FLORIDA BUILDING CODE HANDBOOK

STATE REQUIREMENTS FOR NEW EDUCATIONAL FACILITIES CONSTRUCTION

Florida Department of Education

2010

Florida Building Code Handbook

State Requirements for New Educational Facilities Construction

Persons contributing to this document:

Jonathon D. Hamrick, Architect
Construction Planning and Design Manager

Edward F. Hubert, P.E.
Civil/Structural Engineer

Larry L. Parish, P.E.
Mechanical Engineer

Darrell D. Phillips, Architect
Senior Projects Architect

Robert H. Raynor, Architect
Senior Projects Architect

James U. Watts, P.E.
Electrical Engineer

Don Whitehead, Architect
Senior Projects Architect

This edition of the Florida Building Code handbook is a modification of the original 2004 Florida Building Code handbook that was developed for the Department of Education by Michael W. Kuenstle, A1A, and Nancy Clark, School of Architecture, University of Florida, Gainesville, Florida.

TABLE OF CONTENTS

Introduction xi

FLORIDA BUILDING CODE, BUILDING

CHAPTER 1: ADMINISTRATION

101 General **1**

105 Permits **1**

107 Submittal Documents **1**

CHAPTER 3: USE AND OCCUPANCY CLASSIFICATION

301 General **2**

302 Classification **2**

303 Assembly Group A **2**

304 Business Group B **3**

305 Educational Group E **4**

309 Mercantile Group M **4**

311 Storage Group S **4**

313 Day-Care Occupancy Group D **5**

CHAPTER 4: SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

401 Scope **6**

410 Stages and Platforms **6**

423* State Requirements for Educational Facilities **10**

423.1 Slope: Public educational facilities **10**

423.2 Public schools and Florida colleges general requirements **10**
423.2.1 Owner
423.2.2 Exemption from local requirements

423.3 Code enforcement **11**
423.3.1 School boards and Florida college boards
423.3.2 Owner review and inspection
423.3.3 Local government review and inspection
423.3.4 Other regulatory agencies
423.3.5 Day labor projects
423.3.6 Routine maintenance
423.3.7 Certificate of occupancy
423.3.8 Reuse and prototype plans

423.4 Reference documents **11**
423.4.1 Rule 6A-2 [State Requirements for Educational Facilities (SREF)]
423.4.2 Flood resistant construction
423.4.3 Florida statutes and state rules
423.4.4 Accessibility requirements for children's environments
423.4.5 Handbook for public playground safety
423.4.6 ANSI Z53.1
423.4.7 ASCE 7
423.4.8 Life cycle cost guidelines for materials and buildings for Florida public educational facilities

423.5 Definitions **12**
423.5.1 "Assembly"
423.5.2 "Board"
423.5.3 "Boiler"
423.5.4 "Certificate of occupancy"
423.5.5 "Courtyard"
423.5.6 "Facility"
423.5.7 "Maintenance and repair"
423.5.8 "New construction"
423.5.9 "Open plan building"
423.5.10 "Open plan instructional "space"
423.5.11 "Owner"
423.5.12 "Permit"
423.5.13 "Remodeling"

*For convenience, subsections in Section 423 dealing with public educational facilities are listed.

423.5.14.1 "Renovation"
423.5.15 "Separate atmosphere"
423.5.16 "Separate building"
423.5.17 Florida College
423.5.18 "Student-occupied space"

423.6 Administration of public education projects 16
423.6.1 Occupancy during construction
423.6.2 Contractor toxic substance safety precautions
423.6.3 Flammable or explosive substances

423.7 Life safety 18
423.7.1 Separate exits
423.7.2 Exit access
423.7.3 Location of fire Extinguishers and blankets
423.7.4 Common fire alarm
423.7.5 Fire alarm sending stations
423.7.6 Automatic shut off
423.7.7 Unoccupied rooms and concealed spaces
423.7.8 Boiler rooms

423.8 General requirements for new construction additions, renovations and remodeling 19
423.8.1 Codes and standards
423.8.2 Space standards
423.8.3 Construction type
423.8.4 Standard for remodeling and/or renovation projects
423.8.5 Leased facilities
423.8.6 Asbestos prohibited
423.8.7 Life cycle cost guidelines for materials and building systems
423.8.8 Safe school design

423.9 Structural design 22
423.9.1 Load importance factor

423.10 Site requirements 22
423.10.1 Fencing
423.10.2 Walks, roads, drives, and parking areas
423.10.3 Site lighting required
423.10.4 Building setbacks
423.10.5 School board playgrounds, equipment, and athletic fields
423.10.6 Exterior signage
423.10.7 Landscaping
423.10.8 Water irrigation systems
423.10.9 Transmission line right-of-way
423.10.10 School site master plan

423.11 Wood: fire-retardant-treated wood (FRTW) 27
423.11.1 Fire-retardant-treated wood
423.11.2 Inspection access panels
423.11.3 Evidence of compliance

423.12 Roofing 28
423.12.1 Class A materials
423.12.2 Insulation and moisture protection
423.12.3 Phased installation prohibited
423.12.4 Manufacturer's one-year inspection

423.13 Doors and windows 28
423.13.1 Doors
423.13.2 Recessed
423.13.3 Special function doors
423.13.4 Overhead and sliding security grilles
423.13.5 Gates
423.13.6 Hardware
423.13.7 Safety glazing: panels and storefronts
423.13.8 Windows

423.14 Specialty safety requirements 30
423.14.1 Master control switch
423.14.2 Interior signage
423.14.3 Other potential hazards
423.14.4 Storage shelving
423.14.5 Vertical platform lifts and inclined wheelchairs lifts
423.14.6 Color code machinery
423.14.7 Anchor equipment
423.14.8 Interior finishes

423.15 Mechanical 32
423.15.1 Gas and fluid piping
423.15.2 Air plenums
423.15.3 Residential equipment
423.15.4 Toilet room ventilation
423.15.5 Chemistry laboratories and science classrooms
423.15.6 Ventilation air make-up for HVAC systems

423.16 Plumbing 33
423.16.1 Standards
423.16.2 Teacher toilets

423.16.3 Public shelter
423.16.4 Urinals
423.16.5 Floor drains and hose bibbs
423.16.6 Exterior entries
423.16.7 Hot water
423.16.8 Delayed closing valves
423.16.9 Shower facilities
423.16.10 Kitchens
423.16.11 Dousing shower and eye wash
423.16.12 Floor drains and plumbing fixtures in equipment rooms

423.17 Electrical 35
423.17.1 Emergency lighting
423.17.2 Electrical rooms and closets
423.17.3 Spare capacity
423.17.4 Emergency shutoff switches
423.17.5 Emergency disconnect
423.17.6 Sauna and steam rooms
423.17.7 Lighting
423.17.8 Ground fault interrupter (GFI) receptacles

423.18 Assembly occupancies in public educational facilities 36
423.18.1 Occupant capacity

423.19 Shade and green houses 37
423.19.1 General
423.19.2 Unrestricted exiting
423.19.3 Required doors
423.19.4 Accessibility
423.19.5 Shade cloth
423.19.6 Fire extinguisher
423.19.7 Fire alarm
423.19.8 Space heaters

423.20 Storage 37
423.20.1 General storage
423.20.2 Custodial work areas and storage
423.20.3 Custodial closets and storage
423.20.4 Chemical and hazardous materials storage

423.21 Child care/day-care/pre-kindergarten facilities 38
423.21.1 Code enforcement
423.21.2 Toilet
423.21.3 Bathing area
423.21.4 Toilet facility finishes
423.21.5 Drinking fountains
423.21.6 Hand washing areas
423.21.7 Kitchens
423.21.8 Sleeping areas
423.19.9 Sleeping areas
423.19.10 Hazardous materials
423.19.11 Protection of outdoor play areas from the environment
423.19.12 Play equipment
423.19.13 Grounds

423.22 Clinics 39
423.22.1 General
423.22.2 Special requirements
423.22.3 Sanitary facilities
423.22.4 Beds
423.22.5 Full-service school health clinics

423.23 Kilns 40

423.24 Open plan schools 40

423.25 Public shelter design criteria 41
423.25.1 New facilities
423.25.2 Site
423.25.3 Design
423.25.4 Structural standard for wind loads
423.25.5 Electrical and standby emergency power system
423.25.6 Inspections

423.26 Time-out rooms 46
423.26.1 General
423.26.2 Electromagnetic locking device
423.26.3 Door requirements
423.26.4 Finishes
423.26.5 Minimum size
423.26.6 Lighting
423.26.7 HVAC required

423.27 New relocatable buildings 47
423.27.1 Relocatables
423.27.2 Design, plan approval, construction
423.27.3 Construction type
423.27.4 Accessibility
423.27.5 Site standards/site plans
423.27.6 Structure
423.27.7 Fire-retardant-treated wood (FRTW)
423.27.8 Doors
423.27.9 Operable windows
423.27.10 Finishes
423.27.11 Fire extinguishers
423.27.12 Document storage
423.27.13 Time-out rooms
423.27.14 Child care/day-care units
423.27.15 Illumination required
423.27.16 Air conditioning, heating and ventilation
423.27.17 Technology
423.27.18 Fire safety requirements

423.27.19 Inspection of units during construction
423.27.20 Inspection of units prior to occupancy

443* Schools, Colleges and Universities 50
443.1 Scope
443.2 Sites
443.2.1 Drainage
443.2.2 Playgrounds and equipment
443.2.3 Outdoor waste containers
443.3 Building construction
443.3.1 Rodent proofing
443.3.2 Glare from natural light
443.3.3 Automated external defibrillator
443.3.4 Diaper changing stations
443.3.5 Plumbing
443.3.6 Mechanical
443.3.7 Lighting

CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS

501 General 53

503 General Height and Area Limitations 53

504 Building Height 53

506 Building Area Modifications 54

507 Unlimited Area Buildings 55

508 Mixed Use and Occupancy 56

CHAPTER 6: TYPES OF CONSTRUCTION

601 General 60

602 Construction Classification 60

CHAPTER 7: FIRE AND SMOKE PROTECTION FEATURES

701 General 62

706 Fire Walls 62

707 Fire Barriers 63

708 Shaft Enclosures 65

709 Fire Partitions 66

710 Smoke Barriers 67

711 Smoke Partitions 67

715 Opening Protectives 68

719 Thermal-and Sound-Insulting Materials 70

720 Prescriptive Fire Resistance 71

721 Calculated Fire Resistance 71

CHAPTER 8: INTERIOR FINISHES

801 General 72

803 Wall and Ceiling Finishes 73

CHAPTER 9: FIRE PROTECTION SYSTEMS

901 General 74

903 Automatic Sprinkler Systems 74

905 Standpipe Systems 75

907 Fire Alarm and Detection Systems 75

CHAPTER 10: MEANS OF EGRESS

1001 Administration 78

1003 General Means of Egress 78

1004 Occupant Load 79

1005 Egress Width 79

1006 Means of Egress Illumination 80

1008 Doors, Gates and Turnstiles 81

*** For convenience, subsections in Section 443 dealing with public educational facilities are listed.**

1009 Stairways 83
1010 Ramps 85
1012 Handrails 87
1013 Guards 88
1014 Exit Access 89
1015 Exit and Exit Access Doorways 90
1016 Exit Access Travel Distance 91
1017 Aisles 91
1018 Corridors 92
1019 Egress Balconies 94
1020 Exits 94
1022 Exit Enclosures 94
1026 Exterior Exit Ramps and Stairways 95
1027 Exit Discharge 96
1028 Assembly 96
1029 Emergency Escape and Rescue 102
1030 Business 102
1031 Educational 103

CHAPTER 12: INTERIOR ENVIRONMENT

1201 General 104
1205 Lighting 104
1210 Surrounding Materials 104

CHAPTER 24: GLASS AND GLAZING

2401 General 105
2403 General Requirements for Glass 105
2406 Safety Glazing 105

FLORIDA BUILDING CODE, MECHANICAL

CHAPTER 3: GENERAL REGULATIONS

301 General 107
304 Installation 107
307 Condensate Disposal 107

CHAPTER 4: VENTILATION

401 General 108
403 Mechanical Ventilation 108
405 Systems Control 108

CHAPTER 5: EXHAUST SYSTEMS

501 General 109
505 Domestic Kitchen Exhaust Equipment 109
507 Commercial Kitchen Hoods 109
509 Fire Suppression Systems 109

CHAPTER 6: DUCT SYSTEMS

601 General 110
602 Plenums 110
606 Smoke Detection Systems Control 111
607 Ducts and Air Transfer Openings 111

FLORIDA BUILDING CODE, REGULATIONS

CHAPTER 3: GENERAL REGULATIONS

301 General 112
310 Washroom and Toilet Room Requirements 112
315 Public Food Service Establishments and Food Establishments 112

CHAPTER 4: FIXTURES, FAUCETS AND FIXTURE FITTINGS

401 General 113

403 Minimum Plumbing Facilities 113

411 Emergency Showers and Eyewash Stations 114

CHAPTER 6: WATER SUPPLY AND DISTRIBUTION

601 General 115

610 Disinfection of Portable Water System 115

CHAPTER 7: SANITARY DRAINAGE

701 General 116

702 Materials 116

CHAPTER 8: INDIRECT/SPECIAL WASTE

801 General 117

803 Special Wastes 117

CHAPTER 10: TRAPS, INTERCEPTORS AND SEPARATORS

1001 General 118

1003 Interceptors and Separators 118

FLORIDA BUILDING CODE, FUEL GAS

CHAPTER 3: GENERAL REGULATIONS

301 General 119

304 Combustion, Ventilation, and Dilution Air 119

CHAPTER 4: GAS PIPING INSTALLATIONS

401 General 120

404 Piping Systems Installation 120

409 Shutoff Valves 120

APPENDIX

Symbol Legend A-2

Minimum Occupant Load A-3

Exit and Means of Egress Width A-4

Number of Required Means of Egress A-6

Separation of Means of Egress A-8

Travel Distance A-10

Dead-End Corridors A-12

Emergency Rescue Openings A-14

Doors A-16

Door Fire-Rating Labels A-18

Door Panic Hardware A-20

Safety and Fire-Rated Glazing A-22

Classrooms with All Primary Egress to the Exterior A-24

Classrooms with Convenience Interior Corridor and Exits Directly to the Exterior A-26

One or More Classrooms Exiting Through an Interior Corridor and Remaining Classrooms Exit Directly to Exterior A-28

Classrooms with All Egress Through an Exit Access Corridor A-30

Egress From Rooms Divided with a Folding Partition A-32

Egress from Classrooms through an Intervening Space A-34

Corridor Protection A-36

Stairs A-38

Handrails at Stairs A-40

Separation and Protection of Exterior Stairs A-42

Exceptions to Separation and Protection of Exterior Stairs A-44

Interior Stairs A-46

Shaft Enclosure Protection A-48

Auditorium Aisle Widths A-50

Auditorium Seating A-52

Grandstands and Bleachers A-54

Aisle Ramps and Stairs A-56

Aisles Serving Seating at Tables A-58

Platforms and Stages A-60

Legitimate Stage (Stages over 1,00sq/ft in Area and with a Stage Height Greater than 50 feet) A-62

Regular Stage (Stages 1,000 sq/ft maximum Area and with a Stage Height of 50 ft maximum) A-64

Site Requirements A-66

Minimum Parking Requirements A-70

Site Lighting Requirements A-72

Roofing Membrane and Draining A-74

Open Plan Classrooms A-76

Relocatables for Classroom Use A-78

Shade and Green House A-80

Kitchen and Food Services A-82

Toilet Rooms A-84

Fire Alarm A-86

Example EHPA Design Square Footage and Capacity Calculations A-88

EHPA Electrical and Emergency Power Systems Standby Circuits A-90

Recommended Acreage A-91

FBC Chapter 16 - Structural Loads A-92

FBC Chapter 18 – Soils and Foundations A-94

FBC Chapter 19 – Concrete A-96

FBC Chapter 21 – Reinforced Masonry A-98

FBC Chapter 22 – Steel A-99

FBC Chapter 23 – Wood A-100

Roof Shingles A-101

Section 423 Application Matrix A-103

INTRODUCTION

This handbook is a guide to the code requirements for the design of new construction, additions, and remodeling of educational facility buildings and physical plants in the State of Florida. The 2010 edition of the Florida Building Code handbook: State Requirements for New Educational Facilities Construction replaces the 2007 edition of the building code handbook. This new handbook incorporates significant changes recently made to Florida's life safety and building codes governing new educational facility construction.

This handbook will be helpful to design professional, educational facilities planners, engineers, and building contractors. It offers guidance for using the 2010 Edition Florida Building Code (FBC) and the 2010 Edition Florida Fire Prevention Code (FFPC), as well as facilitating a better understanding of the State Requirements for New Educational Facilities Construction. The handbook provides background information, discussion of code requirements, and examples of how the code can be applied.

The handbook includes two sections: (1) 2010 Florida Building Code and Commentary and (2) Appendix. In the first section, the text reproduced from the Florida Building is printed in green and the commentary is printed in black. The graphic illustrations and diagrams in this section supplement the written commentary. In the second section, the appendix is formatted as a quick reference guide summarizing code-related issues through the use of labels and example diagram drawings and illustrations.

The code requirements covered in this handbook represent only a portion of rules and regulations that may apply to new construction, additions, and remodeling of educational facilities construction. The handbook is intended to be a general guideline for reference and should not be considered a binding interpretation.

We hope that this document will serve all of the dedicated professionals involved in Florida school design and construction.

Chapter 1
ADMINISTRATION
Florida Building Code, Building

SECTION 101
GENERAL

101.2 Scope.

The provisions of this code shall apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exceptions:
1. NA
2. Existing buildings undergoing repair, alterations or additions and change of occupancy shall comply with Chapter 34 of this code.

In accordance with Chapter 34, Section 101.2, and Scope Exception: additions, remodeling, and/or renovations of existing educational facilities are to comply with Section 423, Florida Building Code.

SECTION 105
PERMITS

105.1 Required.

Any owner or authorized agent who intends to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert, or replace any impact resistant coverings electrical, gas, mechanical, or plumbing system, the installation of which is regulated by this code, or to cause any such work to be done, shall first make application to the building official and obtain the required permit.

Permits are required for any work performed on an educational facility. Educational boards may use an annual maintenance permit for small maintenance projects in accordance with Section 553.80(6)(d), Florida Statutes.

SECTION 107
SUBMITTAL DOCUMENTS

107.1 General.

Construction documents, special inspection and structural observation programs, and other data shall be submitted in one or more sets with each application for a permit. The construction documents shall be prepared by a registered design professional where required by Chapter 471, Florida Statutes or Chapter 481, Florida Statutes. Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional.

Exception: The building official is authorized to waive the submission of construction documents and other data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code.

Chapter 3
USE AND OCCUPANCY CLASSIFICATION
Florida Building Code, Building

SECTION 301
GENERAL

301.1 Scope.

The provisions of this chapter shall control the classification of all building and structures as to use and occupancy.

SECTION 302
CLASSIFICATION

302.1 General.

Structures or portions of structures shall be classified with respect to occupancy in one or more of the groups listed below. A room or space that is intended to be occupied at different times for different purposes shall comply with all of the requirements that are applicable to each of the purposes for which the room or space will be occupied. Structures with multiple occupancies or uses shall comply with Section 508. Where a structure is proposed for a purpose that Is not specifically provided for in this code, such structure shall be classified in the group that the occupancy most nearly resembles, according to the fire safety and relative hazard involved.

1. Assembly (see Section 303); Groups A-1, A-2, A-3, A-4 and A-5.
2. Business (see Section 304); Group B.
3. Educational (see Section 305); Group E.
4. NA
5. NA
6. NA
7. Merchantile (see Section 309); Group M
8. NA
9. Storage (see Section 311); Group S-1 and S-2
10. NA
11. Day care (see Section 313); Group D

Pre-K through grade 12 facilities are classified as Educational occupancies. Florida colleges and universities are classified as Business occupancies.

SECTION 303
ASSEMBLY GROUP A

303.1 Assembly Group A.

Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food and drink consumption; or awaiting transportation.

