

CHAPTER 8

ALTERATIONS—LEVEL 3

SECTION 801 GENERAL

801.1 Scope. Level 3 alterations as described in Section 405 shall comply with the requirements of this chapter.

801.2 Compliance. In addition to the provisions of this chapter, work shall comply with all of the requirements of Chapters 6 and 7. The requirements of Sections 703, 704, and 705 shall apply within all work areas whether or not they include exits and corridors shared by more than one tenant and regardless of the occupant load.

Exception: Buildings in which the reconfiguration of space affecting exits or shared egress access is exclusively the result of compliance with the accessibility requirements of Section 605.2 shall not be required to comply with this chapter.

SECTION 802 SPECIAL USE AND OCCUPANCY

802.1 High-rise buildings. Any building having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall comply with the requirements of Sections 802.1.1 and 802.1.2.

802.1.1 Recirculating air or exhaust systems. When a floor is served by a recirculating air or exhaust system with a capacity greater than 15,000 cubic feet per minute (701 m³/s), that system shall be equipped with approved smoke and heat detection devices installed in accordance with the *International Mechanical Code*.

802.1.2 Elevators. Where there is an elevator or elevators for public use, at least one elevator serving the work area shall comply with this section. Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for fire-fighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.

802.2 Boiler and furnace equipment rooms. Boiler and furnace equipment rooms adjacent to or within the following facilities shall be enclosed by 1-hour fire-resistance-rated construction: day nurseries, children's shelter facilities, residential childcare facilities, and similar facilities with children below the age of 2½ years or that are classified as Group I-2 occupancies, shelter facilities, residences for the developmentally disabled, group homes, teaching family homes, transitional living

homes, rooming and boarding houses, hotels, and multiple dwellings.

Exceptions:

1. Furnace and boiler equipment of low-pressure type, operating at pressures of 15 pounds per square inch gauge (psig) (103.4 KPa) or less for steam equipment or 170 psig (1171 KPa) or less for hot water equipment, when installed in accordance with manufacturer recommendations.
2. Furnace and boiler equipment of residential R-3 type with 200,000 British thermal units (Btu) (2.11 × 10⁸ J) per hour input rating or less is not required to be enclosed.
3. Furnace rooms protected with automatic sprinkler protection.

802.2.1 Emergency controls. Emergency controls for boilers and furnace equipment shall be provided in accordance with the *International Mechanical Code* in all buildings classified as day nurseries, children's shelter facilities, residential childcare facilities, and similar facilities with children below the age of 2½ years or that are classified as Group I-2 occupancies, and in group homes, teaching family homes, and supervised transitional living homes in accordance with the following:

1. Emergency shutoff switches for furnaces and boilers in basements shall be located at the top of the stairs leading to the basement; and
2. Emergency shutoff switches for furnaces and boilers in other enclosed rooms shall be located outside of such room.

SECTION 803 BUILDING ELEMENTS AND MATERIALS

803.1 Existing shafts and vertical openings. Existing stairways that are part of the means of egress shall be enclosed in accordance with Section 703.2.1 between the highest work area floor and the level of exit discharge and all floors below.

803.2 Fire partitions in Group R-3. Fire separation in Group R-3 occupancies shall be in accordance with Section 803.2.1.

803.2.1 Separation required. Where the work area is in any attached dwelling unit in Group R-3 or any multiple single family dwelling (townhouse), walls separating the dwelling-units that are not continuous from the foundation to the underside of the roof sheathing shall be constructed to provide a continuous fire separation using construction materials consistent with the existing wall or complying with the requirements for new structures. All work shall be

performed on the side of the dwelling unit wall that is part of the work area.

Exception: Where alterations or repairs do not result in the removal of wall or ceiling finishes exposing the structure, walls are not required to be continuous through concealed floor spaces.

803.3 Interior finish. Interior finish in exits serving the work area shall comply with Section 703.4 between the highest floor on which there is a work area to the floor of exit discharge.

SECTION 804 FIRE PROTECTION

804.1 Automatic sprinkler systems. Automatic sprinkler systems shall be provided in all work areas when required by Section 704.2 or by this section.

804.1.1 High-rise buildings. In high-rise buildings, work areas shall be provided with automatic sprinkler protection where the building has a sufficient municipal water supply system to the site. Where the work area exceeds 50 percent of floor area, sprinklers shall be provided in the specified areas where sufficient municipal water supply for design and installation of a fire sprinkler system is available at the site.

804.1.2 Rubbish and linen chutes. Rubbish and linen chutes located in the work area shall be provided with sprinklered protection where protection or other approved fire suppression systems of the rubbish and linen chute would be required under the provisions of the *International Building Code* for new construction.

804.2 Fire alarm and detection systems. Fire alarm and detection systems complying with Sections 704.4.1 and 704.4.3 shall be provided throughout the building in accordance with the *International Building Code*.

804.2.1 Manual fire alarm systems. Where required by the *International Building Code*, a manual fire alarm system shall be provided throughout the work area. Alarm notification appliances shall be provided on such floors and shall be automatically activated as required by the *International Building Code*.

