

GEW89-14

606.5.1, Table 606.5.1(1), Table 606.5.1(2)

Proponent: Brenda Thompson, Chair, representing Sustainability, Energy, High Performance Code Action Committee (SEHPCAC@iccsafe.org)

Revise as follows:

606.5.1 Economizer systems. Each cooling system that has a fan shall include either an air economizer complying with Section 606.5.1.1 or a water economizer complying with Section 606.5.1.2.

Exception: Economizers are not required for the following:

1. ~~Individual fan-cooling units with a supply capacity less than the minimum listed in Table 606.5.1(1).~~ In cooling systems for buildings located in climate zones 1A and 1B.
2. In climate zones other than 1A or 1B, where individual cooling units have a capacity of less than 33,000 Btu/h. The total supply capacity of all fan-cooling units not provided with economizers shall not exceed 20 percent of the total supply capacity of all fan-cooling units in the building nor 480,000 Btu/h, whichever is greater.
3. In Group I-2 occupancies, hospitals, and Group B occupancies, ambulatory care facilities, where more than 75 percent of the air designed to be supplied by the system is to spaces that are required to be humidified above a 35°F (1.7°C) dew-point temperature to comply with applicable codes or accreditation standards. In other occupancies, where more than 25 percent of the air designed to be supplied by the system is to spaces that are designed to be humidified above a 35°F (1.7°C) dew-point temperature to satisfy process needs.
- ~~3.~~ 4. Systems that include a condenser heat recovery system that is designed to utilize 60 percent of the peak heat rejection load at design conditions and there is a documented need for that rejected heat for either service hot water or space heating during peak heat rejection design conditions.
- ~~4.~~ 5. Systems that serve spaces estimated as having a sensible cooling load at design conditions, excluding transmission and infiltration loads, of less than or equal to transmission and infiltration losses at the temperature and relative humidity design conditions in accordance with Section 6.1 of ASHRAE 55.
- ~~5.~~ 6. Where the use of outdoor air for cooling will affect supermarket open refrigerated casework systems.
- ~~6.~~ 7. Where the cooling efficiency is equal to, or greater than, the efficiency improvement requirements in Table ~~606.5.1(2)~~ 606.5.1.

**TABLE 606.5.1(1)
ECONOMIZER REQUIREMENTS**

CLIMATE ZONES	ECONOMIZER REQUIREMENT
1A, 1B	No requirement
2A, 2B, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 7, 8	Economizers on all cooling systems having a capacity \geq 33,000 Btu/h ^a

For SI: 1 British thermal unit per hour = 0.293 W.

a. The total capacity of all systems without economizers shall not exceed 480,000 Btu/h per building or 20 percent of the building's air economizer capacity, whichever is greater.

**TABLE 606.5.1(2)
EQUIPMENT EFFICIENCY PERFORMANCE EXCEPTION FOR ECONOMIZERS**

CLIMATE ZONES	COOLING EQUIPMENT EFFICIENCY IMPROVEMENT (%)^a
2A	17
2B	21
3A	27
3B	32
4A	42
4B	49

IPLV = Integrated part load value, IEER = Integrated energy-efficiency ratio, SEER = Seasonal energy-efficiency rating, EER = Energy-efficiency ratio, COP = Coefficient of performance

a. Where a unit is rated with an IPLV, IEER or SEER, the minimum values for these metrics shall be increased by the percentage listed in the table in order to eliminate the required air or water economizer. Where a unit is rated only with a full load metric such as EER or COP cooling, these metrics shall be increased by the percentage shown.

Reason: This proposal was submitted by the ICC Sustainability Energy and High Performance Code Action Committee (SEHPCAC). The SEHPCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance International Codes with regard to sustainability, energy and high performance as it relates to the built environment included, but not limited to, how these criteria relate to the International Green Construction Code (IgCC) and the International Energy Conservation Code (IECC). This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. In 2012 and 2013, the SEHPCAC has held six two-day open meetings and 50 workgroup calls, which included members of the SEHPCAC as well as any interested parties, to discuss and debate proposed changes and public comments. Related documentation and reports are posted on the SEHPCAC website at: <http://www.iccsafe.org/cs/SEHPCAC/Pages/default.aspx>.