Exceptions:
1. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be classified as a Group B occupancy.
2. A room or space used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
3. A room or space used for assembly purposes that is less than 750 square feet (70m²) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
4. Assembly areas that are accessory to Group E occupancies are not considered separate occupancies except when applying the assembly occupancy requirements of the Florida Building Code, Accessibility.

Assembly occupancies shall include the following:

A-1 Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:
- Motion picture theaters
- Symphony and concert halls
- Television and radio studios admitting an audience
- Theaters

A-2 Assembly uses intended for food and/or drink consumption including, but not limited to:
- Banquet halls
- Night clubs
- Restaurants
- Taverns and bars

A-3 Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

- Amusement arcades
- Art Galleries
- Bowling alleys
- Community halls
- Exhibition halls
- Gymnasiums (without spectator seating)
- Indoor swimming pools (without spectator seating)
- Indoor tennis court (without spectator seating)
- Lecture halls
- Libraries
- Museums

A-4 Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

- Arenas
- Skating rinks
- Swimming pools
- Tennis courts

A-5 Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

- Amusement park Structures
- Bleachers
- Grandstands
- Stadiums

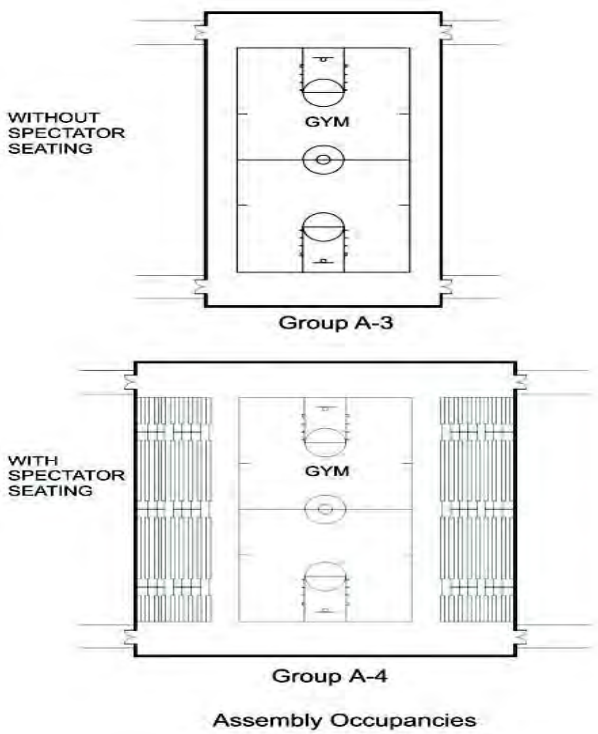


Figure 303.1

Even though all spaces in an Educational occupancy are viewed by the Florida Building Code as a single-use Educational occupancy, Chapter 12, Florida Fire Prevention Code, NFPA 101, requires the exiting capacity to be determined separately for an assembly space, such as an auditorium or gymnasium, when the assembly space is to be used by the public while the school is occupied by students. Auditoriums and gymnasiums are also required to comply with Florida Building Code requirements for a mixed or separate occupancy.

The State Fire Marshal's Office has determined that assembly spaces, such as cafetoriums, with an occupancy of 300 persons or more, are considered mixed or separate occupancies and shall be fully sprinklered and have a voice evacuation system as part of the fire alarm system. For additional information, see NFPA 72, Section 6.9.

SECTION 304
BUSINESS GROUP B

304.1 Business Group B.

Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

- Banks
- Barber and beauty shops
- Civic administration
- Clinic-outpatient
- Educational occupancies for students above the 12th grade
- Electronic data processing
- Post offices
- Print shops
- Professional services (architects, attorneys, dentists, physicians, engineers, etc.)
- Radio and television stations
- Telephone exchanges

304.2

Public and private colleges and universities shall comply with Section 443.

304.3

Florida colleges shall comply with Section 423.

SECTION 305
EDUCATIONAL GROUP E

305.1 Educational Group E.

Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade. Religious educational rooms and religious auditoriums, which are accessory to places of religious worship in accordance with Section 303.1 and have occupant loads of less than 100, shall be classified as A-3 occupancies.

305.2

Public and private educational occupancies shall comply with Section 443.

305.3

Public educational occupancies shall comply with Section 423.

SECTION 309
MERCANTILE GROUP M

309.1 Mercantile Group M.

Mercantile Group M occupancy includes, among others, the use of a building or structure or a portion thereof, for the display and sale of merchandise, and involves stock of goods, wares or merchandise incidental to such purposes and accessible to the public. Mercantile occupancies shall include, but not be limited to, the following:

- Motor fuel-dispensing facilities
- Retail or wholesale stores
- Restaurants and drinking establishments with an occupant load of less than 50 persons.
- Sales rooms

309.2 Quantity of hazardous materials.

The aggregate quantity of nonflammable solid and nonflammable or noncombustible liquid hazardous material stored or displayed in a single control area of Group M occupancy shall not exceed the quantities in Table 414.2.5(1).

Table 414.2.5(1) lists maximum quantities allowable without classifying the building as a Group H occupancy.

SECTION 311
STORAGE GROUP S

311.1 Storage Group S.

Storage Group S occupancy includes, among others, the use of a building or structure, or apportion thereof, for storage that is not classified as a hazardous occupancy.

311.2 Moderate-hazard storage, Group S-1.

Buildings occupied for storage uses that are not classified as Group S-2 including, but not limited to, storage of the following:

- Aerosols, Levels 2 and 3
- Bags; cloth, burlap and paper
- Belting; canvas and leather
- Books and paper in rolls or packs
- Boots and shoes
- Cardboard and cardboard boxes
- Clothing, woolen wearing apparel
- Furniture
- Glues, mucilage, pastes and size
- Leather
- Linoleum
- Lumber
- Motor vehicle repair garages complying with the maximum allowable quantities of hazardous materials listed in Table 307.1(1) (see Section 406.6)
- Resilient flooring
- Soaps
- Tires, bulk storage of

311.3 Low-hazard storage, Group S-2.

Includes, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions; or in paper wrappings. Such products are permitted to have a negligible amount of plastic trim, such as knobs, handles or film wrapping. Group S-2 storage uses shall include, but not be limited to, storage of the following:

- Beverages
- Cement in bags
- Chalk and crayons
- Dairy products in nonwaxed coated paper containers
- Dry cell batteries
- Food products
- Foods in noncombustible containers
- Fresh fruits and vegetables in nonplastic trays or containers
- Frozen foods
- Glass bottles, empty or filled with noncombustible liquids

Inert pigments
Meats
Metal cabinets
Metal desks with plastic tops and trim
Metal parts
Metals
Parking garages, open or enclosed
Porcelain and pottery
Stoves
Talc and soapstones
Washers and dryers

SECTION 313
DAY-CARE OCCUPANCY GROUP D

313.1 Scope.

Group D occupancy is the use of a building or structure, or any portion thereof, in which three or more clients receive care, maintenance and supervision, by other than their relative(s) or legal guardian(s), for less than 24 hours per day. Occupancies that include part-day preschools, kindergartens and other schools whose purpose is primarily educational even though the children are of preschool age shall comply with the provisions for Group E occupancies.

313.2 Subclassifications.

Day care occupancies in which more than 12 clients receive care, maintenance and supervision, by other than their relative(s) or legal guardian(s), for less than 24 hours per day shall be classified as day care occupancies. Day care occupancies of 12 or fewer clients shall be classified as day care homes and shall be divided into classifications as set forth in this section.

313.2.1 Family day care home.

A family day care home is a day care home in which more than three but fewer than seven clients receive care, maintenance and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day with no more than two clients incapable of self-preservation.

313.2.2 Group day care home.

A group day care home is a day care home in which at least seven but not more than 12 clients receive care, maintenance, and supervision by other than their relative(s) or legal guardian(s) for less than 24 hours per day with no more than three clients incapable of self-preservation.

313.2.4 Group D occupancies.

Group D occupancies shall include, among others, the following:

Child day care occupancies
Nursery schools
Day care homes
Kindergarten classes that are incidental to a child day care occupancy.

In cases where care is incidental to some other occupancy, the section of this code governing such other occupancy shall apply.

Day-care occupancies that are a part of a pre-K through grade 12 Educational occupancy are classified as Group E, Educational occupancy.

Chapter 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY
Florida Building Code, Building

SECTION 401
SCOPE

401.1 Detailed use and occupancy requirements.

In addition to the occupancy and construction requirements in this code, the provisions of this chapter apply to the special uses and occupancies described herein.

401.2 Additional design criteria.

401.2.1 Scope.

In addition to the provisions of this chapter, the following special occupancies, standards, requirements and codes shall conform to the following sections:

Section 423: State requirements for educational facilities
Section 443: Schools, Colleges and Universities.

401.2.2 General.

Where in any specific case, Sections 419 through 437 and 443 specify different materials, methods of construction, design criteria or other requirements than found in this code, the requirements of Sections 419 through 437 and 443 shall be applicable.

Provisions concerning materials, methods of construction, design criteria, or any other requirements specific to educational facilities are found in Section 423, Florida Building Code. In the event of any conflict between other portions of the Florida Building Code and Section 423, the requirements of Section 423 govern and shall be applicable.

In the event of any conflict between the Florida Building Code and the Florida Fire Prevention Code, the more restrictive requirement shall be applicable.

SECTION 410
STAGES AND PLATFORMS

410.1 Applicability.

The provisions of this Section 410.1 through 410.7 shall apply to all parts of buildings and structures that contain stages or platforms and similar appurtenances as herein defined.

410.2 Definitions.

The following words and terms shall, for the purposes of this section and as used elsewhere in this code, have the meanings shown herein.

FLY GALLERY. A raised floor area above a stage from which the movement of scenery and operation of other stage effects are controlled.

GRIDIRON. The structural framing over a stage supporting equipment for hanging or flying scenery and other stage effects.

PINRAIL. A rail on or above a stage through which belaying pins are inserted and to which lines are fastened.

PLATFORM. A raised area within a building used for worship, the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round stages; and similar purposes wherein there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. A temporary platform is one installed for not more than 30 days.

PROSCENIUM WALL. The wall that separates the stage from the auditorium or assembly seating area.

STAGE. A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting and sound.

A stage is defined as a space within a building used for entertainment or presentations including the use of drops, scenery, or other stage effects. The intent of the Florida Building Code is to permit non-theatrical stages to be categorized as platforms.

410.3 Stages.

Stage construction shall comply with Sections 410.3.1 through 410.3.7.

410.3.1 Stage construction.

Stages shall be constructed of materials as required for floors for the type of construction of the building in which such stages are located.

Exceptions:

1. Stages of Type IIB or IV construction with a nominal 2-inch (51 mm) wood deck, provided that the stage is separated from other areas in accordance with Section 410.3.4.
2. In buildings of Type IIA construction, a fire-resistance-rated floor is not required, provided the space below the stage is equipped with an automatic fire-extinguishing system in accordance with Section 903 or 904.
3. In all types of construction, the finished floor shall be constructed of wood or approved noncombustible materials. Openings through stage floors shall be equipped with tight-fitting, solid wood trap doors with approved safety locks.

410.3.1.1 Stage height and area.

Stage areas shall be measured to include the entire performance area and adjacent backstage and support areas not separated from the performance area by fire-resistance-rated construction. Stage height shall be measured from the lowest point on the stage floor to the highest point of the roof or floor deck above the stage.

The Florida Fire Prevention Code, NFPA 101, refers to stages with a height greater than 50 feet as “Legitimate Stages” and stages with a height of 50 feet or less as “Regular Stages.”

(See Appendix, Legitimate Stage and Regular Stage.)

410.3.2 Galleries, gridirons, catwalks and pinrails.

Beams designed only for the attachment of portable or fixed theater equipment, gridirons, galleries and catwalks shall be constructed of approved materials consistent with the requirements for the type of construction of the building; and a fire-resistance rating shall not be required. These areas shall not be considered to be floors, stories, mezzanines or levels in applying this code.

Exception: Floors of fly galleries and catwalks shall be constructed of any approved material.

Educational facilities are required to use non-combustible construction.

410.3.3 Exterior stage doors.

Where protection of openings is required, exterior exit doors shall be protected with fire door assemblies that comply with Section 715. Exterior openings that are located on the stage for means of egress or loading and unloading purposes, and that are likely to be open during occupancy of the theater, shall be constructed with vestibules to prevent air drafts into the auditorium.

410.3.4 Proscenium wall.

Where the stage height is greater than 50 feet (15 240 mm), all portions of the stage shall be completely separated from the seating area by a proscenium wall with not less than a 2-hour fire-resistance rating extending continuously from the foundation to the roof.

410.3.5 Proscenium curtain.

Where a proscenium wall is required to have a fire-resistance rating, the stage opening shall be provided with a fire curtain complying with NFPA 80 or an approved water curtain complying with Section 903.3.1.1 or, in facilities not utilizing the provisions of smoke-protected assembly seating in accordance with Section 1028.6.2, a smoke control system complying with Section 909 or natural ventilation designed to maintain the smoke level at least 6 feet (1829 mm) above the floor of the means of egress.

Proscenium opening protection is required for Legitimate Stages. See the Florida Fire Prevention Code, NFPA 101, for more information. (See Appendix, Legitimate Stage.)

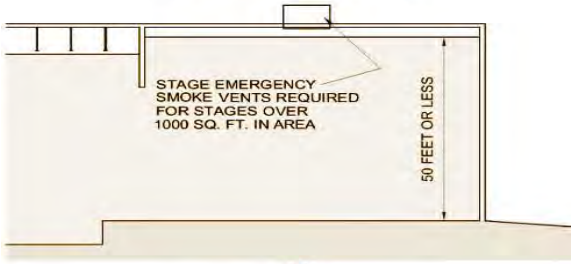
410.3.7 Stage ventilation.

Emergency ventilation shall be provided for stages larger than 1,000 square feet (93 m²) in floor area, or with a stage height greater than 50 feet (15 240 mm). Such ventilation shall comply with Section 410.3.7.1 or 410.3.7.2.

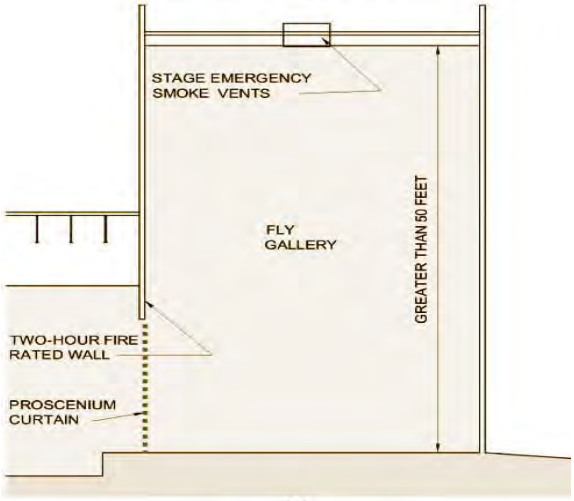
410.3.7.1 Roof vents.

Two or more vents constructed to open automatically by approved heat-activated devices and with an aggregate clear opening area of not less than 5 percent of the area of the stage shall be located near the center and above the highest part of the stage area. Supplemental means shall be provided for manual operation of the ventilator. Curbs shall be provided as required for skylights in Section 2610.2. Vents shall be labeled.

(a)
Platform
Schematic Section Diagram



(b)
Regular Stage
Schematic Section Diagram



(c)
Legitimate Stage
Schematic Section Diagram

410.3.7.2 Smoke control.

Smoke control in accordance with Section 909 shall be provided to maintain the smoke layer interface not less than 6 feet (1829 mm) above the highest level of the assembly seating or above the top of the proscenium opening where a proscenium wall is provided in compliance with Section 410.3.4.

410.4 Platform construction.

Permanent platforms shall be constructed of materials as required for the type of construction of the building in which the permanent platforms is located. Permanent platforms are permitted to be constructed of fire-retardant-treated wood for Types I, II and IV construction where the platforms are not more than 30 inches (762 mm) above the main floor, and not more than one-third of the room floor area and not more than 3,000 square feet (279 m²) in area. Where the space beneath the permanent platform is used for storage or any other purpose other than equipment, wiring or plumbing, the floor assembly shall not be less than 1-hour fire-resistance-rated construction. Where the space beneath the permanent platform is used only for equipment, wiring or plumbing, the underside of the permanent platform need not be protected.

Fire-retardant wood, as described in the Florida Building Code, Section 410.4, is prohibited in educational facilities.

See Section 423.8.3, Florida Building Code, for further information.

410.4.1 Temporary platforms.

Platforms installed for a period of not more than 30 days are permitted to be constructed of any materials permitted by the code. The space between the floor and the platform above shall only be used for plumbing and electrical wiring to platform equipment.

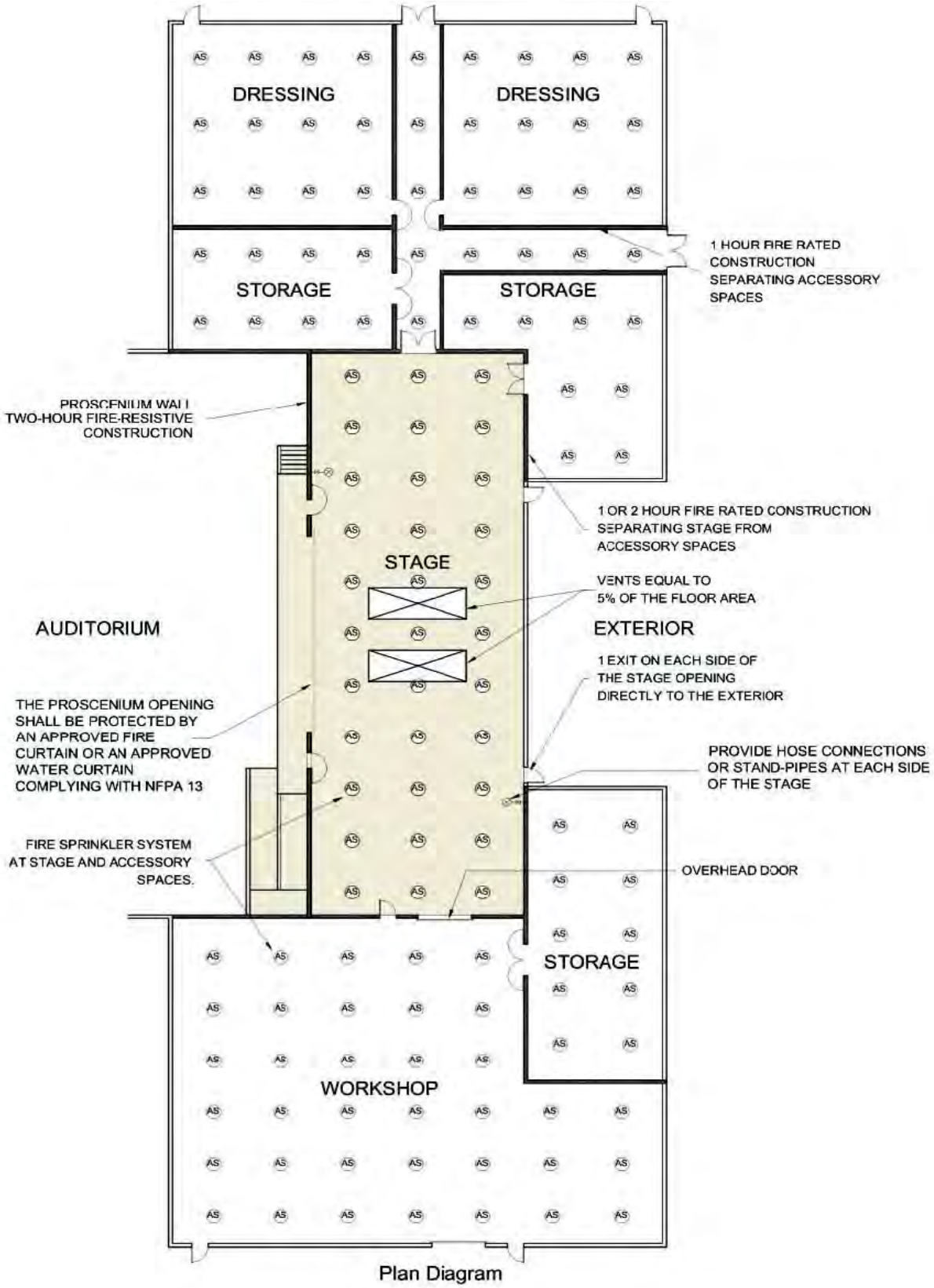
410.5 Dressing and appurtenant rooms.

