GG285-14

1001.3.1 (New), 1001.5 (New), 1001.6 (New), 1001.7 (New), 1003.2.2, 1004.1

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Add new text as follows:

1001.3.1 Compliance. Where permitted work other than a change of occupancy is undertaken, the items noted in Sections 1001.5, 1001.6 and 1001.7 shall be performed in accordance with the requirements of those sections.

1001.5 Heating, ventilation and air conditioning. Heating, *ventilation and* air conditioning systems and equipment shall be in accordance with the following:

1. Non-functioning thermostats shall be repaired or replaced.
2. Leaking accessible supply air and return ducts shall be sealed with *approved* sealants. Although the presence of existing duct tape shall not be deemed to indicate noncompliance where a duct is not leaking, duct tape shall not be acceptable for repair of such a leak.
3. Outside air dampers, damper controls and linkages controlled by HVAC units shall be in good repair and adjustment.
4. Hot water and steam leaks, defective steam traps, radiator controls, relief, and vent valves shall not be permitted in any accessible piping.
5. Leaking accessible chilled water lines and equipment shall be repaired or replaced.

1001.6 Service water systems. Defective hot and cold water piping and equipment within service water systems shall be repaired or replaced.

1001.7 Motor-driven equipment. Leaking equipment in compressed air or pumped water systems shall be repaired or replaced.

Revise as follows:

1003.2.2 Heating, ventilating and air-conditioning. Heating, ventilating and air-conditioning systems and equipment shall be in accordance with the following:

1. Furnace systems shall be cleaned and tuned as part of the alteration work. Filters shall be replaced in accordance with the furnace manufacturer's recommendations.

   Exception: Furnace combustion units that have been cleaned and tuned within one year prior to the alteration.

~~1~~2. Each heating and cooling system shall be provided with thermostatic controls. Time clock and automatic time switch controls that can turn systems off and on according to building occupancy requirements shall be provided and connected to the following HVAC equipment: chillers and other space-cooling equipment, chilled water pumps, boilers and other space-heating devices, hot water pumps, heat exchanger circulation pumps, supply fans, return fans, and exhaust fans. Where occupant override is provided, it shall be designed with a timer to automatically revert to time clock and automatic time switch controls in not longer than 12 hours.

   Exception: A time clock or automatic time switch controls shall not be required for spaces where any of the following conditions exist:

1. A time clock is not required by Section C403.2.4.3 of the *International Energy Conservation Code*.
2. There is 24-hour occupancy materials with special atmospheric requirements dependent on 24-hour space conditioning.
3. A majority of the areas of the building served by the system are under setback thermostat control.
4. Manufacturer's specifications stipulate that the system must not be shut off.

~~2~~3. Functional outside air economizers shall be provided on all cooling systems of more than 4 ½ tons total cooling capability, 54,000 Btu/h, or more than 1800 cfm (9,144 $m^3/_s$ @ m^2) air flow, provided manufacturer's guidelines are available for adding the economizer to the existing system.

Exception: An outside air economizer shall not be required for buildings or special uses where 100 percent outside air for ventilation is required or where any of the following conditions exist:

1. Section C403.3.1 of the *International Energy Conservation Code* would not require an economizer.
2. The existing system has a water-based economizer.
3. The existing system does not have an outside air intake.
4. Special economizer operations such as, but not limited to, carefully controlled humidity would require more energy use than is conserved.
5. There is insufficient space to install necessary equipment.
6. Installation of an economizer would require major modifications to the building's life safety system.
7. The existing system is a multi-zone system where the same intake air is used at the same time for either heating or cooling in different parts of the building.

~~3~~4. HVAC piping and ducts, including those located above suspended ceilings, shall comply with Sections 606.3 and 606.4.

