

Increased Efficiency Requirements for Elimination of Waterside Economizer

Zone 3A: 27% Increase for greater than 54,000 BTUH

Equipment Type	Size Category	Rating Condition	STD 90.1-2010	Zone 3A To Eliminate Economizer	STD 90.1-2013	Zone 3A To Eliminate Economizer
Water to Air: Water Loop (cooling mode)	<17,000 Btu/h	86°F entering water	11.2 EER	Not Required	12.2 EER	Not Required
	≥17,000 Btu/h and <65,000 Btu/h	86°F entering water	12.0 EER	15.3 EER	13.0 EER	16.5 EER
	≥65,000 Btu/h and <135,000 Btu/h	86°F entering water	12.0 EER	15.3 EER	13.0 EER	16.5 EER
Water to Air: Ground Water (cooling mode)	<135,000 Btu/h	59°F entering water	16.2 EER	20.6 EER	18.0 EER	22.9 EER
Brine to Air: Ground Loop (cooling mode)	<135,000 Btu/h	77°F entering fluid	13.4 EER	17.0 EER	14.1 EER	17.9 EER
Water to Air: Water Loop (heating mode)	<135,000 Btu/h (cooling capacity)	68°F entering water	4.2 COP	5.3 COP	4.3 COP	5.5 COP
Water to Air: Ground Water (heating mode)	<135,000 Btu/h (cooling capacity)	50°F entering water	3.6 COP	4.6 COP	3.7 COP	4.7 COP
Brine to Air: Ground Loop (heating mode)	<135,000 Btu/h (cooling capacity)	32°F entering fluid	3.1 COP	3.9 COP	3.2 COP	4.1 COP

Zone 4A: 42% Increase for greater than 54,000 BTUH

Equipment Type	Size Category	Rating Condition	STD 90.1-2010	Zone 4A To Eliminate Economizer	STD 90.1-2013	Zone 4A To Eliminate Economizer
Water-to-Air: Water Loop (cooling mode)	<17,000 Btu/h	86°F entering water	11.2 EER	Not Required	12.2 EER	Not Required
	≥17,000 Btu/h and <65,000 Btu/h	86°F entering water	12.0 EER	17.1 EER	13.0 EER	18.5 EER
	≥65,000 Btu/h and <135,000 Btu/h	86°F entering water	12.0 EER	17.1 EER	13.0 EER	18.5 EER
Water-to-Air: Ground Water (cooling mode)	<135,000 Btu/h	59°F entering water	16.2 EER	23.0 EER	18.0 EER	25.6 EER
Brine-to-Air: Ground Loop (cooling mode)	<135,000 Btu/h	77 °F entering fluid	13.4 EER	19.0 EER	14.1 EER	20.0 EER
Water-to-Air: Water Loop (heating mode)	<135,000 Btu/h (cooling capacity)	68 °F entering water	4.2 COP	6.0 COP	4.3 COP	6.1 COP
Water-to-Air: Ground Water (heating mode)	<135,000 Btu/h (cooling capacity)	50 °F entering water	3.6 COP	5.1 COP	3.7 COP	5.3 COP
Brine-to-Air: Ground Loop (heating mode)	<135,000 Btu/h (cooling capacity)	32 °F entering fluid	3.1 COP	4.4 COP	3.2 COP	4.6 COP