61.87	Quebec
718620	0.78	Estevan	49.22	–102.97	Saskatchewan
718630	0.80	Regina	50.43	–104.67	Saskatchewan
718660	0.75	Saskatoon	52.17	–106.68	Saskatchewan
718700	0.81	Swift Current	50.28	–107.68	Saskatchewan
718760	0.72	North Battleford	52.77	–108.25	Saskatchewan
719640	0.77	Whitehorse	60.72	–135.07	Yukon Territory

(This is a normative appendix and is part of the standard.)

NORMATIVE APPENDIX C
RELATIVE EXPOSURE

C1. SUMMARY

The purpose of this appendix is to calculate the time-varying relative exposure (from Section C3) provided by a user-specified, time-varying ventilation pattern. This calculation is only required if directed by the main body of the standard.

C1.1 Target Ventilation. The target ventilation (Q_{tot}) for the relative exposure calculation is the determined by Section 4.1 without taking any infiltration credit from Section 4.1.2 but allowing for other modifications of Section 4.1.

C1.2 Time Step. The time step length in minutes (seconds) Δt for use in this calculation shall be no more than one hour. Scheduled or real-time quantities that are known to vary faster than the time step shall be averaged for each time step.

C1.3 Peak Exposure Limitation. To maintain compliance with this appendix, a ventilation system and controls shall be provided such that the relative exposure (R_i), as calculated in accordance with Section C3, shall not exceed 5 for any given time step.

C1.4 Space Volume. If the authority having jurisdiction has defined the volume of the space (V_{space}), it shall be used. Otherwise, the volume of the space shall be set to the product of the floor area (A_{floor}) and the reference height (H_r) for the purposes of this appendix (see Section 4.1).

C2. TIME-VARYING TOTAL VENTILATION

This section determines the total ventilation at each time step by combining infiltration and mechanical ventilation.

C2.1 Mechanical Ventilation. The mechanical ventilation rate ($Q_{fan,i}$) shall be the larger of either the average exhaust rate from any operating device or the average supply rate from any operating device.

C2.2 Infiltration. Either Section C2.2.1 or C2.2.2 shall be used to determine the infiltration ($Q_{inf,i}$) for detached dwelling units less than four stories in height if a blower door test has been performed (see Section 4.1.2). For other dwelling units, the infiltration shall be set to zero.

C2.2.1 Annual Average Method. To calculate $Q_{inf,i}$, divide the result from Equation 4.5, Section 4.1.2 Q_{inf} by the number of time steps in a year.

C2.2.2 Smaller Time Step Method. The wind speed (U_{met} [m/s or mph]) and outdoor temperature (T_{out} [°C or °F]) shall be taken from typical meteorological year data or from the nearest available meteorological site. For each time step, the total infiltration shall be calculated as a function of wind and stack effects as provided in this section.

The envelope leakage coefficient C and pressure exponent n shall be taken from blower door measurements using ASTM E779 [2] or CGSB 149.10 [3]. Alternatively, if ELA (m^2 or ft^2) is known, then n is assumed to be 0.65, and C is calculated using Equation C1 or C2:

$$C = 0.36 \times \text{ELA} \quad \text{(I-P)} \quad \text{(C1)}$$

$$C = 1.05 \times \text{ELA} \quad \text{(SI)} \quad \text{(C2)}$$

C2.2.2.1 Wind-Driven Flow. The wind speed shall be converted to site wind speed using the wind speed multiplier (G) from Table C1 and Equation C3.

$$U = GU_{met} \quad \text{(C3)}$$

The wind-driven flow shall be calculated using Equation C4:

$$Q_w = C \times C_w(sU)^{2n} \quad \text{(C4)}$$

where shelter factor s is taken from Table C2, and the wind coefficient (C_w) is taken from Table C3.

The values for a flue shall be used whenever there is an open fireplace or combustion device that takes its combustion air from conditioned space (e.g., furnace, water heater or woodstove).

C2.2.2.2 Stack-Driven Flow. The stack-driven flow shall be calculated using Equation C5:

$$Q_s = CC_s(|T_{in} - T_{out}|)^n \quad \text{(C5)}$$

where the stack coefficient C_s is taken from Table C4, and T_{in} is assumed to be 68°F (20°C).