The intent of the change is to replace Table 606.5.1(1) with new exceptions 1 and 2. Table 606.5.1(1) is to be deleted and Table 606.5.1(2) to be renumbered. Code change CE243-13, shown below, was approved during the 2013 code development cycle. It reorganizes the parallel provisions in the IECC. The interaction between exception #1 and Table 606.5.1(1) is unclear. The exception states where economizers are not to be required, but the table appears to be a listing of economizer requirements. The intent is unclear as written. The proposal replaces the table with 2 exceptions which are clearly exceptions from an economizer requirement. The first exception addresses climate zones 1A and 1B where no economizers are required regardless of the system capacity. The second exception addresses the other climate zones currently covered by the last line of the table and the footnote. Similar revision was made to the Massachusetts Stretch Code to address the confusion of this section and table.

CE243 – 13

C403.3.1, Table C403.3.1(1)

Proponent: Brenda A. Thompson, Clark County Development Services, Clark County, Nevada, representing Sustainable/Energy/High Performance Code Action Committee (bat@clarkcounty.gov)

Revise as follows:

C403.3 Simple HVAC systems and equipment (Prescriptive). This section applies to buildings served by unitary or packaged HVAC equipment listed in Tables C403.2.3(1) through C403.2.3(8), each serving one *zone* and controlled by a single thermostat in the *zone* served. It also applies to two-pipe heating systems serving one or more *zones*, where no cooling system is installed.

C403.3.1 Economizers. Each cooling system that has a fan shall include either an air or water economizer meeting the requirements of Sections C403.3.1.1 through C403.3.1.1.4.

Exception: Economizers are not required for the systems listed below.

1. ~~Individual fan-cooling units with a supply capacity less than the minimum listed in Table C403.3.1(1).~~
1. In cooling systems for buildings located in climate zones 1A and 1B.
2. In climate zones other than 1A and 1B, where individual cooling units have a capacity of less than 33,000 Btu/h. The total supply capacity of all fan-cooling units not provide with economizers shall not exceed 20 percent of the total supply capacity of all fan-cooling units in the building nor 300,000 Btu/h, whichever is greater.
- 2-3. Where more than 25 percent of the air designed to be supplied by the system is to spaces that are designed to be humidified above 35°F (1.7 °C) dew-point temperature to satisfy process needs.
- 3-4. Systems that serve residential spaces where the system capacity is less than five times the requirement listed in Table C403.3.1(1).
- 4-5. Systems expected to operate less than 20 hours per week.
- 5-6. Where the use of outdoor air for cooling will affect supermarket open refrigerated casework systems.
6. 7. Where the cooling efficiency meets or exceeds the efficiency requirements in Table C403.3.1(2).

**TABLE C403.3.1(1)
ECONOMIZER REQUIREMENTS**

CLIMATE ZONES	ECONOMIZER REQUIREMENT
1A, 1B	No requirement
2A, 2B, 3A, 3B, 3C, 4A, 4B, 4C, 5A, 5B, 5C, 6A, 6B, 7, 8	Economizers on all cooling systems \geq 33,000 Btu/ha

For SI: 1 British thermal unit per hour = 0.2931 W.

a. ~~The total capacity of all systems without economizers shall not exceed 300,000 Btu/h per building, or 20 percent of its air economizer capacity, whichever is greater.~~

Reason: This proposal was submitted by the ICC Sustainability Energy and High Performance Code Action Committee (SEHPCAC). The SEHPCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the SEHPCAC has held 3 open meetings and over 30 workgroup calls which included members of the SEHPCAC as well as any interested party to discuss and debate proposed changes and public comments. Related documentation and reports are posted on the SEHPCAC website at: <http://www.iccsafe.org/cs/SEHPCAC/Pages/default.aspx>.

Reasons for this specific proposal:

The interaction between exception #1 and Table C403.3.1(1) is unclear. The exception states where economizers are not to be required, but the table appears to be a listing of economizer requirements. The intent is unclear as written. The proposal replaces the table with 2 exceptions which are clearly exceptions from an economizer requirement. The first exception addresses climate zones 1A and 1B where no economizers are required regardless of the system capacity. The second exception addresses the other climate zones currently covered by the last line of the table and the footnote. Similar revision was made to the Massachusetts Stretch Code to address the confusion of this section and table.

The same format occurs in a parallel section in the IgCC. If this proposal is successful, the SEHPCAC will submit a companion proposal in 2014 for the IgCC.

Cost Impact: Will not increase the cost of construction. The proposal is editorial and will have no impact on the cost of construction.

GEW89-14: 606.5.1-THOMPSON564