Exception: Additional insulation shall not be required for piping where any of the following conditions exist:

1. Additional insulation shall not be required for piping where any of the following conditions exist:
   1.1. It is located within HVAC equipment;
   1.2. It is located within conditioned space that conveys fluids between 60°F (15.6°C) and 105°F (40.6°C);
   1.3. Piping that is already insulated and the insulation is in good condition; or
2. Where HVAC ducts and piping are installed in a building cavity or interstitial framing space of insufficient width to accommodate the duct or pipe and the insulation required by Section 606.3 and Table 606.4, the insulation thickness shall be permitted to have the maximum thickness that the wall can accommodate, but shall not be less than ½ - inch (12.7 mm) thick.

~~4~~5. Where central heat is intended to be replaced with individual electric space heaters, the application for the electrical permit shall include documentation demonstrating that the new electric heaters will not consume more energy than the existing nonelectric heaters.

~~5~~6. Boiler systems shall have been cleaned and tuned within one year prior to the alteration. Boilers shall be equipped with an outdoor air lock-out thermostat or a temperature reset control.

~~6~~7. Chiller systems shall be cleaned and turned as part of the alteration work. Chillers shall be equipped with an outdoor air lockout thermostat and chilled water reset control.

Exception: Chiller systems that have been cleaned and tuned within one year prior to the alteration shall not be required to be cleaned and tuned.

~~7~~8. A maximum 5-year phase out plan shall be provided for buildings with existing systems that use CFC-based refrigerants.

~~8~~9. Where mechanical and electrical systems and equipment are joined with microprocessors that communicate with each other or to a computer, a properly integrated building automation system shall be installed to optimize energy, operations, and indoor comfort. The building automation system shall:

~~8.1~~9.1. Allow the owner to set up schedules of operation for the equipment and provide equipment optimal start with adaptive learning;

~~8.2~~9.2. Provide trim and respond capabilities based on zone demand;

~~8.3~~9.3. Offer the ability to monitor energy usage, including the ability to meter electric, gas, water, steam, hot water, chilled water, and fuel oil services;

~~8.4~~9.4. Offer economizing based on enthalpy calculation and/or $CO_{2\ set}$ point control;

~~8.5~~9.5. Offer load shedding when power companies are at peak demand and need; and

~~8.6~~9.6. Offer the ability to send alarms to alert building owner, manager, or operator when problems occur due to system failures.

Revise as follows:

1004.1 Change of occupancy. Where a change in occupancy of a building or tenant space places it in a different division of the same group of occupancy or in a different group of occupancies, as determined in accordance with the provisions of the *International Building Code*, compliance with Sections 1001.5, 1001.6 and 1001.7 ~~1001.3 and 1001.4~~ shall be required.

Exception: Historic buildings in accordance with Section 1005 shall not be required to comply with Section 1004.

Reason: The intent of the existing building provisions in the IgCC should require that any work done on an existing building results in an incremental improvement in the sustainable performance of the building. These proposed revisions will further that goal.

This first part of this proposed change adds to Section 1001 a set of readily undertaken improvements to existing buildings that would be triggered by any permitted work done on the building. These relatively simple and low-cost measures will result in improved building performance for existing buildings. The requirements are simple and rational and will yield measurable building performance improvements for minimal investments. The work would be done at a time when other permitted work is occurring on the building. The measures basically involve repairing deferred maintenance items like broken thermostats, replacing filters and verifying that ducts are sealed.

There are also additional requirements for alterations added to Section 1003.2.2. These items are somewhat more far reaching than the basic measures proposed in 1001 and are located in this section so that they would only be triggered by alteration work, not by minor work such as repairs or changes of occupancy.

This code change proposal also corrects references in the change of occupancy requirements in Section 1004.1 as a trigger for the basic work proposed to be included in Section 1001. Due to a mix-up in the adoption process for the last code edition the language in the current code in Section 1004.1 points to two irrelevant sections; 1001.3 and 1001.4. This reference needs to be revised.

The basic work in Section 1001 could also be triggered by a building sale. But since that measure is more controversial than the basic measures in this proposal we have addressed that trigger in a separate code change proposal.

Cost Impact: Will not increase the cost of construction.

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