

IAQP & Standard 90.1

Energy Recovery

In humid environments or very cold dry areas (climate zones with an “A” or 6B), there may be an opportunity to eliminate exhaust air energy recovery equipment on some HVAC designs as defined in ASHRAE Standard 90.1. See 90.1 Section 6.5.6 Energy Recovery for details.

As an example, using the IAQP from Standard 62.1, the outdoor airflow on many schools and offices will be less than 20% of the total HVAC system airflow rate. Following table 6.5.6.1.2-1 from 90.1, designers can eliminate energy recovery where systems supply less than 26,000 cfm. This is also true if the system is smaller at 16,000 cfm when outdoor airflow is between 20% and 30% of total system air. This avoids equipment, complexity, service, and energy use to support an energy recovery system.

Note that local codes may provide alternative direction to standard 90.1-2022.

Table 6.5.6.1.2-1 Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Less than 8000 Hours per Year

Climate Zone	% Outdoor Air at Full Design Airflow Rate							
	≥10% and <20%	≥20% and <30%	≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and <80%	≥80%
	Design Supply Fan Airflow Rate, cfm							
3B, 3C, 4B, 4C, 5B	NR	NR	NR	NR	NR	NR	NR	NR
0B, 1B, 2B, 5C	NR	NR	NR	NR	≥26,000	≥12,000	≥5000	≥4000
6B	≥28,000	≥26,500	≥11,000	≥5500	≥4500	≥3500	≥2500	≥1500
0A, 1A, 2A, 3A, 4A, 5A, 6A	≥26,000	≥16,000	≥5500	≥4500	≥3500	≥2000	≥1000	≥120
7,8	≥4500	≥4000	≥2500	≥1000	≥140	≥120	≥100	≥80

NR—Not required

Table 6.5.6.1.2-2 Exhaust Air Energy Recovery Requirements for Ventilation Systems Operating Greater than or Equal to 8000 Hours per Year

Climate Zone	% Outdoor Air at Full Design Airflow Rate							
	≥10% and <20%	≥20% and <30%	≥30% and <40%	≥40% and <50%	≥50% and <60%	≥60% and <70%	≥70% and <80%	≥80%
	Design Supply Fan Airflow Rate, cfm							
3C	NR	NR	NR	NR	NR	NR	NR	NR
0B, 1B, 2B, 3B, 4C, 5C	NR	≥19,500	≥9000	≥5000	≥4000	≥3000	≥1500	≥120
0A, 1A, 2A, 3A, 4B, 5B	≥2500	≥2000	≥1000	≥500	≥140	≥120	≥100	≥80
4A, 5A, 6A, 6B, 7, 8	≥200	≥130	≥100	≥80	≥70	≥60	≥50	≥40

NR—Not required

Guidance

Consider eliminating an ERV when:

Zones 0A-6A
 <26kcfm S.A.
 <5.2kcfm O.A.

Zone 6B
 <28kcfm S.A.
 <5.6kcfm O.A.

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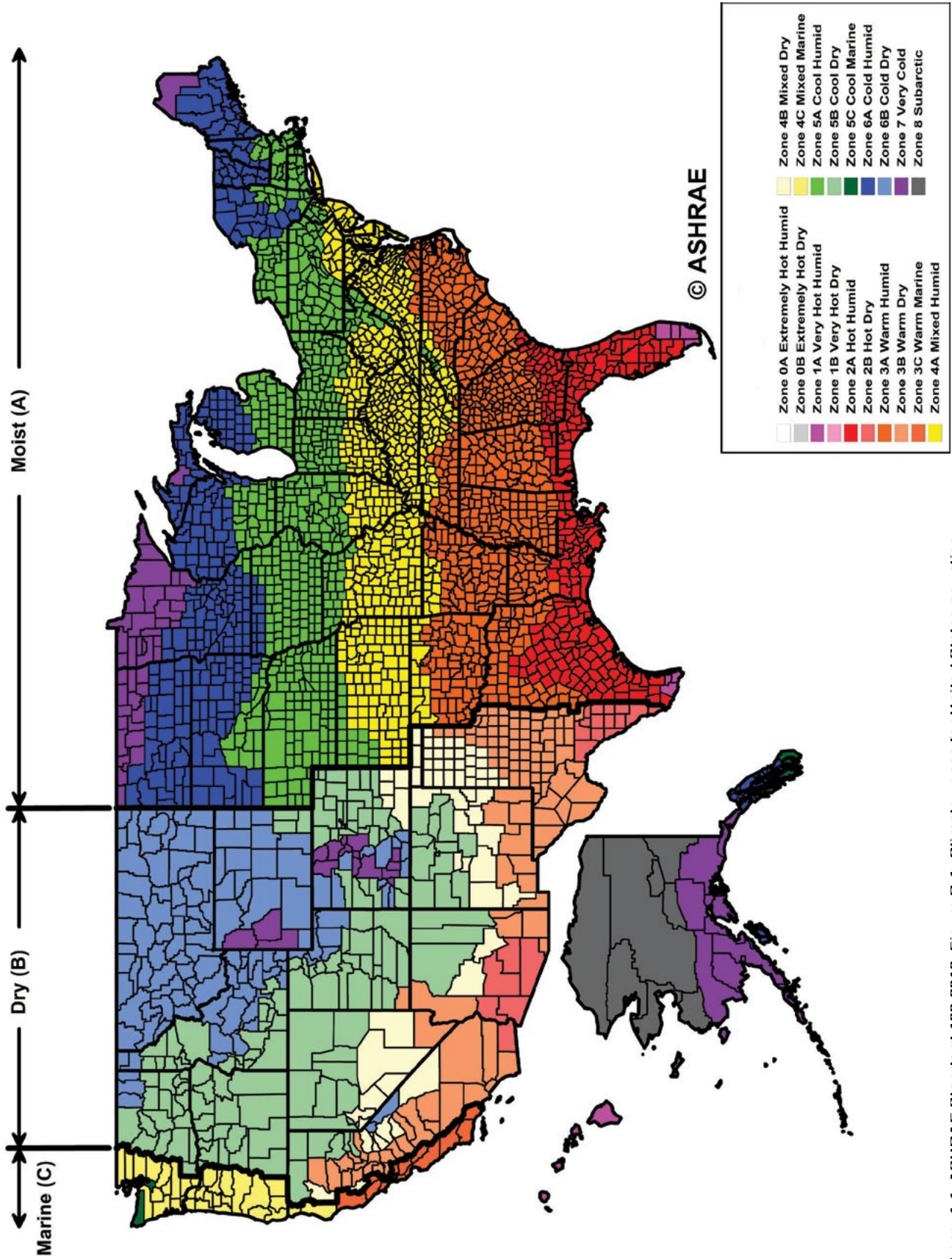


Figure Annex1-1 ASHRAE Standard 169-2013, Figure B-1: Climate zones for United States counties.

Tables and graphic are properties of ASHRAE and used for reference and are subject to change.