Dressing and appurtenant rooms shall comply with Sections 410.5.1 through 410.5.3.

410.5.1 Separation from stage.

The stage shall be separated from dressing rooms, scene docks, property rooms, workshops, storerooms and compartments appurtenant to the stage and other parts of the building by fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. The minimum fire-resistance rating shall be 2 hours for stage height greater than 50 feet (15,240 mm) and 1-hour for stage heights of 50 feet (15,240 mm) or less.

(See Appendix, Legitimate Stage.)



Legitimate Stage
(Stages over 1,000 Sq. Ft. or with a Stage Height over 50 Ft.)
Figure 410.5.1

410.5.2 Separation from each other.

Dressing rooms, scene docks, property rooms, workshops, storerooms and compartments appurtenant to the stage shall be separated from each other by not less than 1-hour fire barriers constructed in accordance with Section 707 or horizontal assembles constructed in accordance with Section 712, or both.

Although Section 12.4, Florida Fire Prevention Code, NFPA 101, permits an exception to the 1-hour separation requirement for accessory rooms that are contiguous to stages with an area not exceeding 1,000 sq. ft., the Florida Building Code does not grant this provision and, therefore, this exception is not allowed in educational facilities.

(See Appendix, Legitimate Stage and Appendix, Regular Stage.)

410.5.3 Stage exits.

At least one approved means of egress shall be provided from each side of the stage and from each side of the space under the stage. At least one means of escape shall be provided from each fly gallery and from the gridiron. A steel ladder, alternating tread stairway or spiral stairway is permitted to be provided from the gridiron to a scuttle in the stage roof.

(See Appendix, Legitimate Stage.)

410.6 Automatic sprinkler system.

Stages shall be equipped with an automatic fire-extinguishing system in accordance with Chapter 9. Sprinklers shall be installed under the roof and gridiron and under all catwalks and galleries over the stage. Sprinklers shall be installed in dressing rooms, performer lounges, shops and storerooms accessory to such stages.

Exceptions:

1. Sprinklers are not required under stage areas less than 4 feet (1219 mm) in clear height that are utilized exclusively for storage of tables and chairs, provided the concealed space is separated from the adjacent spaces by not less than 5/8-inch (15.9 mm) Type X gypsum board.
2. Sprinklers are not required for stages 1,000 square feet (93m^2) or less in area and 50 feet (15 240 mm) or less in height where curtains, scenery or other combustible hangings are not retractable vertically. Combustible hangings shall be limited to a single main curtain, borders, legs and a single backdrop.

Heat detectors are required under stage storage areas less than 4 feet clear in height in accordance with Section 423.7.7, Florida Building Code.

(See Appendix, Legitimate Stage and Appendix, Regular Stage.)

410.7 Standpipes.

Standpipe systems shall be provided in accordance with Section 905.

SECTION 423
STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES

423.1 Scope: Public educational facilities.

Public educational facilities shall comply with the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal. These are minimum standards; boards may impose more restrictive requirements. Additional requirements for public educational facilities in Florida, including public schools and public Florida colleges, are found in these standards.

> **Note:** Other administrative and programmatic provisions may apply. See Department of Education Rule 6-2 and Chapter 1013, Florida Statutes.

423.2 Public schools and Florida colleges general requirements.

423.2.1 Owner.

Each school board and Florida college board of trustees is deemed to be the owner of facilities within its respective jurisdiction. Boards shall provide for enforcement of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal, including standards for health, sanitation, and others as required by law.

423.2.2 Exemption from local requirements.

All public educational and ancillary plants constructed by a school board or a Florida college board are exempt from all other state, county, district, municipal, or local building codes, interpretations, building permits, and assessments of fees for building permits, ordinances, road closures, and impact fees or service availability fees as provided in Section 1013.37(1)(a), Florida Statutes.

423.3 Code enforcement.

423.3.1 School boards and Florida college boards.

Section 553.80(6), Florida Statutes, provides options for plan review services and inspections by school boards and Florida college boards.

Section 1013.38, Florida Statutes, provides options for plan review, services, and inspections.

423.3.2 Owner review and inspection.

A school board or Florida college board which undertakes the construction, remodeling, renovation, lease, or lease-purchase of any educational plant or ancillary facility, or day labor project, regardless of cost or fund source, shall review construction documents as required by law in Section 1013.38, Florida Statutes and Section 553.80(6), Florida Statutes and shall ensure compliance with requirements of law, rule, and the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal. Section 553.80(6), Florida Statutes, states that district school boards and Florida college boards shall provide for plan review and inspections for their projects. They shall use personnel certified under Part XII of Chapter 468, Florida Statutes to perform the plan reviews and inspections or use one of the options provided in Section 1013.38, Florida Statutes. Under this arrangement, school boards and Florida college boards are not subject to local government permitting, plan review, and inspection fees.

Information regarding owner review and inspection is provided in Section 1013.38, Florida Statutes.

423.3.3 Local government review and inspection.

As an option to the owner providing plan review and inspection services, school boards and Florida college boards may use local government code enforcement offices who will not charge fees more than the actual labor and administrative costs for the plan review and inspections. Local government code enforcement offices shall expedite permitting. Any action by local government not in compliance with Section 553.80(6), Florida Statutes may be appealed to the Florida Building Commission, which may suspend the authority of that local government to enforce the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal on the facilities of school boards and Florida college boards.

423.3.4 Other regulatory agencies.

Boards shall coordinate the planning of projects with state and regional regulatory and permitting agencies, as applicable. Other state or local agencies may inspect new construction or existing facilities when required by law; however, such inspections shall be in conformance with the code as modified by this section.

423.3.5 Day labor projects.

Any one construction project estimated to cost $300,000 or less where bonafide board employees or contracted labor provide the work. Day labor projects are subject to the same Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal as new construction.

423.3.6 Routine maintenance.

Maintenance projects are subject to the same Florida Building Code and Florida Fire Prevention Code as adopted by the State Fire Marshal as new construction. Chapter 489, Florida Statutes, exempts boards from the use of a licensed general contractor for projects up to $300,000 where bonafide board employees provide the work. Maintenance projects estimated to cost more than $300,000 and which include construction, renovation and/or remodeling, shall be reviewed for compliance with the code.

423.3.7 Certificate of occupancy.

New buildings, additions, renovations, and remodeling shall not be occupied until the building has received a certificate of occupancy for compliance with codes that were in effect on the date of permit application.

423.3.8

Reuse and prototype plans shall be code updated with each new project.

According to Section 1013.37(2)(a), Florida Statutes, when prototype plans are reused on another site, the facilities list and Phase III Construction Documents must be updated for the new site as well as for compliance with the Florida Building Code, the Florida Fire Prevention Code, NFPA 101, and any laws relating to fire safety, health and sanitation, casualty safety, and access for physically handicapped individuals that are in effect at the time a construction contract is awarded.

423.4 Reference documents.

School Boards and Florida College Boards of Trustees. In addition to complying with the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal, and other adopted standards and this section, public educational facilities and sites shall comply with applicable federal and state laws and rules.

found online at ***www.cpsc.gov/cpscpub/pubs/325.pdf.***

423.4.1 Rule 6-2 [State Requirements for Educational Facilities (SREF)].

A Florida Department of Education document which includes required design standards, standards for rehabilitation of historical resources, capital outlay project process requirements, and various agencies having jurisdiction during project planning and construction.

Note: The correct reference is Rule 6A-2.0010, Florida Administrative Code (FAC).

Rules 6A-2.0010 FAC, and SREF, Chapters 1-6, can be found online at ***www.fldoe.org/edfaci*.**

423.4.2 Flood resistant construction.

Educational facilities in flood hazard areas shall comply with ASCE 24.

For flood resistant construction, see ***www.floods.org/PDF/ASCE24_Highlights_1008.pdf.***

423.4.3 Florida statutes and state rules.

Including, but not limited to, Chapters 1013, 240, 255, 468, 471, 481, 489, 553, 633, and Section 287.055, Florida Statutes, and various state rules as applicable to specific projects.

Florida Statutes and State Rules can be found online at ***www.flrules.org*.**

See especially Chapter 1013, Florida Statutes (Educational Facilities). For additional information, see ***www.leg.state.fl.us/statutes.***

423.4.4 Accessibility requirements for children's environments.

U.S. Department of Justice and the U.S. Architectural and Transportation Barriers Compliance Board.

Accessibility Guidelines for Children's Environment are available at ***www.access-board.gov/ada-aba/final.cfm*.**

423.4.5 Handbook for public playground safety.

Playgrounds and equipment shall be designed and installed using the Handbook for Public Playground Safety by the U. S. Consumer Product Safety Commission, and the ASTM/CPSC Playground Audit Guide as applicable.

The "Handbook for Public Playground Safety," can be

423.4.6 ANSI Z53.1.

American National Standard Safety Color Code for marking Physical Hazards, is used in shops where machinery requires marking and safety zones.

For additional information, see ***www.ansi.org.***

423.4.7 ASCE 7.

American Society of Civil Engineers.

A commentary for ASCE 7-10 is provided at the end of ASCE 7-10.

For additional information, see ***www.asce.org.***

423.4.8

Life Cycle Cost Guidelines for Materials and Buildings for Florida's Public Educational Facilities, available from the Department of Education, Bureau of Educational Facilities shall be considered.

423.5 Definitions.

423.5.1 "Assembly"

Assembly occupancies are buildings or portions of buildings used for gatherings of 50 or more persons, such as auditoriums, gymnasiums, multipurpose rooms, classrooms and labs, cafeterias, stadiums, media centers and interior courtyards. Assembly occupancies include adjacent and related spaces to the main seating area, such as stages, dressing rooms, workshops, lobbies, rest rooms, locker rooms, and store rooms. School board and Florida college facilities shall follow the requirements of Florida Fire Prevention Code as adopted by the State Fire Marshal for assembly spaces.

Auditoriums and gymnasiums are considered mixed occupancies. See Section 423.8.1.1., Florida Building Code.

423.5.2 "Board"

Means a district school board and a Florida college board of trustees.

423.5.3 "Boiler"

Is a fuel-fired, heat-producing appliance with a minimum input capacity of (60,000) Btu per hour and intended to supply hot water or steam. Boilers and the inspection of boilers shall comply with the Boiler Safety Act of 1987.

Any fuel-fired equipment, including fuel-fired water heaters, having an input capacity of 60,000 BTU's per hour or more, are considered boilers.

423.5.4 "Certificate of occupancy"

Is documentation issued by an authority having jurisdiction which indicates inspection and approval of completion of a construction project pursuant to the requirements of Florida law.

423.5.5 "Courtyard"

Is a court or enclosure adjacent to, or surrounded by, a building(s) and/or walls.

423.5.5.1 "Exterior courtyard"

Is a courtyard which is not roofed, has a minimum width of 40 feet (1219 mm), and

a. has an opening a minimum width of 40 feet (1219 mm), with no obstruction, on at least one end, or
b. has fences between the buildings for security purposes and the required exiting capacity of the courtyard Is provided for by means of doors or gates from the courtyard.

An exterior courtyard may be considered exterior space and used for exiting of adjacent spaces. For an exterior courtyard with an opening between 40 feet (1219 mm) and 60 feet wide (18 288 mm), the building walls and wall openings must meet the requirements of the Florida Building Code, Building Tables 601 and 602 and the maximum travel to the courtyard opening/exit shall not exceed 150 feet (45 720 mm) from any point within the courtyard. If the minimum courtyard width exceeds 60 feet (18 288 mm), the travel distance to a courtyard opening/exit may exceed 150 feet (945 720 mm).

The Florida Building Code allows an exterior courtyard, as defined above, to be considered exterior space and permits it to be used as an exit for adjacent spaces.

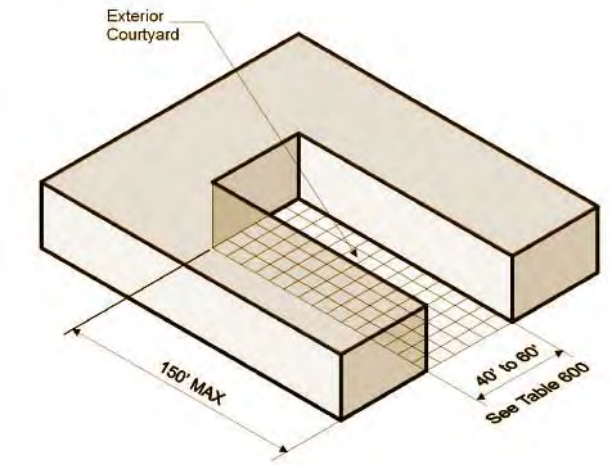


Figure 423.5.5.1(a)
Exterior Courtyard

According to the Florida Building Code, a courtyard is considered an Exterior courtyard if its width is 40 feet or greater, one of its sides has a clear opening width of 40 feet or more, and it is not roofed. The provisions in this section recognize that courtyards used as a portion of an exit discharge to a public way must be of sufficient size and width to provide all occupants with a safe access to that public way.

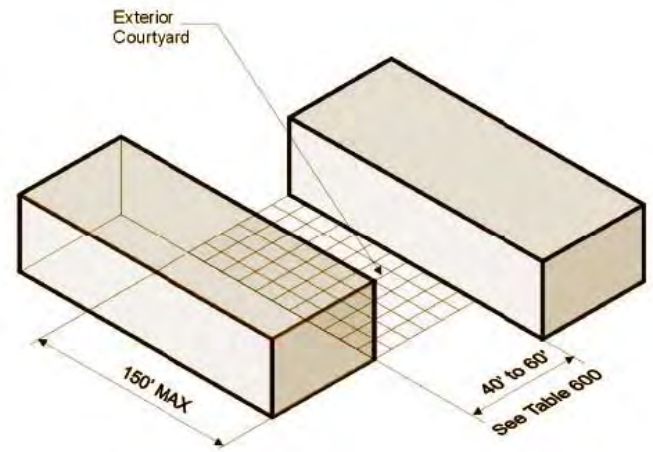


Figure 423.5.5.1(b)
Exterior Courtyard

423.5.5.2 "Enclosed courtyard"

Is a courtyard which is not roofed by more than 50 percent of the courtyard area and which is substantially surrounded by a building(s) on two sides or more and each opening to the exterior is less than 40 feet (1219 mm) in width. The courtyard area shall be calculated for maximum occupancy as an assembly space and the

number and size of remotely located exits shall be calculated for the maximum possible load. The maximum possible load is the greater of the calculated capacity of the courtyard or the load imposed by the surrounding spaces. An enclosed courtyard may be used as a component of exit access provided that the walls and wall openings meet the requirements of Florida Building Code, Building Tables 601 and 602 and the maximum travel to the exit discharge does not exceed 150 feet (45 720 mm) from any point within the enclosed courtyard. An enclosed courtyard cannot serve as the exterior for exiting or for emergency rescue openings.

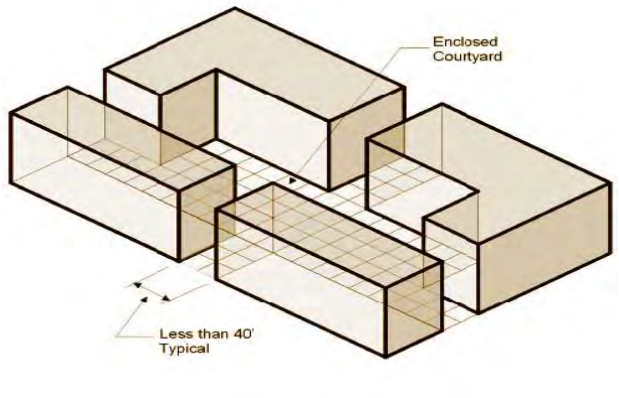


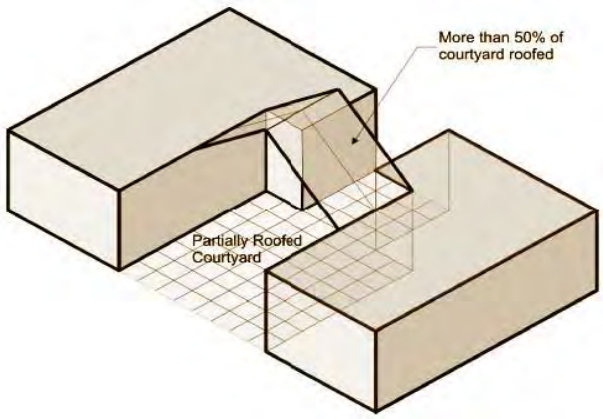
Figure 423.5.5.2
Enclosed Courtyard

Due to the limited size of openings to the exterior, an enclosed courtyard is not permitted to be used as the exterior for exiting or for emergency rescue openings and may only be used as a component of exit access when all of the criteria of Section 423.5.5.2, Florida Building Code, are met.

423.5.5.3 "Roofed courtyard"

Is a courtyard which is roofed by more than 50 percent of the courtyard area in any manner. Courtyards may be used for assembly spaces and may not be used as a component of exiting from adjacent spaces.

A roofed courtyard may be used for assembly purposes only and may not be used for egress.



423.5.6 "Facility"

Is additionally defined as follows:

423.5.6.1 "Ancillary facility"

Is a building or other facilities necessary to provide district-wide support services, such as an energy plant, bus garage, warehouse, maintenance building, or administrative building.

423.5.6.2 "Ancillary plant"

Is buildings, site, and site improvements necessary to provide district-wide vehicle maintenance, storage, building maintenance activities, or administrative functions necessary to provide support services to an educational program.

423.5.6.3 "Auxiliary facility"

Consists of the support spaces located at educational facilities and plants which do not contain student stations but are used by students, such as libraries, administrative offices, and cafeterias.

423.5.6.4 "Educational facility"

Consists of buildings and equipment, structures, and special educational use areas that are built, installed, or established to serve primarily the educational purposes and secondarily the social and recreational purposes of the community.

423.5.6.5 "Educational plant"

Comprises the educational facilities, site, and site improvements necessary to accommodate students, faculty, administrators, staff, and the activities of the educational program.

423.5.6.6 “Existing facility”

Is a facility owned, rented or leased.

423.5.6.7 “Leased facility”

Is a facility not owned, but contracted for use.

423.5.6.8 “Permanent facility”

Is a facility designed for a fixed location.

423.5.6.9 “Relocatable/portable facility”

Is a building which is designed with the capability of being moved to a new location.

423.5.6.10 “Modular facility”

Is a structure which, when combined with other modules and/or demountable roof and/or wall sections, forms a complete building. This facility may be relocatable.

423.5.7 “Maintenance and repair”

Is the upkeep of educational and ancillary plants including, but not limited to, roof or roofing replacement, short of complete replacement of membrane or structure; repainting of interior or exterior surfaces; resurfacing of floors; repair or replacement of glass and hardware; repair or replacement of electrical and plumbing fixtures; repair of furniture and equipment; replacement of system equipment with equivalent items meeting current code requirements providing that the equipment does not place a greater demand on utilities, structural requirements are not increased, and the equipment does not adversely affect the function of life safety systems; traffic control devices and signage; and repair or resurfacing of parking lots, roads, and walkways. Does not include new construction, remodeling, or renovation, except as noted above.

423.5.8 “New construction”

Is any construction of a building or unit of a building in which the entire work is new. An addition connected to an existing building is considered new construction.

423.5.9 “Open plan building”

Is any building which does not have corridors defined by permanent walls and is entirely open or divided by partitions which may be easily rearranged.

423.5.10 “Open plan instructional space”

Are arrangements of two or more class areas with no permanent partitions or wall separations.

423.5.11 “Owner”

Of facilities within a respective jurisdiction consists of each school board and Florida college board of trustees is deemed to be the owner of facilities within its respective jurisdiction.