C2.2.2.3 Total Infiltration Flow. The total infiltration flow shall be calculated using Equation C6:

$$Q_{inf,i} = \sqrt{Q_w^2 + Q_s^2} \quad \text{(C6)}$$

C2.3 Combination of Infiltration and Mechanical Ventilation. The total ventilation is the sum of the mechanical ventilation and infiltration at each time step:

$$Q_i = Q_{fan,i} + \phi Q_{inf,i} \quad \text{(C7)}$$

where ϕ is the additivity coefficient, which is unity for balanced systems, and otherwise

$$\phi = \frac{Q_{inf,i}}{Q_{inf,i} + Q_{fan,i}} \quad \text{(C8)}$$

C3. RELATIVE EXPOSURE CALCULATION

This section uses the time series of actual ventilation (from Section C2) to calculate the time series of relative exposure.

C3.1 Nonzero Ventilation. The relative exposure for a given time step shall be calculated from the relative exposure from the prior step and the current ventilation using the following equation, unless the real-time or scheduled ventilation is zero:

$$R_i = \frac{Q_{tot}}{Q_i} + \left(R_{i-1} - \frac{Q_{tot}}{Q_i}\right) e^{-Q_i \Delta t / V_{space}} \quad \text{(C9)}$$

where R_i is the relative exposure for time step i.

C3.2 Zero Ventilation. If the real-time or scheduled ventilation at a given time step is zero then the following equation shall be used:

$$R_i = R_{i-1} + \frac{Q_{tot}\Delta t}{V_{space}} \quad \text{(C10)}$$

C3.3 Initial Conditions. Unless otherwise specified in this standard, the prior (i.e. *"i* – 1") step's relative exposure to be used in the first step's calculation of the relative exposure shall be unity.

TABLE C1 Wind Speed Multiplier, *G*

House Height, Stories		
One	**Two**	**Three**
0.48	0.59	0.67

TABLE C2 Shelter Factor, *s*

No Flue	One Story with Flue	Two Story with Flue	Three Story with Flue
0.50	0.70	0.64	0.61

TABLE C3 (I-P) Wind Coefficient, C_w

	One-Story		Two-Story		Three-Story	
Foundation	**No Flue**	**With Flue**	**No Flue**	**With Flue**	**No Flue**	**With Flue**
Basement or slab on grade	0.001313	0.001194	0.001432	0.001313	0.001432	0.001402
Crawlspace	0.001074	0.001074	0.001194	0.001194	0.001271	0.001295

TABLE C3 (SI) Wind Coefficient, C_w

	One-Story		Two-Story		Three-Story	
Foundation	**No Flue**	**With Flue**	**No Flue**	**With Flue**	**No Flue**	**With Flue**
Basement or slab on grade	0.156	0.142	0.170	0.156	0.170	0.167
Crawlspace	0.128	0.128	0.142	0.142	0.151	0.154

TABLE C4 (I-P) Stack Coefficient, C_s

One Story		Two Story		Three Story	
No Flue	**With Flue**	**No Flue**	**With Flue**	**No Flue**	**With Flue**
0.000893	0.01144	0.00138	0.001478	0.001641	0.001791

TABLE C4 (SI) Stack Coefficient, C_s

One Story		Two Story		Three Story	
No Flue	**With Flue**	**No Flue**	**With Flue**	**No Flue**	**With Flue**
0.054	0.069	0.078	0.089	0.098	0.107

(This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

INFORMATIVE APPENDIX D
ADDENDA DESCRIPTION INFORMATION

ANSI/ASHRAE Standard 62.2-2016 incorporates ANSI/ASHRAE Standard 62.2-2013 and Addenda a, b, c, d, e, f, g, h, j, m, n, o, p, r, t, v, and w to ANSI/ASHRAE Standard 62.2-2013. Table D1 lists each addendum and describes the way in which the standard is affected by the change. It also lists the ASHRAE and ANSI approval dates for each addendum.

