



**BSR/ASHRAE/IES Addendum by
to ANSI/ASHRAE/IES Standard 90.1-2022**

Public Review Draft

Proposed Addendum by to Standard 90.1-2022, Energy Standard for Sites and Buildings Except Low- Rise Residential Buildings

**First Public Review (March 2025)
(Draft Shows Proposed Changes to Current Standard)**

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ASHRAE, 180 Technology Parkway NW, Peachtree Corners, GA 30092

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FOREWORD

As a result of new humidity setpoint requirements in ASHRAE 170-2021, hospitals generally no longer qualify for the 90.1 economizer exception number 4 to section 6.5.1, which is based on zone dewpoint. The proposed modification adds an exception to the economizer requirement for hospital buildings that use a heat recovery chiller for space heating. Using an economizer in these systems severely limits the potential for energy recovery, since the chiller is often off during economizer operation. To evaluate the impact of this exception, a simulation analysis was conducted with the PNNL Hospital prototype model in five climates with and without air economizers. The case without an economizer consistently uses less energy than the case with an economizer. The energy cost impact is shown in Figure 1 without the social cost of carbon and in Figure 2 with utility rates that account for the social cost of carbon.

Figure 1. Annual Energy Cost Impact of Economizer Exception for Hospital with Heat Recovery Chiller

Annual Energy Cost without Social Cost of Carbon	CZ 3A, Atlanta	CZ 3B, El Paso	CZ 4A, New York	CZ 5B, Denver	CZ 6A, Rochester
With Economizer	\$603,779	\$591,052	\$556,266	\$556,266	\$572,715
Without Economizer	\$602,164	\$578,848	\$549,061	\$549,061	\$568,854
Savings	\$1,614	\$12,204	\$7,205	\$7,205	\$3,861
Percent Savings	0.3%	2.1%	1.3%	1.3%	0.7%

Figure 2. Annual Energy Cost Impact of Economizer Exception for Hospital with Heat Recovery Chiller, with Social Cost of Carbon

Annual Energy Cost with Social Cost of Carbon	CZ 3A, Atlanta	CZ 3B, El Paso	CZ 4A, New York	CZ 5B, Denver	CZ 6A, Rochester
With Economizer	\$1,040,971	\$1,011,385	\$975,550	\$975,550	\$1,030,788
Without Economizer	\$1,025,164	\$979,316	\$946,709	\$946,709	\$1,002,360
Savings	\$15,807	\$32,069	\$28,841	\$28,841	\$28,428
Percent Savings	1.5%	3.2%	3.0%	3.0%	2.8%

[Note to Reviewers: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strikethrough~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.]

Addendum by to 90.1-2022

Add a new exception to Section 6.5.1 as follows:

Exceptions to 6.5.1: Economizers are not required for the following *systems*:

...

13. Systems in acute inpatient hospitals that include a liquid-to-liquid chiller for heat recovery used for space conditioning, as in Section 6.5.6.3.