423.5.12 “Permit”

For construction is documentation issued by an authority having jurisdiction which indicates approval of construction plans prepared pursuant to the requirements of Florida law.

Per Section 468.604, Florida Statutes, the permit is issued by the building official.

423.5.13 “Remodeling”

Is the changing of existing facilities by rearrangement of space and/or change of use. Only that portion of the building being remodeled must be brought into compliance with the Florida Building Code and Florida Fire Prevention Code as adopted by the State Fire Marshal unless the remodeling adversely impacts the existing life safety systems of the building.

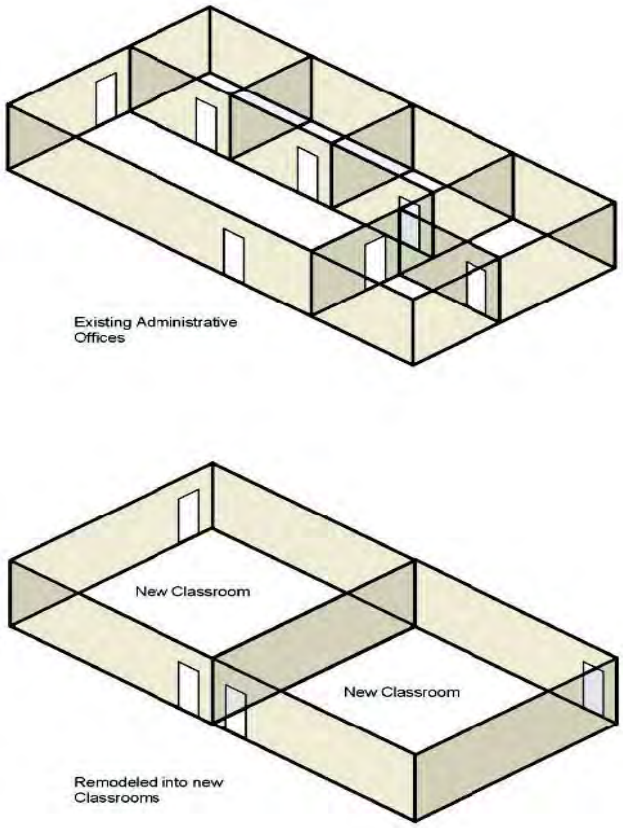


Figure 423.5.13
Remodeling Example

If a student-occupied space is remodeled and if the primary exiting from the remodeled space is required to go through an existing exit access corridor, the corridor shall meet the requirements for 1-hour fire-rated construction. The existing exit access corridor shall meet the 1-hour rating from the remodeled space to the exit discharge in at least two directions, unless a single exit access corridor exists, in which the travel distance to the exit discharge from the most distant point in the space does not exceed 75 feet of travel. Corridors in fully sprinklered buildings shall meet requirements for smoke-tight construction.

423.5.14 "Renovation"

Is the rejuvenating or upgrading of existing facilities by installation or replacement of materials and equipment, The use and occupancy of the spaces remain the same. Only that portion of the building being renovated must be brought into compliance with the Florida Building Code and Florida Fire Prevention Code as adopted by the State Fire Marshal unless the renovation adversely impacts the existing life safety systems of the building.

Examples of renovations in educational facilities include, but are not limited to, new ceiling tiles and lighting fixtures, HVAC upgrades, flooring replacement, and refinished walls.

423.5.15 "Separate atmosphere"

Is the individual volumes of air in a building which are divided by smoke proof barriers to limit contamination of the air by smoke and fumes during a fire.

423.5.16 "Separate building"

For the purpose of separate fire alarm systems or sprinkler systems is a structure separated from other buildings by 60 feet (18 288 mm) or more, or as required by other sections of this code.

Separation requirements shall be in accordance with Table 602 of the Florida Building Code.

423.5.17 Florida college

Is a public community college, public college, state college or public junior college.

423.5.18 "Student-occupied space"

Are any area planned primarily for use by six or more students.

423.6 Administration of public education projects.

423.6.1 Occupancy during construction.

School board and Florida college board facilities, or portions of facilities, shall not be occupied during construction unless exits, fire detection and early warning systems, fire protection, and safety barriers are continuously maintained and clearly marked at all times. Construction on an occupied school board site shall be separated from students and staff by secure barriers. Prior to issuance of the notice to proceed, a safety plan shall be provided by the contractor which clearly delineates areas for construction, safety barriers, exits, construction traffic during the various phases of the project and when conditions change. Where heavy machinery, as is used for earth moving or scraping, is required to work on a school board's occupied site, the work shall be separated from occupants by secure double barriers with a distance of 10 feet (3048 mm) in between. New construction, remodeling or renovations in existing facilities shall not reduce the means of egress below the requirements for new buildings; safe means of egress from a student-occupied space may be accomplished as authorized by NFPA 101, Florida edition as adopted by the Florida Fire Prevention Code. New construction (additions) shall not block or reduce safe means of egress.

423.6.2 Contractor toxic substance safety precautions.

When hazardous chemicals as defined by 29 CFR 1910.1200, OSHA Hazard Communication Standard are to be used during the maintenance, renovation, remodeling, or addition to an existing facility, the contractor shall notify the administrator in writing at least three working days before any hazardous chemical is used. The notice shall indicate the name of each of the hazardous chemicals to be used, where and when they will be used, and a copy of a Material Safety Data Sheet (MSDS) for each hazardous chemical. The contractor shall comply with the safety precautions and handling instructions set forth in the MSDS. Copies of hazardous waste manifests documenting disposal shall be provided to the facility's administrator who will notify occupants of the anticipated presence of toxic substances during the maintenance, renovation, remodeling, or addition to an existing facility.

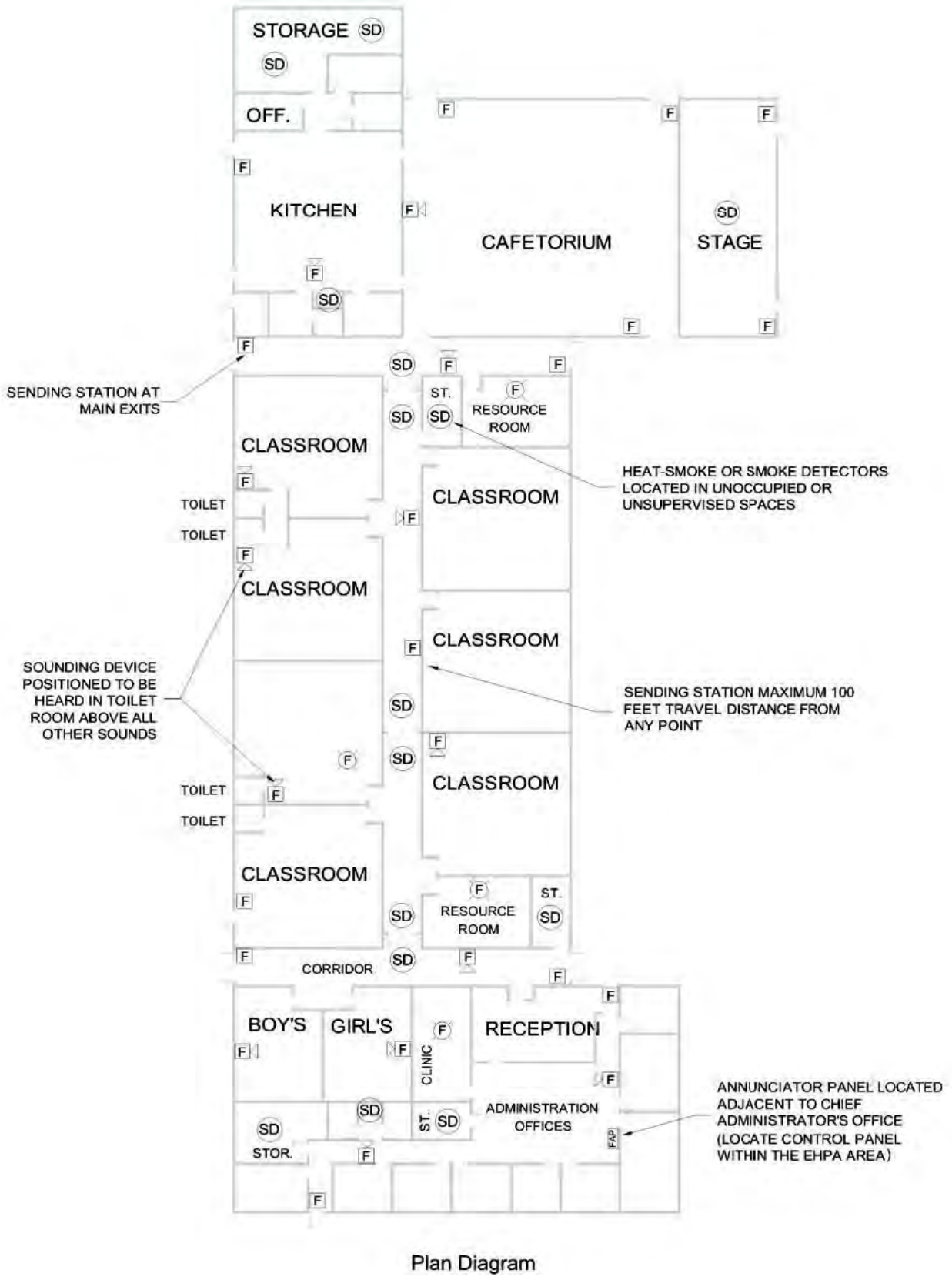


Figure 423.7
Fire Alarm Systems

423.6.3 Flammable or explosive substances.

No flammable or explosive substances or equipment shall be introduced during a remodeling or renovation project in a facility of normally low or ordinary hazard classification while the building is occupied.

423.7 Life safety.

423.7.1 Separate exits.

In assembly occupancies, each required exit must exit into a separate atmosphere or to the exterior, to be considered as a separate exit.

(See Appendix, Number of Required Means of Egress.)

423.7.2 Exit access.

Exit access shall not be through a toilet room, storage room, or similar space, or any space subject to being locked.

Exiting is prohibited through intervening spaces or rooms unless all requirements of Section 14.2.5, Florida Fire Prevention Code, NFPA 101, are met.

423.7.3 Location of fire extinguishers and blankets.

Fire extinguishers may be located inside student-occupied spaces provided they are placed adjacent to the primary exit door, and the room door remains unlocked when the facility is occupied, and a permanently affixed sign, with a red background and white letters, reading “FIRE EXTINGUISHER INSIDE” is placed on the outside adjacent to the door. Fire extinguisher cabinets shall not be locked. Fire blankets shall be located in each laboratory and each shop where a fire hazard may exist. Fire extinguishers and fire blankets shall be readily accessible and suitable for the hazard present and shall not be obstructed or obscured from view. Extinguishers and blankets shall be on hangers or brackets, shelves, or cabinets so that the top of the extinguisher or blanket is not more than 54 inches (1318 mm) above finish floor (AFF) and complies with state and federal accessibility requirements. All extinguishers shall be installed and maintained in accordance with NFPA. Extinguishers shall remain fully charged and operable at all times and have a current tag to indicate compliance.

Classrooms with fire extinguishers inside must remain unlocked at all times while the facility is occupied, including during after-hours use.

Fire extinguishers and blankets shall be in accordance with NFPA 10.

423.7.4 Common fire alarm.

Buildings within 60 feet (18 288 mm) of each other shall have a common fire alarm system. Emergency shelters shall have the fire alarm panel located in the space identified as the shelter manager’s office.

Buildings that have a separate fire alarm system should provide notification at the location of the main fire alarm panel and remote annunciator panel, which is usually located in or adjacent to the school administrator’s office.

423.7.5 Fire alarm sending stations.

Sending stations may be located inside student-occupied spaces, adjacent to the primary exit door only if the door to the occupied space is unlocked at all times while the facility is occupied. When located inside a student occupied space, a permanently affixed sign reading “FIRE ALARM PULL STATION INSIDE” shall be placed outside that space adjacent to the door. This sign shall have a red background with white letters. Sending stations shall be mounted to meet accessibility requirements.

According to the Florida Building Code, classrooms with pull stations inside must remain unlocked at all times while the facility is occupied, including during after-hours use. All classrooms with exiting directly to the exterior shall have a pull station within five feet of the exit door.

(See Appendix, Fire Alarm.)

423.7.6 Automatic shut off.

The fire alarm system shall shut off gas and fuel oil supplies which serve student-occupied spaces or pass through such spaces. The shutoff valve shall be located on the exterior at the service entrance to the building. The shutoff valve shall be of the manual reset type.

423.7.6.1 Kitchen gas supplies.

Kitchen gas supplies shall be shut-off by activation of the kitchen hood fire suppression system. The shut-off valve shall be installed in accordance with the manufacturer’s instructions and recommendations.

The automatic gas shut-off valve controlled by the kitchen hood extinguishing system is not required to be installed on the exterior of the building.

423.7.6.2 Emergency power.

The fire alarm system shall not shut off gas supplies which serve emergency power sources.

423.7.7 Unoccupied rooms and concealed spaces.

Rooms or spaces for storage, custodial closets, mechanical rooms, spaces under stages with wood structures and other unoccupied or unsupervised spaces in a building shall have automatic fire alarm system detector devices installed. Any concealed space with exposed materials having a flame spread rating greater than Class A, including crawl spaces under floors, interstitial spaces between ceiling and floor or roof above and attic spaces, shall be equipped with heat detector devices. Smoke and heat detector devices shall be installed in accordance with NFPA 72.

423.7.7.1 Fully sprinklered buildings.

In fully sprinklered buildings, fire alarm detection devices are not required except where specified in the Florida Fire Prevention Code.

See Florida Fire Prevention Code, NFPA 101 Sections 14.3.4 and 15.3.4, for alternative protection systems in fully sprinklered buildings.

423.7.8 Boiler rooms.

Each boiler room shall be separated from the remainder of the building by one hour fire rated construction or shall be separate from other buildings by 60 feet (18 288 mm), and shall have an out-swinging door opening directly to the exterior. A fire door swinging into the boiler room shall also be provided for any opening into the interior of the building. There shall be no opening into any corridor or area designed for use by students.

The requirements in Section 423.7.8, Florida Building Code, apply to rooms containing a boiler, which is defined in Section 423.5, Florida Building Code, as a fuel-fired, heat-producing appliance with a minimum input capacity of 60,000 BTU's per hour intended to supply hot water or steam.

423.8 General requirements for new construction, additions, renovation, and remodeling.

423.8.1 Codes and standards.

Educational facilities owned by school boards and Florida college boards shall meet the construction requirements of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal state and federal laws and rules, and this section for Florida's public educational facilities for new construction, remodeling and renovation of existing facilities. This is a minimum standard; boards may impose more restrictive safety and level of quality standards for educational, auxiliary, and ancillary facilities under their jurisdiction, provided they meet or exceed these minimum requirements.

423.8.1.1 Educational occupancy.

School board educational facility projects whether owned, lease-purchased or leased shall comply with the educational occupancy and assembly occupancy portions of the above referenced codes as applicable, except where in conflict with this section. The support spaces such as media centers, administrative offices and cafeterias and kitchens located within educational facilities are not separate occupancies.

Even though all spaces in an Educational occupancy are viewed by the Florida Building Code as a single-use Educational occupancy, Chapter 12, Florida Fire Prevention Code, NFPA 101, requires the exiting capacity to be determined separately for an assembly space, such as an auditorium or gymnasium, when the assembly space is to be used by the public while the school is occupied by students. Auditoriums and gymnasiums are also required to comply with Florida Building Code requirements for a mixed or separate occupancy.

The State Fire Marshal's Office has determined that assembly spaces, such as cafetoriums, with an occupancy of 300 persons or more, are considered mixed or separate occupancies and shall be fully sprinklered and have a voice evacuation system as part of the fire alarm system. For additional information, see NFPA 72, Section 6.9.

423.8.1.2 Business occupancy.

Florida college board educational facility projects whether owned, lease-purchased or leased shall comply with the business occupancy and the assembly occupancy of the above referenced codes as applicable, except where in conflict with this section.

423.8.1.3 Ancillary facility.

School board and Florida college board ancillary facilities such as warehouses or maintenance buildings shall use the applicable occupancy section of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal. Ancillary facilities on educational plant sites shall be separated from the educational facility as required by code.

423.8.2 Space standards.

School board and Florida college board facility sizes shall use standards in the "Size of Space and Occupant Design Criteria Table" found in the Department of Education document, "State Requirements for Educational Facilities (SREF)." Exiting from occupied spaces shall comply with Table 1004.1.2 of the Florida Building Code, Building.

See Chapter 6 of the State Requirements for Educational Facilities (SREF) for more information.

423.8.3 Construction type.

School board and Florida college buildings including auxiliary, ancillary and vocational facilities shall comply with the following:

423.8.3.1 Noncombustible Type I, II or IV.

The minimum construction type for one- and two-story public educational facilities shall be noncombustible Type I, II or IV construction or better.

See Table 503, Florida Building Code, for area and height limitations.

423.8.3.1.1

Interior nonload-bearing wood studs or partitions shall not be used in permanent educational and auxiliary facilities or relocatables buildings.

> **Exception:** Historic buildings to maintain the fabric of the historic character of the building.

423.8.3.2 Type I.

Facilities three stories or more shall be Type I construction.

423.8.3.3 Type IV.

When Type IV construction is used, wood shall be exposed and not covered by ceilings or other construction.

Type IV construction attains fire resistance through the size of heavy timber members.

Heavy timber members shall remain exposed to view.

See Chapter 6 of the Florida Building Code for more information.

423.8.3.4 Exceptions to types of construction:

1. Covered walkways open on all sides may be Type V construction.
2. Single story dugouts, press boxes, concession stands, related public toilet rooms, detached covered play areas, and nonflammable storage buildings that are detached from the main educational facility by at least 60 feet (1829 mm), may be Type V construction.

Spaces used for programmed instruction or field house are not exempted from Type I, II, or IV construction types.

423.8.4 Standards for remodeling and/or renovation projects.

Portions of buildings being remodeled and/or renovated shall be brought into compliance with current required Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal as required by the plan review authority in its best judgment.

Remodeling of educational facilities requires the entire space or spaces being remodeled to be brought into code compliance, including exit access to exit discharge. Items being renovated are required to comply with code requirements.

423.8.4.1

An automatic fire sprinkler system is not required in existing educational buildings unless 50 percent of the aggregate area of the building is being remodeled.

423.8.5 Leased facilities.

Leased facilities shall be brought into compliance with applicable occupancy requirements of the Florida Building Code and the Uniform Fire Safety Standards as adopted by the State Fire Marshal prior to occupancy.

Uniform Fire Safety Standards should read Florida Fire Prevention Code.

423.8.6 Asbestos prohibited.

The federal Asbestos Hazard Emergency Response Act, (AHERA) 40 CFR, Part 763, as revised July 1, 1995, prohibits the use of any asbestos containing materials in any public education construction project and requires certification of same by the architect of record.

Information concerning asbestos in Educational Facilities is available at: www.epa.gov/asbestos.

423.8.7 Life cycle cost guidelines for materials and building systems.

An analysis shall be included, as required by Section 1013.37(1), Florida Statutes, which evaluates building materials and systems, life cycle costs for maintenance, custodial, operating, and life expectancy against initial costs, as described in Section 1013(1)(e)4, Florida Statutes. Standards for evaluation of materials are available from the department in a publication entitled Life Cycle Cost Guidelines for Materials and Building Systems for Florida's Public Educational Facilities.

In addition to the above requirements and in accordance with Section 1013.37(1)(e), Florida Statutes, the Florida Building Code requires a Life Cycle Cost Analysis in order to evaluate the energy efficiencies of alternative architectural and engineering designs. The Life Cycle Cost Analysis is the sum of the reasonably expected fuel costs over the expected life of the building that are required to maintain illumination, water heating, temperature, humidity, ventilation, and all other energy-consuming equipment in a facility, plus the reasonable costs of probable maintenance, including labor and materials, and operation of the building.