TABLE D1 Addenda to ANSI/ASHRAE Standard 62.2-2013

Addendum	Section(s) Affected	Description of Changes*	Approval Dates: • Standards Committee • ASHRAE BOD • ANSI
a	3 Definitions; 10 References	Standard 62.2 determines required ventilation flow rates as a function of floor area. However, floor area is not defined in the standard. This has created confusion, especially with regard to unfinished basements. This addendum provides a definition of floor area for use with the standard that will produce more consistency in the application of the standard.	June 28, 2014 July 2, 2014 July 31, 2014
b	A2 Whole-Building Mechanical Ventilation Rate	In existing buildings, which are often substantially leakier than new construction even after air sealing, it is common for the calculation of ventilation requirements to result in very small flow rates. Full application of Standard 62.2 would then require substantial effort and cost to be undertaken for little change in outdoor air delivery to the home. This addendum provides a minimum air flow requirement for existing buildings below which installation of whole-house ventilation is not required.	June 28, 2014 July 2, 2014 July 31, 2014
c	3 Definitions; 5 Local Exhaust; A3.1 Initial Room Airflow Deficit	This change aims to account for the difference between range hoods and other exhaust fans in kitchens in their ability to remove particles. Bathroom requirements are unchanged.	October 13, 2015 November 6, 2015 December 2, 2015
d	6.4 Combustion and Solid Fuel Burning Appliances	This change eliminates gravity or barometric dampers as allowable components of passive makeup air systems for combustion appliances. This change has been made because of concerns that such dampers do not reliably open at the low pressures (-1 to -5 Pa) that have the potential to backdraft atmospherically-vented appliances.	January 28, 2015 January 28, 2015 February 25, 2015
e	8.4.1.1 Compliance	This change accounts for recent data showing what level of air sealing between units is reasonably achievable in new multifamily construction while still providing reasonable protection from contaminants originating in neighboring units	June 28, 2014 July 2, 2014 July 3, 2014
f	10 References	This change updates a reference from an outdated version. The reference is used regarding duct leakage. It makes no substantive changes to the requirements of Standard 62.2.	June 28, 2014 July 2, 2014 July 3, 2014
g	Title; 1 Purpose; 2 Scope; 3 Definitions	With regard to multifamily dwellings, at the current time Standard 62.1 has responsibility for buildings 4 stories or more and Standard 62.2 has responsibility for buildings 3 stories and less. The ventilation rates for dwelling units in Standard 62.1 are different from the rates in Standard 62.2 resulting in different ventilation rates for all units depending on whether there are three stories or four. Additionally, Standard 62.1 does not address modest retrofits whereas Standard 62.2 does. Given the growth of the retrofit industry in multifamily dwellings it is important to ensure that these situations are covered in ASHRAE's ventilation standards. This scope change would do away with the building height separation, bringing the dwelling units themselves into Standard 62.2 regardless of height. This will allow for consistency within dwelling units and also allow application of ASHRAE ventilation standards to the multifamily retrofit market.	September 16, 2014 October 3, 2014 October 29, 2014

TABLE D1 Addenda to ANSI/ASHRAE Standard 62.2-2013

Addendum	Section(s) Affected	Description of Changes*	Approval Dates: • Standards Committee • ASHRAE BOD • ANSI
h	6.8 Air Inlets	Combined exhaust/supply terminations are regularly specified and provided with heating and energy recovery ventilators (H/ERVs). Their use reduces building penetrations, labor, and associated system costs. By reducing the number of penetrations, air leakage can also be reduced, resulting in space conditioning energy savings. Further, the durability of the structure can be improved through reducing entry pathways for bulk water. Combined terminations are regularly approved and installed in single family and multifamily dwelling units across the country, and manufacturer tests have demonstrated that minimum cross-contamination of airflow results from these terminations. There is currently no industry standard by which to test these units, so the committee has simply proposed that their performance be verified by the manufacturer. The 10% cross contamination metric is based on language in ASHRAE Standard 62.1 that limits cross contamination of exhaust and supply streams in H/ERVs to 10% for "air with moderate contaminant concentration, mild sensory-irritation intensity, or mildly offensive odors".	June 27, 2015 July 1, 2015 (Technology Council) July 2, 2015
j	4.1.2 Infiltration Credit	To date, no multifamily homes of even 2+ units has been able to get credit for any infiltration. This addendum is to allow horizontally-attached single family homes to take a reduced infiltration credit, proportional to the percentage of exterior surface area that is not common. Fire-rated common walls typically have similar airtightness to other exterior walls, so this is a reasonable approximation of the effect of infiltration on attached housing.	June 27, 2015 July 1, 2015 (Technology Council) July 2, 2015
m	3 Definitions; 4 Dwelling Unit Ventilation; 4.2 System Type; 4.5 Intermittent Mechanical Ventilation; 4.6 Equivalent Ventilation; 6.1 Adjacent Spaces and Transfer Air; 6.6 Ventilation Opening Area; 7 Air Moving Equipment; 8 Multifamily Buildings	This change integrates multifamily buildings into the rest of the standard rather than leaving them in a separate section. This makes it more clear that multifamily dwelling units and single-family homes are subject to the same requirements. No changes to the requirements themselves have been made.	October 13, 2015 October 19, 2015 (Technology Council) November 2, 2015
n	4.4 Control and Operation; 5 Local Exhaust	This change updates the requirements for ventilation controls, especially in the case of systems that are intended to operate continuously or automatically in multifamily units. In this case, the change supports the concept that the building owner should have the option of retaining control of the systems that they install and maintain to provide minimum indoor air quality and to manage indoor humidity for the building occupants. The change also updates the language related to the labeling of whole building mechanical ventilation controls by approving icons for use in addition to text-based labels. Finally, the change recognizes humidity sensors as a form of automatic controls for demand controlled mechanical ventilation. With California's new requirement for humidity sensors in all bathrooms, these are likely the most common form of automatic controls on the market and so should be included.	October 13, 2015 November 6, 2015 December 2, 2015
o	Normative Appendix A Existing Buildings	The committee approved a proposal to change references to "whole-building" or "whole-house" ventilation to "dwelling unit" ventilation in the main body of the standard. This addendum will ensure that the same nomenclature is used in Normative Appendix A (Existing Buildings), for consistency.	January 23, 2016 January 27, 2016 (Technology Council) January 28, 2016