Exceptions:

1. Alarm-initiating and notification appliances shall not be required to be installed in tenant spaces outside of the work area.
2. Visual alarm notification appliances are not required, except where an existing alarm system is upgraded or replaced or where a new fire alarm system is installed.

804.2.2 Automatic fire detection. Where required by the *International Building Code* for new buildings, automatic fire detection systems shall be provided throughout the work area.

SECTION 805 MEANS OF EGRESS

805.1 General. The means of egress shall comply with the requirements of Section 705 except as specifically required in Sections 805.2 and 805.3.

805.2 Means-of-egress lighting. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with artificial lighting within the exit enclosure in accordance with the requirements of the *International Building Code*.

805.3 Exit signs. Means of egress from the highest work area floor to the floor of exit discharge shall be provided with exit signs in accordance with the requirements of the *International Building Code*.

SECTION 806 ACCESSIBILITY

806.1 General. A building, facility, or element that is altered shall comply with Section 605.

SECTION 807 STRUCTURAL

807.1 General. Where buildings are undergoing Level 3 alterations including structural alterations, the provisions of this section shall apply.

807.2 Reduction of strength. Alterations shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

Exception: Such reduction shall be allowed provided that the structural strength and the stability of the building are not reduced to below the *International Building Code* levels.

807.3 New structural members. New structural members in alterations, including connections and anchorage, shall comply with the *International Building Code*.

807.4 Minimum design loads. The minimum design loads on existing elements of a structure that do not support additional loads as a result of an alteration shall be the loads applicable at the time the building was constructed.

807.5 Structural alterations. Buildings and structures undergoing Level 3 structural alterations or buildings in which the seismic base shear is increased by more than 10 percent or in which the seismic base shear capacity is decreased by more than 10 percent because of alterations shall comply with this section. Changes in base shear and base shear capacity shall be calculated relative to conditions at the time of the original construction.

Exceptions:

1. Buildings of Group R occupancy with no more than five dwelling or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.

2. Where such alterations involve only the lowest story of a building and the change of occupancy provisions of Chapter 9 do not apply, only the lateral-force-resisting components in and below that story need comply with this section.
3. If the building's seismic base shear capacity has been increased since the original construction, the percentage changes shall be permitted to be calculated relative to the increased value.

807.5.1 Evaluation and analysis. An engineering evaluation and analysis that establishes the structural adequacy of the altered structure shall be prepared by a registered design professional and submitted to the code official.

807.5.2 Substantial structural alteration. Where more than 30 percent of the total floor and roof areas of the building or structure have been or are proposed to be involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the *International Building Code* for wind loading and with reduced *International Building Code* level seismic forces as specified in Section 506.1.1.3 for seismic loading. For seismic considerations, the analysis shall be based on one of the procedures specified in Section 506.1.1.1. The areas to be counted toward the 30 percent shall be those areas tributary to the vertical load-carrying components, such as joists, beams, columns, walls and other structural components that have been or will be removed, added or altered, as well as areas such as mezzanines, penthouses, roof structures and in-filled courts and shafts.

807.5.3 Limited structural alteration. Where not more than 30 percent of the total floor and roof areas of the building are involved in structural alteration within a 12-month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads applicable at the time of the original construction or of the most recent substantial structural alteration as defined by Section 807.5.2.

807.6 Additional vertical loads. Where gravity loading is increased on the roof or floor of a building or structure, all structural members affected by such increase shall meet the gravity load requirements of the *International Building Code*.

Exceptions:

1. Structural elements whose stress is not increased by more than 5 percent.
2. Buildings of Group R occupancy with no more than five dwelling units or sleeping units used solely for residential purposes that are altered based on the conventional light-frame construction methods of the *International Building Code* or in compliance with the provisions of the *International Residential Code*.

807.7 Voluntary lateral-force-resisting system alterations. Alterations of existing structural elements and additions of new structural elements that are initiated for the purpose of increasing the lateral-force-resisting strength or stiffness of an existing structure and that are not required by other sections of this code shall not be required to be designed for forces conforming

to the *International Building Code*, provided that an engineering analysis is submitted to show that:

1. The capacity of existing structural elements required to resist forces is not reduced;
2. Either the lateral loading to existing structural elements is not increased beyond their capacity or the lateral loading to existing structural elements is not increased by more than 10 percent;
3. New structural elements are detailed and connected to the existing structural elements as required by the *International Building Code*;
4. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required by the *International Building Code*; and
5. A dangerous condition as defined in this code is not created.

Voluntary alterations to lateral-force-resisting systems conducted in accordance with Appendix A and the referenced standards of this code shall be permitted.

SECTION 808 ENERGY CONSERVATION

808.1 Minimum requirements. Level 3 alterations to existing buildings or structures are permitted without requiring the entire building or structure to comply with the energy requirements of the *International Energy Conservation Code* or *International Residential Code*. The alterations shall conform to the energy requirements of the *International Energy Conservation Code* or *International Residential Code* as they relate to new construction only.