The Department of Education's general requirements for documenting the Life Cycle Cost Analysis of mechanical systems are as follows:

a. A Life Cycle Cost Analysis (LCCA) is required for projects with an air-conditioning load of 360,000 BTU per hour (30 tons) or greater.
b. At least three schemes shall be included in the analysis and one of the schemes considered must be a central system (four-pipe chiller/boiler, two-pipe chiller, or water loop heat pump).
c. The scheme having the lowest total life cycle cost shall be installed. If alternative schemes are within four percent of the lowest total life cycle cost, then the board may make the final system selection from among those within the four-percent range. The Office of Educational Facilities shall be notified, in writing, of the scheme selected.
d. EXCEPTION: A Life Cycle Cost Analysis (LCCA) is not required when tying into an existing chilled-water system. The existing system shall have adequate capacity or be renovated to handle the total load.

Life Cycle Cost Analysis data sheets and instructions are available online at:
www.fldoe.org/edfacil/formsplanreview.asp.
www.fldoe.org/edfacil/pdf/lcca.pdf.

423.8.8 Safe school design.

School boards should design educational facilities and sites including pre-K through 12, vocational and Florida colleges to enhance security and reduce vandalism through the use of "safe school design" principles. Safe school design strategies are available from DOE/educational facilities and include but are not limited to the following:

A publication entitled "Florida Safe School Design Guidelines," which provides information on strategies to enhance security and reduce vandalism, is available under Quick Links online at: www.fldoe.org/edfacil.

These guidelines address the heightened awareness of school safety and security issues significant to the planning and design of educational facilities and are based on the idea that the proper design and management of the physical environment can help prevent criminal behavior in schools and Florida colleges.

Sections 423.8.8.1 through 423.8.8.7, Florida Building Code, provide recommendations for enhancing security and reducing vandalism in Florida's schools and Florida colleges.

423.8.8.1 Natural access and control of schools and campuses.

Natural access control is the use of design, including spatial definition and designation strategies, to deny or increase the effort and risk of entry and detection to offenders. An inherent benefit of natural access control strategies (as opposed to mechanical access control strategies such as locks, bollards, or other similar devices) is that they tend to be more cost-effective over time, especially when they are designed into the facility during the planning phase, rather than added as a retrofit.

423.8.8.2

Natural surveillance of schools and campuses both from within the facility and from adjacent streets by removing obstructions or trimming shrubbery.

Surveillance is defined as a general crime prevention strategy that seeks to decrease criminal opportunity by keeping intruders under observation and/or by increasing their perception of the risk of being observed. Natural surveillance uses design, including spatial definition and designation strategies, to increase the actual abilities of guardians to observe intruders. Examples include the placement of windows near building entryways and the design of entrance paths so that they put pedestrians in view of observers. Removing obstructions and trimming shrubbery can help facilitate natural surveillance on school campuses.

423.8.8.3

School and campus territorial integrity; securing courtyards, site lighting, building lighting.

Territorial integrity is the environment's capacity, through the design and marking of space, to create in users and residents the sense of responsibility for and control of that space such that they will protect it. Territorial integrity is enhanced by the clear definition of boundaries such that users can readily determine whether spaces are public or private in nature. Fences and gates, as well as symbolic markers of space, such as street pavers or ornamental entryways, are examples of boundary markers.

The Florida Building Code also specifies that courtyards should be properly secured and that school campuses and buildings should be adequately lit to prevent opportunities for unauthorized access, as well as reduce opportunities for misbehavior, vandalism, and more serious crimes.

423.8.8.4

Audio and motion detection systems covering ground floor doors, stairwells, offices and areas where expensive equipment is stored.

423.8.8.5

Designs which will promote the prevention of school crime and violence. Exterior architectural features which do not allow footholds or handholds on exterior walls, tamperproof doors and locks, non-breakable glass or shelter window protection system; also landscaping and tree placement should be designed so they do not provide access to roofs by unauthorized persons. Sections of schools commonly used after hours should be separated by doors or other devices from adjacent areas to prevent unauthorized access. Install locks on roof hatches; apply slippery finishes to exterior pipes.

423.8.8.6

Exterior stairs, balconies, ramps, and upper level corridors around the perimeter of buildings should have open-type handrails or other architectural features to allow surveillance.

423.8.8.7

Open areas, such as plazas, the building's main entrance, parking lots, and bicycle compounds should be designed so they are visible by workers at workstations inside the buildings.

423.9 Structural design.

423.9.1 Load importance factor.

Structural design shall comply with code requirements and wind loads as stipulated by the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal. Design shall be based on ASCE 7, with a wind speeds determined from Figure 26.5-1B and Table 1604.5, FBC.

1.15 should read 1.0, in accordance with ASCE7-10.

423.10 Site requirements.

423.10.1 Fencing.

Fencing for school board educational plants shall be of a material which is nonflammable, safe, durable, and low maintenance, provides structural integrity, strength and aesthetics appropriate for the intended location. Fences shall have no jagged or sharp projections. Fence heights shall be in compliance with local zoning regulations. Access shall be provided for maintenance machinery. Prohibited materials for nonagricultural educational plants include razor wire, barbed wire and electrically charged systems.

423.10.1.1 Required locations.

Fencing is required to separate students from potential harm, and shall be provided in the following locations:

Example fencing for exposed mechanical equipment located at ground level
Figure 423.10.1.1.1

(See Appendix, Site Requirements.)

423.10.1.1.1 Kindergarten through grade 12.

Exposed mechanical, plumbing, gas, or electrical equipment located on ground level.

Wall-mounted equipment that can be reached by students should also be considered as ground level.

423.10.1.1.2 Kindergarten through grade 5.

Special hazards as identified by the authority having jurisdiction including retention ponds whose permanent water depth or whose water depth over a 24-hour period exceeds 1 foot (305 mm), deep drainage ditches, canals, highways, play fields adjacent to roadways.

423.10.1.1.3 Kindergarten through grade 12.

All child care and kindergarten play areas.

423.10.2 Walks, roads, drives, and parking areas.

Walks, roads, drives, and parking areas on educational and ancillary sites shall be paved. Roads, drives, and parking areas shall be in compliance with Department of Transportation (DOT) road specifications and striped in compliance with DOT paint specifications. All paved areas shall have positive drainage.

423.10.2.1 Covered walks.

All buildings in K-12 educational facilities shall be connected by paved walks and accessible under continuous roof cover. New relocatable classroom buildings shall be connected to permanent buildings by paved covered walks where applicable. Roofs for covered walks shall extend 1 foot (305 mm) beyond each side of the designated walkway width. Gutters or other water funneling devices shall prevent storm water from pouring onto or draining across walks.

Wet columns should contain diverters to direct water away from the sidewalk.

(See Appendix, Site Requirements.)

423.10.2.2 Accessible walks and bridges.

Accessible walks shall connect building entrance(s) to accessible parking, public transportation stops, public streets, sidewalks, loading and drop-off zones, and other facilities within the site as required by the accessibility standards. School board sites where educational plants are separated by highways shall be connected by overhead pedestrian bridges.

(See Appendix, Site Requirements.)

Example Covered Walkway

Figure 423.10.2.1
Covered Walks

423.10.2.3 Drainage.

The location of all drains, grates, drop inlets, catch basins, other drainage elements and curb cuts shall be out of the main flow of pedestrian traffic.

423.10.2.4 Vertical drops.

Walls, railings, or other physical barriers which are at least a minimum 12 inches (305 mm) in height, shall define and protect any vertical drop between joining or abutting surfaces of more than 6 inches (152 mm) but less than 18 inches (457 mm) in height. Any vertical drop of 18 inches (457 mm) or more shall be protected by a wall or guardrail a minimum of 42 inches (1067 mm) in height.

Guardrails shall be in accordance with Section 1013, Florida Building Code.

423.10.2.5 Roads and streets.

Educational and ancillary site access shall consist of a primary road and another means of access to be used in the event the primary road is blocked. Stabilized wide shoulders of the primary road, unobstructed by landscaping, planters, light fixtures, poles, benches, etc., which allow a third lane of traffic, may satisfy the requirement for the other means of access. Driveways shall not completely encircle a school plant, to allow student access to play areas without crossing roads; vehicular and pedestrian traffic shall not cross each other on the site; bus driveways and parent pick-up areas shall be separated.

Stabilized shoulders on both sides of the primary road and stabilized surfaces for emergency vehicular access shall be at least 10 feet wide.

(See Appendix, Site Requirements.)

423.10.2.6 Bus drives.

Bus drives on educational sites shall be designed so that buses do not have to back up. The minimum width shall be 24 feet (7315 mm) for two-lane traffic. The turning radius on educational and ancillary sites and for turning off public access streets shall be as follows: one-way traffic, 60 feet (18 288 mm) minimum measured to the outside curb or edge of the traffic lane; two-way traffic, 60 feet (18 288 mm) minimum measured to the centerline of the road.

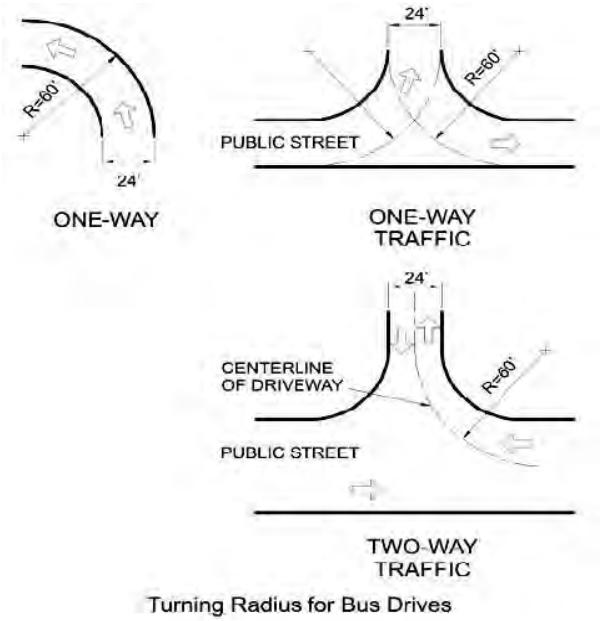


Figure 423.10.2.6
Bus Drives

Many years ago the Florida Department of Education, sponsored a study through its transportation section, to determine the minimum turning radius for school buses. At a school parking lot school buses were turned at their sharpest radii, and the radii were measured. The result was the establishment of the 60-feet radius rule for bus turning.

Since that time, bus properties have changed, as have national, state and local safety standards. The 60-feet rule, while practical, is flexible today. Other perfectly good standards are now available for the designer to use. However, the designer should submit to the reviewing authority, a copy of the page from the standard that the designer wishes to use. Concurrence with the building official for using an alternate standard is also required. Radii that are somewhat under the minimum may be accepted if the district transportation director is willing to state, in writing, that the district's buses can safely negotiate the required turn.

423.10.2.7 Vehicle parking areas.

Vehicle parking areas shall comply with minimum parking space requirements in this section. Except for parking space requirements to meet federal and state accessibility laws, where alternate transportation or parking arrangements are available the parking area requirements may be reduced from these standards if sufficient justification documentation is provided and if the review authority approves the reduction based on the justification. Overflow parking areas may utilize alternative parking surfaces which facilitate water absorption rather than runoff when approved for use by the review authority. This requirement usually applies to a percentage of the parking spaces, not all of them.

> **Exception:** Accessible parking spaces shall be hard surface.

423.10.2.8 Minimum parking requirements.

(See Appendix, Minimum Parking Requirements.)

423.10.2.8.1 Faculty and staff.

One space for each member.

423.10.2.8.2 Visitors.

One space for every 100 students.

423.10.2.8.3 Community clinics where provided.

Ten spaces, including one accessible space.

423.10.2.8.4 High schools.

One space for every 10 students in grades 11 and 12.

423.10.2.8.5 Vocational schools.

One space for every two students.

423.10.2.8.6 Florida colleges.

One space for every two students.

423.10.2.8.7 Accessible parking.

Parking spaces designated for persons with disabilities shall comply with the ADA, the Florida Building Code, Accessibility, and Section 316.1955, Florida Statutes.

423.10.3 Site lighting required.

Design, construction, and installation of exterior security lighting for educational and ancillary facilities shall be provided for:

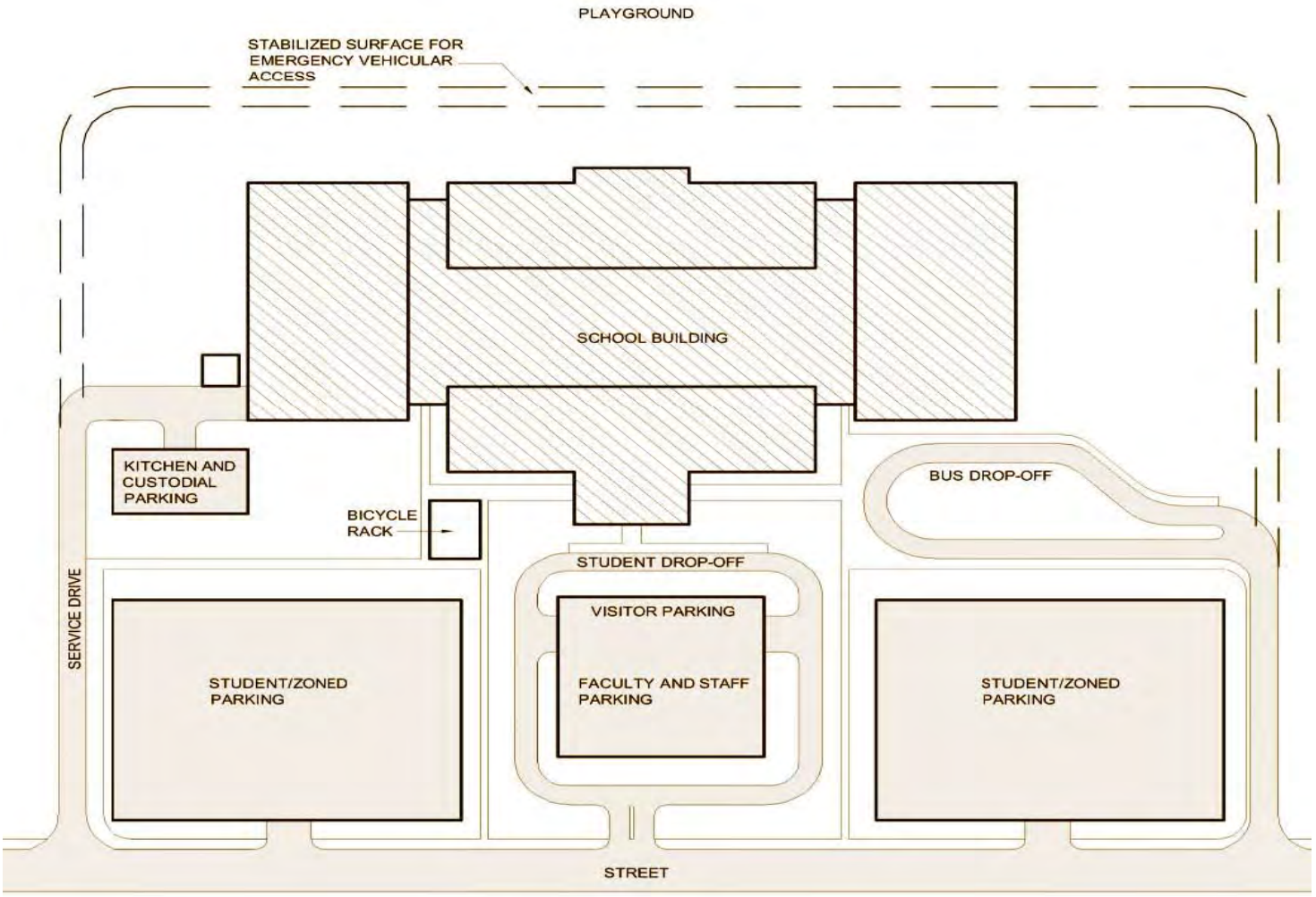
(See Appendix, Site Lighting Requirements.)

423.10.3.1

Auto, bus, and service drives and loading areas.

423.10.3.2

Parking areas.



Site Plan / Parking Schematic

423.10.3.3

Building perimeter.

423.10.3.4

Covered and connector walks between buildings and between buildings and parking.

423.10.3.5 Lighting for parking areas.

Parking area lighting standards shall be designed to withstand appropriate wind loads. Parking areas shall be illuminated to an average maintained horizontal foot-candle, measured at the surface as follows:

(See Appendix, Site Lighting Requirements.)

423.10.3.5.1

Parking areas–1 footcandle (10 lux).

423.10.3.5.2

Covered and connector walks–1 footcandle (10 lux).

423.10.3.5.3

Entrances/exits – 2 footcandles (20 lux).

423.10.3.6 Building exteriors.

Building exteriors, perimeters, and entrances may be illuminated to the minimum number of footcandles, measured at the surface with a suggested uniformity ratio of 2:1 as follows:

423.10.3.6.1

Entrances – 5 footcandles (50 lux).

423.10.3.6.2

Building surrounds–1 footcandle (10 lux).

423.10.3.7 Shielding.

Exterior lighting shall be shielded from adjacent properties.

423.10.4 Building setbacks.

Building setbacks from the property line, including relocatables, shall, at a minimum, be 25 feet (7620 mm) or shall comply with local setback requirements if less than 25 feet (7620 mm).

423.10.5 School board playgrounds, equipment, and athletic fields.

Playgrounds, equipment, and athletic fields shall be accessible, compatible with the educational facility served and shall comply with the following:

423.10.5.1

Kindergarten play areas shall be separated from other play areas, fenced, and shall be directly accessed from the kindergarten classrooms.

(See Appendix, Site Requirements.)

423.10.5.2

Playgrounds and equipment shall be designed and installed using the Handbook for Public Playground Safety by the U.S. Consumer Product Safety Commission, and the ASTM/CPSC Playground Audit Guide as applicable, resulting in facilities which are safe, structurally sound, vermin proof, and do not have jagged or sharp projections.

423.10.5.3

Direct access from the school buildings shall be provided to play areas and athletic fields without crossing public roads, on-site traffic lanes, and parking lots.

423.10.5.4

Related facilities such as toilets, concessions, storage, shower and locker rooms, bleachers, press boxes, observation platforms, scoreboards, and dugouts shall be designed to meet code requirements and the occupant capacity anticipated for the program.

423.10.5.5

Playgrounds shall be evenly graded and sloped to provide surface drainage.

423.10.6 Exterior signage.

All permanent and free-standing exterior signs shall be designed to withstand appropriate wind loads. Illuminated signs shall comply with the electrical and installation requirements of the Florida Building Code and Florida Fire Prevention Code as adopted by the State Fire Marshal.

423.10.6.1

Site signage shall not create visual barriers at entrances, sidewalks, roads or road intersections.

423.10.6.2

Accessible routes, including parking, building directories, building identification, and accessible entrances shall be marked by exterior signage in conformance with federal and state accessibility laws.

423.10.7 Landscaping.

Refer to Section 1013.64(5), Florida Statutes, for school board and Florida college requirements. Xeriscape is defined in Section 373.185, Florida Statutes.

423.10.8

Water irrigation systems shall be equipped with soil moisture sensors that will override the irrigation systems cycle when soil contains sufficient moisture.

423.10.9 Transmission line right-of-way.

Buildings, play areas, and common use areas shall not be located within a high-voltage power transmission line right-of-way.

423.10.10 School site master plan.

New schools planned after the effective date of these standards shall include, as applicable: facility design capacity; floodplain locations; covered accessible walks; infrastructure locations for, and extensions of, technology, telephone, electricity, fire alarm; and, where applicable, water and sewer utilities, and relocatables.