TABLE D1 Addenda to ANSI/ASHRAE Standard 62.2-2013

Addendum	Section(s) Affected	Description of Changes*	Approval Dates: • Standards Committee • ASHRAE BOD • ANSI
p	7.2 Sound Ratings for Fans; 7.2.2 Demand-Controlled Local Exhaust Fans	The intent of Section 7.2.2 (Demand-Controlled Local Exhaust Fans) is to require fans to have at least one speed setting meeting the minimum required exhaust airflow rate where the corresponding sone rating is 3 or less. This change clarifies this intent. Currently, the language in this section would permit any fan with a high speed setting exceeding 400 cfm to be exempt from the sone requirement, even if operating on a lower speed setting. For example, a kitchen range hood with speed settings of 100, 200, and 401 cfm is currently not required to meet the sone requirements at any of these settings. Closing this loop hole will ensure that occupants that have typical sized range hoods (i.e., those with at least one speed setting ≤ 400 cfm) will have at least one speed setting rated ≤ 3 sone.	January 23, 2016 January 27, 2016 (Technology Council) January 28, 2016
r	4.3 Airflow Measurement; 5.4 Airflow Measurement	There is confusion in the industry regarding where ventilation system airflow measurements can be taken. This addendum provides guidance on this topic while aligning the language with the latest draft of BSR/RESNET/ICC 380, "Standard for Testing Airtightness of Building Enclosures, Airtightness of Heating and Cooling Air Distribution Systems, and Airflow of Mechanical Ventilation Systems", which is expected to be finalized as an ANSI standard in the short term.	January 23, 2016 January 27, 2016 (Technology Council) January 28, 2016
t	2 Scope; 6.4 Combustion and Solid-Fuel Burning Appliances	The approved ASHRAE Position Document on Unvented Combustion Devices states in its recommendations, among others: "Ventilation standards, particularly those concerned with residential buildings, should consider addressing unvented combustion appliances and establishing appropriate technical requirements." The removal of Section 2.3 allows SSPC 62.2 to consider unvented combustion devices in accordance with ASHRAE's position, and the SSPC intends to do so, with input from the stakeholders. The change from "vented" to "installed" in Section 6.4 is to address all the aspects of a proper installation, not just the venting.	January 18, 2014 January 22, 2014 January 23, 2014
v	4. Whole-Buildings Dwelling Unit Ventilation; 4.1 Ventilation Rate; 4.5 Intermittent Mechanical Ventilation; New Normative Appendix C Relative Exposure	This addendum addresses inconsistencies that have been in the determination of intermittent ventilation flow rates. It also puts forth explicit mechanisms to meet the equivalency intent of non-continuous ventilation which allows for a broader range of potential control algorithms than had previously been in the standard. It also establishes a short-term exposure limit of 5 times the long-term exposure limit which must be considered when using non-continuous ventilation.	January 23, 2016 January 27, 2016 February 24, 2016
w	10. References	This addendum updates the normative references in anticipation of publishing the 2016 edition of Standard 62.2.	January 23, 2016 January 27, 2016 (Technology Council) January 28, 2016

*These descriptions may not be complete and are provided for information only.

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE Web site at www.ashrae.org/technology.

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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About ASHRAE

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration, and sustainability. Through research, Standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today.

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