

CECD1-14-22

IECC: C404.2.1, C404.8.3

Proponents: John Bade, representing ICC CE HVACR & WH subcommittee

2024 International Energy Conservation Code [CE Project]

Revise as follows:

C404.2.1 High input service water-heating systems. Gas-fired service water-heating equipment installed in new buildings where the total input capacity provided by high-capacity service water heating equipment is 1,000,000 Btu/h (293 kW) or greater shall be in compliance with either or both of the following requirements.

1. Where a singular piece of high-capacity gas-fired service water-heating equipment is installed, such equipment shall have a thermal efficiency, E_t , of not less than 92 percent.
2. Where multiple pieces of high-capacity gas-fired service water-heating equipment are connected to the same service water-heating system, the combined input-capacity-weighted-average thermal efficiency, E_t , shall not be less than 90 percent and a minimum of 30 percent of the input to the gas-fired equipment in the service water-heating system shall have a thermal efficiency of not less than 92 percent.

High-capacity gas-fired service water-heating equipment is comprised of gas-fired instantaneous water heaters with a rated input both greater than 200,000 Btu/h (58.6 kW) and not less than 4,000 Btu/h per gallon (310 W per litre) of stored water, and gas-fired storage water heaters with a rated input both greater than 105,000 Btu/h (30.8 kW) and less than 4,000 Btu/h per gallon (310 W per litre) of stored water.

Exceptions:

1. The input rating of water heaters installed in individual dwelling units shall not be required to be included in the total input rating of service water-heating equipment for a building.
2. The input rating of water heaters with an input rating of not greater than 105,000 Btu/h (30.8 kW) shall not be required to be included in the total input rating of service water-heating equipment for a building.
3. Where not less than 25 percent of the annual service water heating requirement is provided by on-site renewable energy or site-recovered energy, the minimum thermal efficiency requirements of this section shall not apply. On-site renewable energy used to meet Sections C405.15.1 or C406.3.1 shall not be used to meet this exception.

C404.8.3 Covers. Outdoor heated pools and outdoor permanent spas shall be provided with a vapor-retardant cover or other *approved* vapor-retardant means.

Exception: Where more than 75 percent of the energy for heating, computed over an operating season of not fewer than 3 calendar months, is from a heat pump or an on-site renewable energy system, covers or other vapor-retardant means shall not be required. On-site renewable energy used to meet Sections C405.15.1 or C406.3.1 shall not be used to meet this exception.

Reason: The exceptions to efficiency requirements in Sections C404.2.1 and C404.8.3 were created long before the IECC included provisions for employing on-site renewable energy. The exceptions were created because the underlying requirements were not cost-effective if a portion of the energy was free. In addition, there was the added benefit of encouraging the use of renewable energy.

The addition of on-site renewable energy requirements in Section C405.15.1 and optional credits in Section C406.3.1 creates a risk that the renewable energy used to meet those sections could be applied to the exceptions. Therefore, this proposal requires that on-site renewable energy used to meet the exception is not the same energy used to meet other requirements.

The changes in the body of C404.2.1 High-input service water-heating systems are editorial and do not change the requirement.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction. Changes are editorial and do not change the requirement.