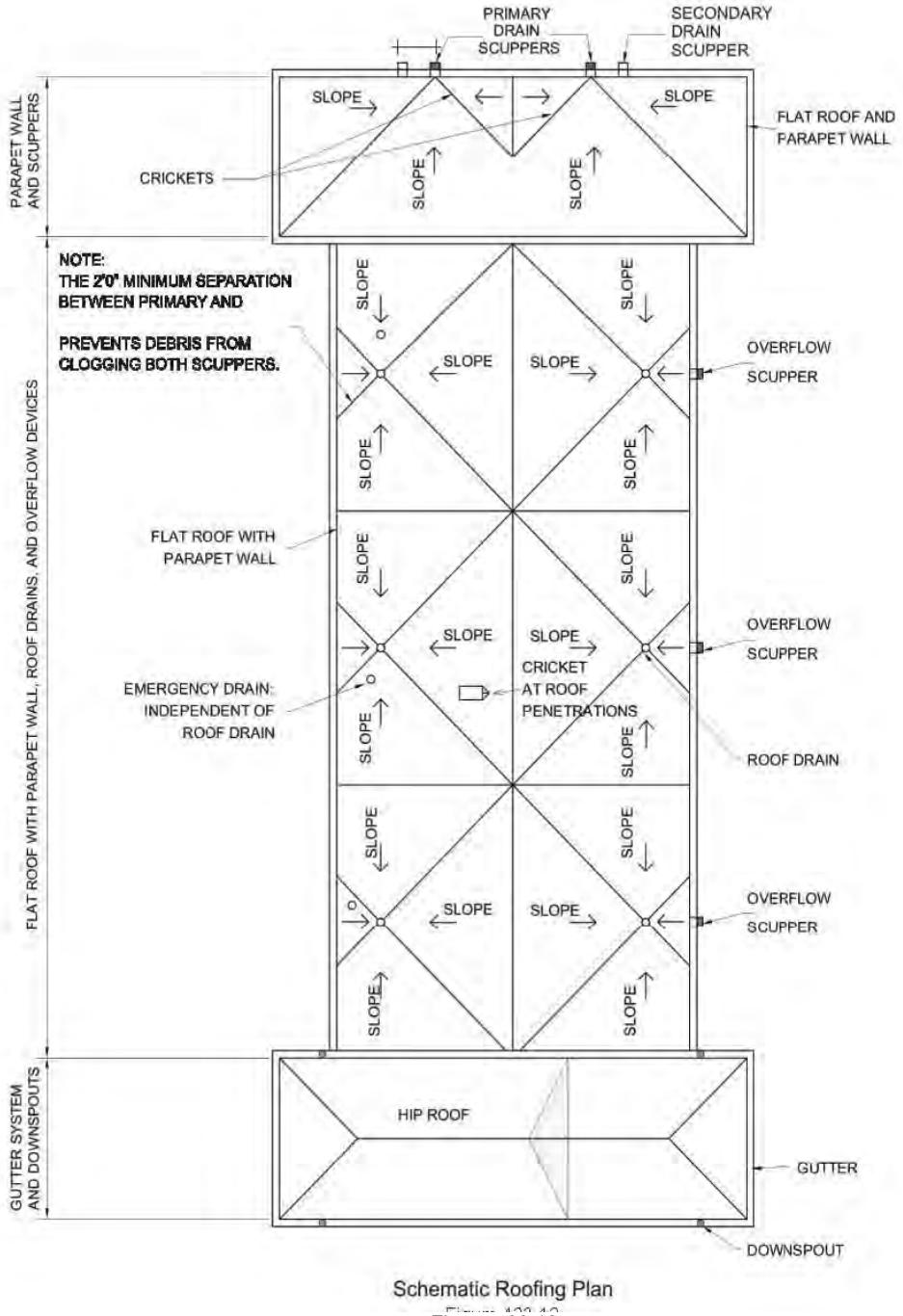


Figure 423.12
Roofing

423.11 Wood: fire-retardant and treated wood (FRTW).

FRTW shall not be used in permanent educational facilities.

Exception: Only FRTW which does not contain ammonium phosphates sulfates, or halides, may be used in roof structures of noncombustible Type II ancillary facilities as allowed by the Florida Building Code, but only under the following conditions:

423.11.1 Fire-retardant treated wood.

All FRTW must meet the requirements of Section 2303.2.

423.11.2

Inspection access panels shall be provided for annual inspection of the condition of the structure and the connectors.

423.11.3

Evidence of compliance shall be provided.

423.12 Roofing.

423.12.1 Class A materials.

All roofing materials shall be labeled Class A per ASTM E108 and shall be certified by a nationally recognized independent testing laboratory. All roofing systems shall be installed within the limitations of the test procedure for surfacing, deck cross slope, and combustibility.

The Class A rating applies only to the roofing membrane itself. Incidental materials such as nailers, curbs, blocking, cant strips, etc., are excluded.

423.12.2 Insulation and moisture protection.

Insulation, moisture protection, roofing, thermal requirements, fireproofing and firestopping shall be designed and constructed in compliance with the Florida Building Code and Florida Fire Prevention Code as adopted by the State Fire Marshal. Cellulose insulation may only be used if it is treated with fire-retardant borate based chemicals; the contractor shall retain bag labels on site for review by building inspector.

423.12.3 Phased installation prohibited.

All new installed materials shall be sealed from moisture penetration at the end of each day. The contractor shall provide the architect/engineer (A/E) of record a "final statement of compliance" for the board.

423.12.4 Manufacturer's one-year inspection.

The roof shall be inspected by the manufacturer's representative within one year of acceptance by the board.

423.13 Doors and windows.

423.13.1 Doors.

All spaces with an occupant load of six or more students, regardless of use, shall have a door opening directly to the exterior, or as required in the Florida Fire Prevention Code as adopted by the State Fire Marshal, in buildings of three stories or less shall have a rescue window opening directly to the exterior, or shall be fully sprinklered. All doors and gates from spaces with an occupant load of six or more students, regardless of use or location, shall swing in the direction of exit travel, shall be of the side hinged type, and shall always be operable from the inside by a single operation and without a key.

In administrative areas subject to student occupancy, such as conference rooms, career rooms, clinics, and student services, doors shall swing in the direction of exit travel.

(See Appendix, Number of Required Means of Egress Width and Appendix, Emergency Rescue Openings.)

423.13.1.1

Doors for steam rooms, locker rooms, shower rooms and group toilet rooms shall swing in the direction of exit travel, and shall always be operable for exiting from the inside.

423.13.1.2

No mirrors, draperies, curtains, equipment, furnishings, decorations, or other objects which may confuse, obstruct, or conceal the exit or the direction of exit shall be placed to obstruct a means of egress.

423.13.2 Recessed.

Doors when fully opened shall not extend into the required exit width of corridors, except for door thickness and required hardware. Doors may both be recessed and hinged to swing 90 degrees, or if flush with corridor wall shall contain a view panel and be hinged to swing 180 degrees.

423.13.3 Special function doors.

Special function doors, including balanced doors and overhead doors, shall not be used in a means of egress.

423.13.4 Overhead and sliding security grilles.

Security grilles shall have an adjacent side-hinged door swinging in the direction of exit and readily opened from the inside.

423.13.5 Gates.

Gates used to secure buildings or used for egress shall be side-hinged and readily opened from the side from which egress is to be made without the use of a key or special tool, or shall have a adjacent side hinged door, or doors as required for occupant load, swinging in the direction of exit and readily opened from the inside without a key.

423.13.6 Hardware.

Doors and gates shall be equipped with hardware which will allow egress at all times without assistance. No padlock, chain, hasp, lock, deadbolt, or other device shall be installed at any time on any door used for exiting. Doors which by code require closers and other doors subject to wind exposure shall be equipped with closers to prevent slamming and uncontrolled opening. All doors opening into smoke-tight exit access corridors shall be self-closing or automatic closing. Smoke doors in walls used to divide corridors into separate atmospheres shall be provided with push-pull plates and are not required to have positive latching. As an exception to Section 1008.1.8.6, delayed egress locks may be used in media centers, alternative education centers, and exceptional student education centers. Delayed egress locks are prohibited at time-out rooms at all locations.

The classroom security function that allows the outside lever to be locked with a key from either the inside or outside, while keeping the inside lever unlocked for unrestricted egress, may be used.

423.13.7 Safety glazing: panels and storefronts.

In addition to the requirements of Section 2406.4, the following is considered a hazardous location and requires safety glazing; Glazed panels within 48 inches (1219 mm) of a door, excluding transoms or vertical panels above 6 feet 8 inches (2031 mm).

Wire glass is no longer permitted in Educational occupancies unless it meets CPSC 16 CFR 121 requirements.

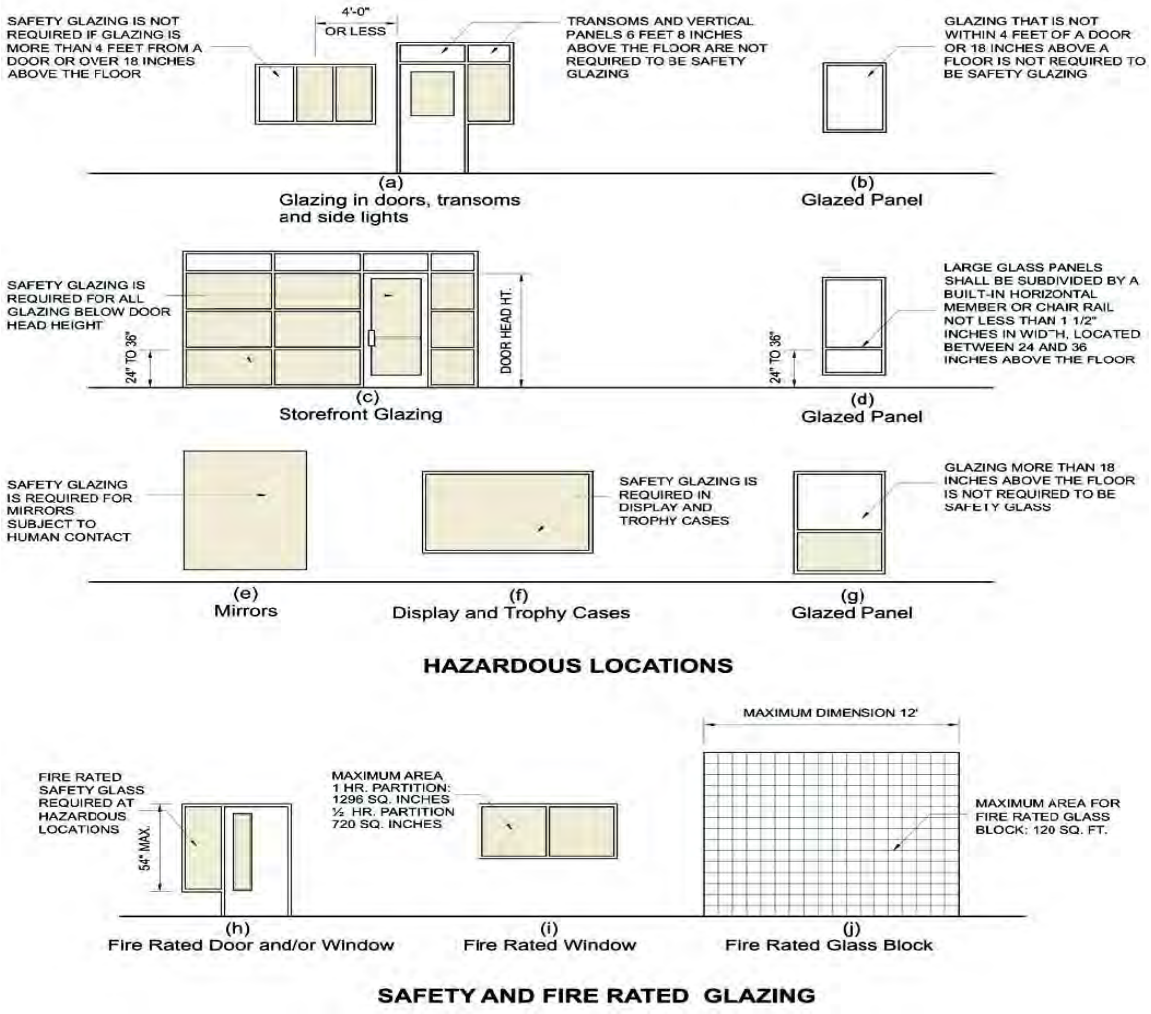


Figure 423.13.7
Safety Glazing: Panels and Storefront

423.13.7.1

All glazing in hazardous locations shall be safety glazing meeting the requirements of the Florida Building Code, Building, Section 2406.

423.13.7.2

Large glass panels shall be subdivided by a built-in horizontal member or a permanent chair rail not less than 1½ inches (38 mm) in width, located between 24 and 36 inches (610 and 914 mm) above the floor.

(See Appendix, Safety and Fire-Rated Glazing.)

423.13.8 Windows.

423.13.8.1 Natural light and ventilation.

Natural light and ventilation requirements for new construction shall be satisfied by windows with operable glazing, providing a net free open area equivalent to 5 percent of the floor area, in all classrooms on the perimeter of buildings, where required by Chapter 1013, Florida Statutes. Auxiliary spaces, music rooms, gyms, locker and shower facilities, laboratories requiring special climate control, and large group instructional spaces having a capacity of more than 100 persons need not have operable windows for the purpose of providing natural light and ventilation. Emergency access, emergency rescue, and secondary means of egress windows may be included in the calculation to comply with this requirement.

Operable glazing for natural ventilation is not required in Florida colleges.

423.13.8.2 Projecting and awning windows.

Projecting and awning windows shall not be located below door head height if in, or adjacent to, a corridor or walkway.

423.13.8.3 Security/storm screens or grills.

If a security/storm screen or grille is installed on the outside of an emergency access, rescue or egress window assembly then that security/storm screen or grille together with the emergency rescue window assembly shall be operable from the inside by a single operation without the use of tools to allow for exit under emergency conditions. The emergency rescue window shall be identified by signage, and the release device shall be readily identifiable.

423.14.1 Master control switch.

In addition to the regular main supply cut-off, each laboratory type space (such as biology, industrial, chemistry, physics, home economics, and electronics labs) equipped with unprotected gas cocks, compressed air valves, water or electric services which are easily accessible to students, shall have master control valves or switches with permanently attached handles, located and accessible within 15 feet (4572 mm) of the instructor's station or adjacent to the door within that space to allow for emergency cut-off of services. The cut-offs shall be in a nonlockable place and the location and operation shall be clearly labeled. Valves shall be completely shut off with a one-quarter turn. Computer labs are exempted from this requirement. (Also, see "Emergency shut off switches," and "Emergency disconnects" requirements under "Electrical.")

423.14.2 Interior signage.

Signage is required in educational and ancillary facilities. Design, construction, installation, and location of interior signage and graphics shall comply with the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal and the following:

423.14.2.1 Emergency rescue windows:

Windows for emergency rescue shall comply with NFPA 101, Florida Edition as adopted by Florida Fire Prevention Code, shall be operable from the inside by a single operation, and shall be labeled "EMERGENCY RESCUE–KEEP AREA CLEAR." Hinged emergency rescue windows shall swing in the direction of egress.

Emergency rescue window signs shall be located so that they are visible and will not be covered by curtains or blinds.

(See Appendix, Emergency Rescue Opening.)

423.14.2.2

Maximum capacity signs in each space with a capacity of 50 or more occupants. The signs shall be mounted adjacent to the main entrance door.

423.14 Special safety requirements.

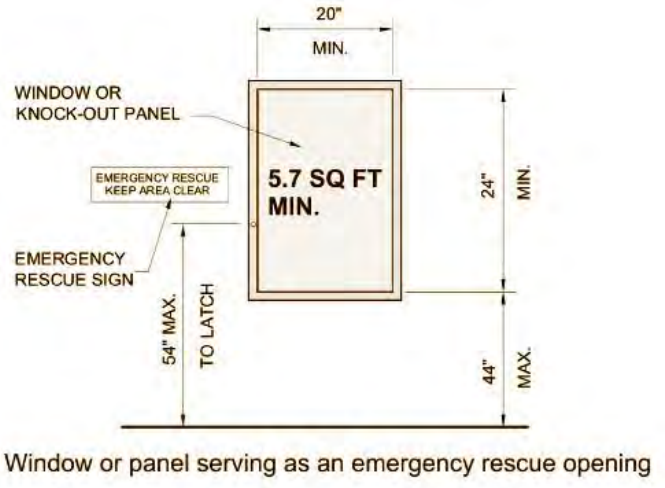


Figure 423.14.2.1
Emergency Rescue Window

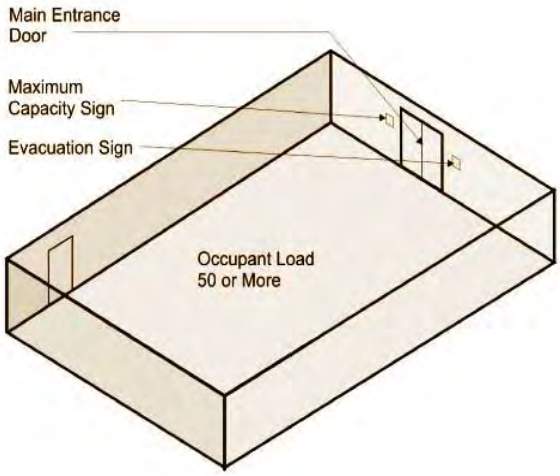


Figure 423.14.2.2
Signage

423.14.2.3

Room name, room number and, if different, FISH inventory numbers shall be provided for each space.

423.14.2.4

A graphic diagram of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space occupied by six or more students. The diagram shall clearly indicate, by contrasting color and number, each route of evacuation.

Signs indicating evacuation routes shall be clear and shall be revised when conditions for exiting change due to remodeling and/or additions.

423.14.2.5

Signs necessary to meet accessibility requirements shall be provided.

423.14.2.6

Hazardous work and storage areas shall be identified by appropriate caution signs.

423.14.3 Other potential hazards.

Pipes, ductwork, fans, light fixtures, windows projections, protruding sharp corners, or other potential hazards shall not be installed below 6 feet 8 inches (2031 mm) AFF. Audio/visual aids in classrooms may be mounted below 6 feet 8 inches (2031 mm) provided they are marked and padded in accordance with accepted safety standards or have permanent cabinets installed below them.

Piping of any kind should not be installed below 6 feet 8 inches.

423.14.4 Storage shelving.

Shelving shall not have sharp corners, splinters, or any construction feature that would be hazardous to the occupants. Shelving shall be constructed to carry the loads imposed. Shelving in science, labs, and shop storage rooms, and other places which may contain hazardous materials shall have a ½ inch (12.7 mm) lip on the front edge of each shelf and shall be constructed of noncorrosive material.

423.14.5 Vertical platform lifts and inclined wheelchair lifts.

The following standards are in addition to the other requirements of the Florida Building Code, Florida law, and federal requirements:

423.14.5.1

Lifts shall not reduce the width of required means of egress.

423.14.5.2

Lifts shall have shielding devices to protect users from the machinery or other hazards and obstructions.

423.14.5.3

Lifts shall be key operated for attendant operation in all facilities housing kindergarten to grade 8.

423.14.5.4

Inclined wheelchair lifts may be installed in facilities provided:

423.14.5.4.1

The platform is equipped with bidirectional ramp sensing to stop travel if obstructions are encountered.

423.14.5.4.2

Guide rails are smooth and continuous with no sharp edges or obstructions, all drive system components contain safety features for protection of users, and cables and pulling devices are shielded.

423.14.6 Color code machinery.

Working machinery with component parts shall be color-coded per ANSI Z53.1, American National Standard Safety Color Code for marking Physical Hazards. Safety zone lines shall be marked on the floor areas surrounding working machinery.

423.14.7 Anchor equipment.

All equipment designed to be permanently mounted shall be securely anchored to its supporting surface.

423.14.8 Interior finishes.

423.14.8.1 Floors.

Floors in instructional spaces shall be covered with resilient material or carpet. Floors in gymnasium locker rooms, showers, drying areas, toilet rooms, kitchens, scullerys, food storage areas and can wash areas shall be impervious.

423.14.8.2 Walls.

Walls in kitchens, scullerys, can wash areas, shower rooms shall be impervious to a height of at least 6 feet (1829 mm) above the floor. Toilet and shower partitions shall be impervious.

423.14.8.3 Ceilings.

Ceilings in group toilet rooms, kitchens, scullerys, can wash areas, showers and locker rooms shall be impervious.

Examples of impervious materials for floors are ceramic tile, quarry tile, and quartz two-part epoxy (at least 1/16 inch thick). Examples of impervious materials for walls are ceramic tile and two-part epoxy. Examples of impervious materials for ceilings are gypsum board and moisture-resistant ceiling tile.

423.15 Mechanical.

423.15.1 Gas and fluid piping.

423.15.1.1 Flammable liquid/gases.

Piping systems for flammable liquids or gases shall not be installed in or above interior corridors or stairwells.

> **Exceptions:** Piping may be located within corridors provided that they are enclosed in a minimum 1-hour fire-rated enclosure.

423.15.1.2 Piping systems.

Piping (fluid system) shall not be run where students can access the pipes, or in areas such as on roofs where they can be damaged by routine or periodic maintenance activities.

423.15.1.3 Main supply valve.

The main supply cut-offs for flammable liquids or gases shall shut down upon activation of the fire alarm system. Refer to the automatic shutoff requirements of Section 423.7.6.

423.15.2 Air plenums.

Corridors shall not be used as supply, return, exhaust, relief, or ventilation air plenum. The space between the corridor ceiling and the floor or roof structure above, if used as a plenum, shall be constructed with the ceiling, floor and walls as a minimum 1-hour fire-rated assembly or as 1-hour fire-rated horizontal wall supported by the corridor walls.

> **Exception**: A smoke-tight corridor with a solid ceiling may be used in a fully sprinklered building.

Corridors shall not be used as plenums for supply, return, exhaust, relief, or ventilation air. The space between the corridor ceiling and the floor or roof structure above may not be used for return air unless the ceiling is constructed as a minimum 1-hour rated or smoke-tight horizontal wall supported by the corridor walls.

423.15.3 Residential equipment.

In home economics instructional spaces, faculty lounges, and similar areas where small residential-type ranges are installed for staff use or student education, residential-type hoods mechanically exhausted to the outside shall be used. Hood fire suppression systems are not required to be installed.

The exception for ductless hoods does not apply to educational facilities. A fire extinguisher shall be installed adjacent to the range and shall meet requirements of NFPA 10.

423.15.4

Toilet rooms shall be continuously ventilated during building occupancy.

> **Exception:** Individual toilet rooms shall be ventilated continuously during building occupancy or ventilation shall turn off with the light switch and run for at least 10 minutes after the light has been turned off.

423.15.5 Ventilation air make-up for HVAC systems.

Where peak occupancies of less than 3 hours duration occur, the outdoor air flow may be determined on the basis of average occupancy for school buildings for the duration of operation of the air-conditioning system, provided the average occupancy used is not less than one-half the maximum.

423.16 Plumbing.

423.16.1 Standards.

Educational and ancillary facilities shall be provided with toilets, hand washing facilities, and drinking fountains for all occupants, in ratios and accessible as required by the Florida Building Code, Florida law, and federal requirements.

> **Exception:** Unisex toilets shall not be provided in addition to group toilets in assembly occupancies.

423.16.1.1 Assembly occupancies.

Toilet facilities for assembly occupancies (i.e. media centers, gymnasiums, cafétoriums, and auditoriums) are not required to be in addition to the overall required plumbing fixture count.

423.16.1.2 Location.

Student toilets shall be distributed throughout the facility and located on each floor for convenient access and continuous supervision. the path of travel to the nearest toilet facility shall not exceed a distance of 200 feet.

1. Unisex toilet rooms may be provided for Exceptional Student Education (ESE) Classrooms.
2. Unisex toilet rooms should not be provided in addition to the group toilets in cafetoriums, gymnasiums, and auditoriums.
3. The total required number of fixtures may be distributed throughout the facility. Student toilets should be strategically located for convenient access and continuous supervision. The path of travel to the nearest toilet facility should not exceed a distance of 200 feet.
4. Toilet facilities for cafetoriums, gymnasiums, and auditoriums are not required to be in addition to the overall required plumbing fixture count. However, toilet fixtures shall be open for public events.

(See Appendix, Toilet Rooms.)

423.16.2 Teacher toilets.

In school board facilities, faculty and staff toilets shall be separate from student toilets.

> **Exception:** Separation of faculty/staff and student toilet facilities is not required for Florida colleges.

423.16.3 Public shelter.

Refer to the public shelter design criteria of section 423.25

423.16.4 Urinals.

Trough urinals shall not be installed in any location.

423.16.5 Floor drains and hose bibbs.

All group toilet rooms shall be provided with at least one floor drain and one easily accessible hose bibb. The floor shall be sloped down to the drain. Stall urinals shall not serve as the required floor drains.

423.16.6 Exterior entries.

Exterior entries to toilet rooms shall have outward swinging doors.

423.16.7 Hot water.

When hot water is supplied to showers, handwash sinks, lavatories in toilet rooms, a mixing valve shall be installed to control the temperature which shall not exceed 110˚F (43˚C).

Setting the water heater thermostat(s) to one hundred ten (110) degrees Fahrenheit cannot be substituted for the mixing valve.

423.16.8 Delayed closing valves.

Water supply at toilet room lavatories shall be controlled by delayed-closing valves.

423.16.9 Shower facilities.

Showers shall be provided only where required by the district's educational program and, where provided, shall utilize energy saving concepts for hot water as required by Section 1013.44(2), Florida Statutes. When provided, shower areas shall comply with the following:

423.16.9.1 Floor finish shall be slip resistant.

423.16.9.2

A master control valve shall be provided to control the shower heads. Showers shall be equipped with flow control devices to limit total flow to a maximum of 3 gpm (-19 L/s) per shower head.

Master control valves must be located so that they are readily accessible to the instructor. Mixing valves may be used as the master control valve if they are suitably located and installed.

423.16.10 Kitchens.

Kitchens and food service areas shall be provided with toilet and hand washing facilities for employees as required by code, state rule and statute.

(See Appendix, Kitchens and Food Service.)

(See figure 423.16.10)

423.16.10.1

Toilet rooms shall be completely enclosed, have self-closing doors, and shall open into vestibules with self-closing doors. Toilet rooms shall not open directly into food preparation areas, serving areas, or dining areas. A minimum of one water closet and one lavatory, with hot and cold water, shall be provided in each staff toilet.

This requirement applies to dining areas, cafetoriums, and faculty dining areas.

423.16.10.2 Floor drains.

Floor drains shall be provided in the food serving area, kitchen area, scullery, garbage and rubbish rooms, and can wash area.

423.16.11 Dousing shower and eye wash.

Every science room, lab, or shop where instructors and students handle materials or chemicals potentially dangerous to human tissue shall be provided with a dousing shower and eye wash for emergency use, including a floor drain.

A dousing shower eye wash is required in science rooms and labs where staff and/or students handle materials and chemicals potentially dangerous to human tissue.

423.16.12 Floor drains and plumbing fixtures in equipment rooms.

No floor drain or other plumbing fixtures shall be installed in a room containing air handling machinery when such room is used as a plenum. When rooms are used as a plenum, equipment drains shall be conveyed through an indirect waste receptor located outside such rooms or other approved point or disposal.

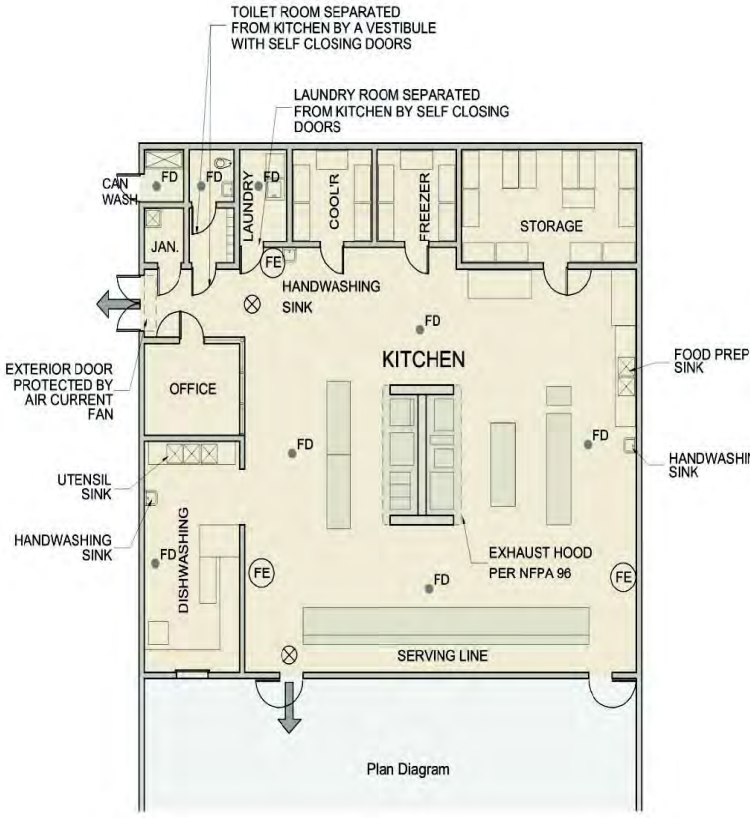


Figure 423.16.10
Kitchen and Food Service

423.17 Electrical.

Electrical design shall comply with Chapter 27, Florida Building Code and lighting design shall comply with Section 13-415, Florida Building Code, except where specific requirements are noted in Section 423.

423.17.1 Emergency lighting.

Emergency lighting shall be provided at internal and external means of egress, in student-occupied areas, in group toilets, and main electrical rooms.

Emergency lighting requirements for means of egress in educational facilities shall be provided in accordance with the Florida Fire Prevention Code, NFPA 101.

The main electrical room is per building or per floor in multi-story buildings.

As per Section 7.9.2, Florida Fire Prevention Code, NFPA 101, emergency lighting fixtures shall be arranged to provide initial illumination that is not less than an average of 1 foot-candle (10 lux) and, at any point, not less than 0.1 foot-candle (1 lux), measured along the path of egress at floor level.

423.17.2 Electrical rooms and closets.

Main service panels and switches, electrical distribution panels, cabinets, and rooms shall be lockable and not readily accessible to teachers or students.

Electric rooms and closets shall meet all requirements of NFPA 70 - 110.26 Spaces About Electrical Equipment. In electrical rooms housing equipment of 1200 amperes or greater, the personnel doors shall open in the direction of egress and be equipped with panic bars, pressure plates, or other devices that are normally latched but open under simple pressure [NFPA 70−110.26(C)(2)]. Also, all electrical rooms and electrical closet lighting fixtures shall not be controlled by automatic means, but by a positive throw switch [NFPA 70-110.26(D)].

423.17.3 Spare capacity.

Lighting and power panels shall be provided with a minimum of 20-percent spare breakers and a minimum of 10-percent spare capacity in all main panels and switchboards.

The spare capacity count is per panel or panel/sub-panel arrangement, not the percentage requirement per the total number of breakers of all panels. Therefore, panels that are not located in the same electrical room as the feed panel cannot be counted as part of the spare breaker requirement of the feed panel. In addition, sub-panels fed via transformers cannot be counted as part of the spare breaker capacity of the feed panel. Panels used for HVAC equipment do not have to meet the spare breaker requirement, but shall meet the spare capacity requirement and contain space for future breakers.

423.17.4 Emergency shutoff switches.

Every laboratory space which has electrical receptacles at student workstations shall have an emergency shutoff switch within 15 feet (4572 mm) of the instructor's workstation. The emergency shut off switch shall be operable by a single motion and shall interrupt power to all receptacles in the room.

> **Exception:** Emergency shutoff switches are not required in computer laboratories.

In large labs, it is recommended that a second shutoff switch should be located at the opposite side of the room from the first shutoff switch.

It is recommended that a detailed diagram be provided showing the operation of the emergency function. Also, see Section 428.14.1, Florida Building Code.

423.17.5 Emergency disconnect.

Each space equipped with electrically powered machinery accessible to students shall have a minimum of two master emergency disconnect switches at convenient locations within the space to shutoff all power tool outlets, power to student accessible machines and receptacles in the shop. One emergency shutoff or disconnect switch shall be located near the machinery and one emergency shutoff or disconnect switch shall be located in the instructor's office if there is a clear view of the entire shop area, others may be required and located as determined by the authority having jurisdiction. The emergency disconnects or shutoff switch shall be operable by a single motion.

> **Exception:** Ordinary office machines, computers, sewing machines, potter's wheels, residential cooking equipment in home economics labs and other nonhazardous machines do not require emergency disconnect devices.

It is recommended that a detailed diagram be provided showing the operation of the emergency function. It is also recommended that each piece of shop equipment's disconnect switch be required to be reset after power is restored before equipment can be energized. Also, see Section 423.14.1, Florida Building Code.

423.17.6 Sauna and steam rooms.

A "panic" switch to deactivate power to heating equipment shall be provided inside sauna and steam rooms. The panic switch shall also be tied into an alarm or other approved warning device in a supervised space in the area of the sauna and/or steam room. The operation of the switch shall be labeled to indicate the intended function.

423.17.7 Lightning.

All facilities in high lightning risk areas shall be evaluated using the Risk Assessment Guide in NFPA 780 and other standards which address lightning protection, and shall be protected accordingly.

Analysis is to be performed and provided to the school district for review and determination.

423.17.8 Ground fault interrupter (GFI) receptacles.

GFI receptacles shall be installed as required by NFPA 70 of Chapter 27 and in the following locations:

1. All elementary special needs classroom receptacles.
2. All building entry vestibule receptacles.
3. All mechanical, boiler and electrical rooms receptacles.

GFI receptacles shall be installed in mechanical mezzanines, as well as pump and chiller rooms.

Receptacles dedicated to such equipment as HVAC controls, fire alarm systems, and communication/data equipment (including backboards) are not required to be GFI receptacles.

423.18 Assembly occupancies in public educational facilities.

423.18.1

Occupant capacity for egress shall be in accordance with Table 1004.1.1 except as follows:

(See Appendix, Minimum Occupant Loads.)

423.18.1.1 Dressing rooms.

Dressing rooms at 20 net square feet ($2m^2$) per person.

423.18.1.2 Gymnasium.

The number of fixed and telescopic bench-type bleacher seats plus the main court area at 15 gross square feet ($1.4\ m^2$) per person, plus locker rooms at 5 net square feet ($.5\ m^2$) per person.

423.18.1.3 Classrooms and labs.

If spaces are combined through the use of folding partitions, the capacity and exiting shall be based on the capacity of all the spaces joined.

423.18.1.4 Small group areas in media centers.

Small group room or area (view and preview) in media center at 5 net square feet ($.5\ m^2$) per person.

Within the media center, smaller spaces are permitted to provide exit through the larger media center room.

423.18.1.5 Closed circuit television production, distribution, and control.

The main floor area at 15 net square feet ($1.4\ m^2$) per person.

423.18.1.6 Interior courtyards.

The interior courtyard area at 15 gross square feet ($1.4\ m^2$) per person. Raised, dedicated landscape areas may be deducted.

Exits for interior courtyards shall comply with Table 1004.1.2, Florida Building Code.

423.19 Shade and green houses.

(See Appendix, Shade and Green Houses.)

423.19.1 General.

Shade/green houses shall be of Type I, or II construction (metal frame) capable of withstanding the appropriate wind load.

423.19.2 Unrestricted exiting.

The location of the shade/green house shall not hinder exiting from new and/or existing structures.

423.19.3 Required doors.

A minimum of two doors remotely located shall be provided. Doors shall be side hinged and shall swing in the direction of egress.

(See Appendix, Shade and Green Houses.)

423.19.4 Accessibility.

Green houses shall meet accessibility requirements. The accessible walkway shall be connected to doors leading to an accessible route to the permanent structure.

(See Appendix, Shade and Green Houses.)

423.19.5 Shade cloth.

Shade cloth shall be tear-away fabric securely fastened to the structural frame.

423.19.6 Fire extinguisher.

A minimum of one Type 2A-10B:C fire extinguisher shall be provided per shade/green house.

423.19.7 Fire alarm.

Fire alarm pull stations shall be located within 200 feet (60 960 mm) of any shade or green house. Fire alarm horns mounted on a permanent building must be audible inside the shade/green house.

(See Appendix, Shade and Green Houses.)

423.19.8 Space heaters.

Space heaters, when provided, shall be mounted at least 6 feet 8 inches (2031 mm) AFF.

423.20 Storage.

423.20.1 General storage.

Storage rooms and closets shall not be located over or under exit stairs and ramps whether interior or exterior. General storage space(s) shall be included in every educational facility for the bulk storage of materials, supplies, equipment, and books. Storage rooms shall be separated from mechanical and electrical spaces. Storage spaces shall be mechanically ventilated and conditioned as appropriate for the type of materials to be stored. Sinks located in general storage rooms shall not be used for custodial services.

Mechanical and electrical equipment may not be installed in storage rooms. Likewise, mechanical and electrical equipment rooms shall not be used for storage other than in mechanical rooms, where a reasonable number of items (e.g., filters) that are incidental to the maintenance of the equipment may be stored.

The type of storage intended for each space will determine whether or not mechanical ventilation or air-conditioning is required. Some storage spaces may require mechanical exhaust to the exterior to expel heat, dust, or vapors, while others may require conditioned air to protect the items stored. Storage spaces that do not receive either ventilation or conditioned air should provide a clear indication of the items to be stored.

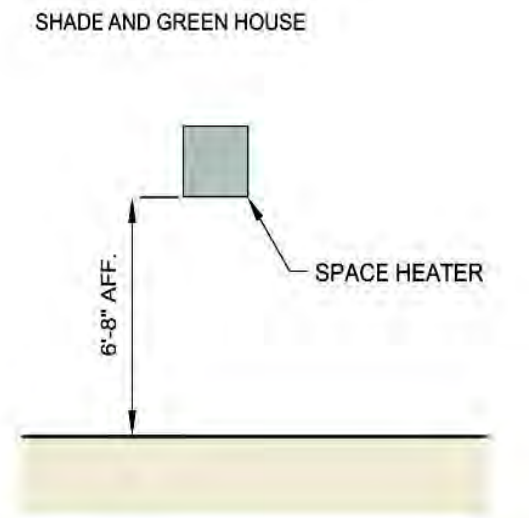


Figure 423.19.8
Space Heaters in Shade and Green Houses

423.20.2 Custodial work areas and storage.

Provide custodial work areas with well supported shelving for supplies, cleaning, and sanitation materials and an office area including male/female lockers and toilet facilities.

Toilet/locker rooms are required for each sex.

423.20.3 Custodial closets and storage.

Custodial closets shall be provided with storage shelving and a service sink supplied with both hot and cold water. They shall be located to serve each instructional floor and wing regardless of floor area, and other areas such as stage, kitchen, gym, auditorium, clinic, offices and shops. The travel distance to the nearest custodial closet shall not exceed 150 feet.

423.20.4 Chemical and hazardous materials storage.

In addition to the requirements of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal for separation and protection, chemical and hazardous storage facilities shall also include:

423.20.4.1 Chemical storage.

Doors shall be lockable from the outside and operable at all times from the inside. Rooms shall be well illuminated. Cabinets shall have shelves with a ½ inch 12.7 mm) lip on the front and shall be constructed of noncorrosive material.

423.20.4.2 Hazardous materials storage.

Buildings and/or rooms used for the storage, handling and disposal of flammable, poisonous, or hazardous materials or liquids, and equipment powered by internal combustion engines and their fuels shall be separated from adjacent spaces by 1-hour fire-rated assemblies. These requirements also apply to completely detached buildings within 60 feet (18 288 mm) of student-occupied facilities. Doors shall have a C Label and open directly to the exterior. Storage buildings and/or rooms shall be mechanically ventilated. Electrical fixtures, switches, heat detectors and outlets installed in flammable storage rooms shall be explosion proof.

423.21 Child care/day care/ prekindergarten facilities.

423.21.1

Child care/day care/prekindergarten facilities located on board-owned property shall comply with Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal and the specific criteria in this section. Child care/day care/pre-kindergarten facilities requiring a license from another agency may also be required to comply with additional construction requirements imposed by that agency.

423.21.2

Toilet facilities shall meet accessibility requirements and should open into the instructional space. The toilet may be used by both sexes and shall contain a water closet, lavatory and related accessories.

423.21.3

If child care facilities are provided with a bathing area, it shall be within or adjacent to the child care area and shall contain either a shower with hand-held sprayer or a tub. The water temperature shall be controlled by a mixing valve and shall not exceed 110ºF (43ºC).

423.21.4

Toilet facilities shall have a non-slip impervious floor and 6-foot (1829 mm) impervious wainscot.

423.21.5

Drinking fountain(s) shall be provided for the children and be within close proximity of the child care facility.

423.21.6

A towel and soap dispenser shall be provided at each sink. Hand wash areas for adults shall be provided with warm water; the water temperature shall be controlled by a mixing valve and shall not exceed 110ºF (43ºC). All electrical receptacles shall be placed out of reach of the children.

423.21.7

When provided, a residential-type kitchen shall include a nonslip floor, a refrigerator, a residential range, a residential-type range hood mechanically exhausted to the outside, and a fire extinguisher located within 15 feet (457 mm) of the range within the same room.

423.21.8

Areas designated for children's sleeping mats, cots or cribs shall include a clearly marked exit passageway.

423.21.9

The child care facility shall not contain any storage of cleaning agents, chemicals, or other hazardous materials in student accessible areas.

423.21.10

Outdoor play areas shall be provided and shall be protected from access to streets or other dangers. The

play area shall be fenced or walled to a minimum height of 4 feet (1219 mm) and any latches on maintenance gates shall be secured or beyond the reach of the children.

423.21.11

Shade shall be provided in the play area (a covered play area may be provided).

423.21.12

Play equipment shall be firmly anchored, free of sharp corners or pointed surfaces, and shall have cushioning surfaces such as mats or sand beneath.

423.21.13

The grounds shall be free of undergrowth or harmful plant material.

423.22 Clinics.

423.22.1

Clinics in kindergarten through grade 12 (K-12), vocational-technical centers (VTC), and full service schools shall comply with the general criteria found in the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal, as well as the specific criteria found herein. Clinics shall be located and equipped to provide emergency aid to students. Closets and storage cabinets used for medications and bandages shall have locks, and shall be designed to be under constant supervision.

423.22.2

School clinics shall include locked storage, toilet room and shower, and bed space.

423.22.3

Sanitary facilities are required as follows:

423.22.3.1

Elementary school clinics, including kindergarten, shall include at a minimum one accessible toilet room, to serve male and female students, complete with a water closet, lavatory, accessible shower, changing table, and accessories.

423.22.3.2

Secondary and VTC school clinics shall include two accessible toilet rooms complete with water closet, lavatory, accessories and shower.

423.22.3.3

Toilet rooms in clinics shall include both hot and cold water at the showers and all lavatories. The water temperature shall be controlled by a mixing valve and shall not exceed 110ºF (43ºC).

423.22.3.4

Toilet rooms shall have exhaust fans vented to the exterior.

423.22.3.5

A working counter top with lavatory/sink and hot water shall be provided in each clinic.

When separated boy's and girl's clinics are provided, a counter top with a lavatory/sink is required in each. When a nurse's station connects the two clinics, a single counter top with lavatory/sink in that station is acceptable. A counter top with sink located in a separate non-connecting office does not meet the requirement.

423.22.4

The bed area shall be designed to maintain constant visual supervision from the office. Space for student beds shall be provided in each clinic at 50 square feet (5 m^2) per bed. Space for beds in secondary and VTC schools shall be equally divided for male and female students. Beds shall be provided based on student capacity in the following ratios:

423.22.4.1

Up to 500 students–three beds.

423.22.4.2

501 to 1,000 students–four beds.

423.22.4.3

1,001 to 2,000 students–five beds.

423.22.4.4

Over 2,000–six beds.

423.22.5 Full-service school health clinics.

423.22.5.1 Location.

Clinics shall be located to provide a direct accessible route from the exterior and from the interior or by a connecting covered walk.

423.22.5.2 Parking.

Clinics shall be provided with 10 designated parking spaces immediately adjacent to the clinic, one of which shall be accessible to persons with disabilities.

423.22.5.3 Sanitary facilities.

Sanitary facilities are required as follows:

423.22.5.3.1

Full-service school clinics shall include one accessible toilet room for males and one for females, complete with water closet, lavatory, accessories, and shower. Additional toilets may be required for a full-service school clinic depending on occupant load and program.

423.22.5.3.2

Hot and cold water shall be provided at the showers and lavatories. The water temperature shall be controlled by a mixing valve and shall not exceed 110ºF (43ºC).

423.22.5.3.3

Toilet rooms shall have exhaust fans vented to the exterior.

423.22.5.3.4

A nurse's station shall be provided with a working counter with lavatory/sink and be located so as to maintain visual supervision of the bed area.

423.22.5.4

Locked storage rooms shall be provided for a refrigerator, files, equipment, and supplies.

423.22.5.5

Data outlets shall be provided for computer hook-ups and computer networking and additional electric outlets shall be provided for hearing and vision testing machines.

423.23 Kilns.

Kilns shall not be located near or adjacent to paths of egress or exit and shall be placed in separate rooms when serving students through grade 3. Kiln rooms shall be provided with appropriate smoke/heat detectors connected to the fire alarm system.

423.24 Open plan schools.

An open plan building or portion of a building may be subdivided into smaller areas by use of low partitions [maximum 5 feet high (1524 mm)], movable partitions, or movable furnishing, which by location and type do not hinder or obstruct the ability of persons in one area of the plan to be immediately aware of an emergency condition in any other area of the plan. Corridors shall be identified with different color or type of flooring materials, by permanent low partitions or by other means to prevent blockage of the path of egress to exits by partitions or furniture. When open plan schools are partitioned, the work shall conform to the code requirements for new construction. Demountable or movable partitions in open plan classroom areas shall be a maximum of 5 feet (1524 mm) in height and shall terminate a minimum of 5 feet (1524 mm) from any permanent wall. All circulation openings in open plan areas shall be a minimum of 5 feet (1524 mm) wide. Movable furnishings shall not exceed 5 feet (1524 mm) in height and shall have a stable base.

See drawing next page.

(See Appendix, Open Plan Classrooms.)

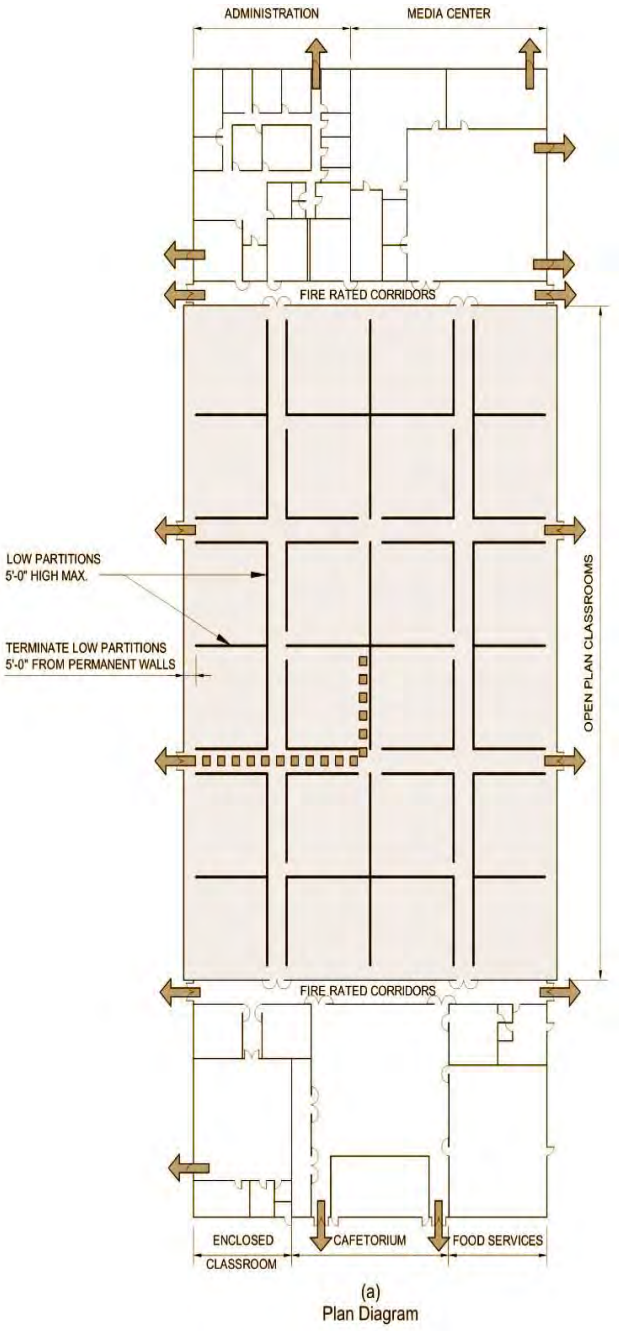


Figure 423.24
Open Plan School Example

423.25 Public shelter design criteria.

423.25.1 New facilities.

New educational facilities for school boards and Florida college boards, unless specifically exempted by the board with the written concurrence of the applicable local emergency management agency or the Department of Community Affairs (DCA), shall have appropriate areas designed as enhanced hurricane protection areas (EHPAs) in compliance with this section.

According to Section 1013.372, Florida Statutes, a written agreement between the school board and the local emergency management agency is required to be executed in order for a facility to be exempt as an EHPA.

The Division of Emergency Management is now under the Executive Office of the Governor.

> **Exception:** Facilities located, or proposed to be located, in a Category 1, 2, or 3 evacuation zone shall not be subject to these requirements.

The 2010 Statewide Regional Evacuation Study introduced alphabetic Evacuation Zones/Levels (A-E) across the state. For growth management planning, the reference to areas to be evacuated from a Category 1 hurricane should use Evacuation Zone/Level A, reference to evacuation areas to be evacuated in advance of a Category 2 hurricane should use Evacuation Zone/Level B, and reference to areas to be evacuated from a Category 3 hurricane should use Evacuation Zone/Level C. Similarly, in policies that refer to evacuation areas from a Category 4 or 5 hurricane, evacuation Zones/Level D or E should be used.

423.25.1.1 Enhanced hurricane protection areas (EHPA).

The EHPA areas shall provide emergency shelter and protection for people for a period of up to 8 hours during a hurricane.

423.25.1.1.1

The EHPA criteria apply only to the specific portions of (K-12) and Florida college educational facilities that are designated as EHPAs.

423.25.1.2

The EHPAs and related spaces shall serve the primary educational or auxiliary use during non-shelter occupancy.

423.25.2 Site.

Factors such as low evacuation demand, size, location, accessibility and storm surge may be considered by the board, with written concurrence of the local emergency management agency or the DCA, in exempting a particular facility.

Concurrence is required between the board and the local emergency management agency for exemption.

423.25.2.1 Emergency access.

EHPAs shall have at least one route for emergency vehicle access. The emergency route shall be above the 100-year floodplain. This requirement may be waived by the board, with concurrence of the local emergency management agency or the DCA.

423.25.2.2 Landscaping.

Landscaping around the EHPAs shall be designed to preserve safety and emergency access. Trees shall not conflict with the functioning of overhead or underground utility lines, or cause lay down or impact hazard to the building envelope.

423.25.2.3 Parking.

During an emergency condition, vehicle parking shall be prohibited within 50 feet (15 240 mm) of an EHPA. Designated EHPA parking areas may be unpaved.

423.25.2.4 Signage.

Floor plans of the facility, indicating EHPAs, shall be mounted in the emergency manager's office/area.

423.25.3 Design.

EHPAs may be above or below ground and may have more than one story, provided the design satisfies the wind load and missile impact criteria. Modular and open-plan buildings may serve as EHPAs provided the design satisfies the wind load and missile impact criteria.

423.25.3.1 Excluded spaces.

Spaces such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms, attic and crawl spaces, shall not be used as EHPAs.

423.25.3.2 Capacity.

Fifty percent of the net square feet of a designated educational facility shall be constructed as EHPAs. The net square feet shall be determined by subtracting from the gross square feet those spaces, such as mechanical and electrical rooms, storage rooms, open corridors, kitchens, science rooms and labs, vocational shop areas and labs, computer rooms, attic and crawl spaces that shall not be used as EHPAs. The board, with concurrence of the applicable local emergency management agency or DCA, may adjust this requirement if it is determined to be in its best interest.

The capacity of an EHPA shall be calculated at 20 square feet (2 m^2) per occupant (adults and children five years or older).

(See Appendix, Example EHPA Design Square Footage and Capacity Calculations.)

423.25.3.3 Toilets.

Toilet and hand-washing facilities should be located within the EHPAs and provided at one toilet and one sink per 40 occupants. These required toilet and hand-washing facilities are not in addition to those required for normal school occupancy and shall be included in the overall facility fixture count.

Since the required fixtures for the EHPA are not in addition to those for normal school occupancy, urinals may be substituted for up to fifty (50) percent of the required water closets in male toilet facilities, as is the normal design procedure.

Every effort should be made to provide toilet facilities within the EHPA. It is neither reasonable nor prudent for occupants of the EHPA to have to leave the shelter during a storm event to use toilet facilities.

423.25.3.3.1

Support systems for the toilets, e.g., bladders, portable toilets, water storage tanks, etc., shall be capable of supplying water and containing waste, for the designed capacity of the EHPAs.

EHPA support systems for toilets must be located on site and protected for the storm event. The system(s) selected must be sized to provide support for at least an 8-hour period. When using bladders provided by the local emergency management agency, only the connection is required to be provided.

When bottled water and portable toilets are to be used to meet these requirements, a copy of the written agreement between the district and the local emergency management agency should be submitted with the documents.

a) The agreement should delineate the entity that takes responsibility for providing the water and portable toilets.
b) The agreement should stipulate that the water and portable toilets will be delivered prior to the storm event.

The plans should indicate the proposed location for the portable toilets. If they are located outside the envelope of the EHPA, they must meet the wind load and missile

impact criteria. If they are to be located within the EHPA, consideration should be given to how they and/or the waste will be removed to minimize damage to the building.

423.25.3.3.2

Plumbing and valve systems of "normal" toilets within the EHPAs may be designed for conversion to emergency operation to meet the required demand.

423.25.3.4 Food service.

Where feasible, include counter tops for food distribution functions in the EHPAs.

423.25.3.5 Manager's office.

An administration office normally used by a school administrator shall be identified as the EHPA manager's office and shall be located within the EHPA. The office shall have provisions for standby power, lighting, communications, main fire alarm control panel and storage for the manager's equipment.

(See Appendix, Fire Alarm.)

423.25.4 Structural standard for wind loads.

At a minimum, EHPAs shall be designed for wind loads in accordance with ACSE 7, Minimum Design Loads for Buildings and Other Structures, Risk Category IV (Essential Buildings). Openings shall withstand the impact of wind-borne debris missiles in accordance with the impact and cyclic loading criteria per ASTM E-1886 and ASTM E-1996 or SBC/SSTD 12. based on a research document, Emergency Shelter Design Criteria For Educational Facilities, by the University of Florida for the DOE, it is highly recommended by the department that the shelter be designed using the map wind speed plus 40 mph.

423.25.4.1 Missile impact criteria.

The building enclosure, including walls, roofs, glazed openings, louvers and doors, shall not be perforated or penetrated by a flying object. For walls and roofs, the missile criteria is as provided in ASTM E-1886, and ASTM E-1996, or SBC/SSTD 12.

This requirement includes the area/space/facility designated to house the backup portable generator that is supplied by others for EHPA operation during an emergency. Section 423.25.5, Florida Building Code, Building, describes the permanent installation criteria. "SBC/SSTD 12" should read "SSTD 12-99."

423.25.4.1.1

Materials used for walls, roofs, windows, louvers, and doors shall be certified for resistance to missile impact criteria.

423.25.4.1.2

The glazed openings or permanent protective systems over glazed openings shall be designed for cyclic loading.

423.25.4.2 Roofs.

Roof decks shall be cast-in-place 4-inch (102 mm) or more, normal weight concrete. Concrete decks shall be waterproof. Systems other than cast-in-place concrete shall have adequate bearing, anchorage against wind uplift, diaphragm action, and resistance to rain that are equivalent to a cast-in-place system.

> **Exception**: Structural pre-cast concrete roofs, composite metal decks with normal weight concrete roofs, or other systems and materials that meet the wind load and missile impact criteria may be used.

Systems other than 4-inch cast-in-place concrete shall be equivalent to a waterproof 4-inch cast-in-place concrete system with respect to missile impact resistance and rain resistance. The equivalent system shall also have adequate bearing, anchorage against wind uplift, and diaphragm action as determined by a professional engineer. Acceptable tested roofing systems are provided at: ***www.fldoe.org/edfacil/planreview/pdfroofdocksMemo.pdf.***

423.25.4.2.1

Light weight concrete or insulating concrete may be used on roof decks of EHPAs provided the roof decks are at least 4-inch (102 mm) cast-in-place normal weight concrete or other structural systems of equivalent strength.

423.25.4.2.2

Roof openings (e.g., HVAC fans, ducts, skylights) shall be designed to meet the wind load and missile impact criteria.

423.25.4.2.3

Roof coverings shall be specified and designed according to the latest ASTM and Factory Mutual Standards for materials and wind uplift forces. Roofs shall be inspected by a licensed engineer/architect and a representative of the roofing manufacturer.

423.25.4.2.4

Roofs shall have adequate slope and drains sized for normal use and shall have emergency overflow scuppers.

423.25.4.2.5

Parapets shall satisfy the wind load and missile impact criteria; roof overhangs shall resist uplift forces.

423.25.4.3 Windows.

All unprotected window assemblies and their anchoring systems shall be designed and installed to meet the wind load and missile impact criteria.

423.25.4.3.1

Windows may be provided with permanent protective systems, provided the protective system is designed and installed to meet the wind load and missile impact criteria and completely covers the window assembly and anchoring system.

423.25.4.3.2

EHPAs shall have mechanical ventilation systems. Ventilation shall be provided at a minimum rate of 2 cfm per square foot of EHPA floor area. The mechanical ventilation system shall be connected to the EHPA's emergency power.

All EHPAs must be provided with mechanical ventilation systems.

Section 423.25.5, Florida Building Code, requires EHPA ventilation fans to be connected to the standby circuits of the emergency power system per NFPA 70.

423.25.4.4 Doors.

All exterior and interior doors subject to possible wind exposure and/or missile impact shall have doors, frames, anchoring devices, and vision panels designed and installed to resist the wind load and missile impact criteria or such doors, frames, anchoring devices, and vision panels shall be covered with permanent protective systems designed and installed to resist the wind load and missile impact criteria.

423.25.4.5 Exterior envelope.

The exterior envelope, louvers over air intakes and vents, and gooseneck type intakes and vents of EHPAs shall be designed and installed to meet the wind load and missile impact criteria.

423.25.4.5.1

HVAC equipment mounted on roofs and anchoring systems shall be designed and installed to meet the wind load criteria.

Exhaust fan housings should be included in HVAC equipment.

423.25.4.5.2

Roof mounted HVAC equipment shall have a 12-inch-high (305 mm) curb around the roof opening and be designed to prevent the entry of rain water.

Curb height of 12" applies to all rooftop mounted equipment, including exhaust fans.

423.25.4.6 Foundations and floor slabs.

Foundations shall be designed to resist all appropriate loads and load combinations, including overturning moments due to wind. The floor elevation and necessary life safety and other emergency support systems of EHPAs shall be elevated above the maximum storm surge inundation elevation associated with a Category 4 hurricane event. Storm surge elevations shall be identified by the most current edition of the regional Sea Lake and Overland Surges from Hurricanes (SLOSH) studies and atlases.

423.25.5 Electrical and standby emergency power system.

The EHPA shall be provided with a standby emergency electrical power system, per Chapter 27, NFPA 70 Articles 700 and 701, which shall have the capability of being connected to a backup generator or other optional power source. Where economically feasible, an equivalent photovoltaic system may be provided. The EHPA's emergency systems includes, but are not limited to: (1) an emergency lighting system, (2) illuminated exit signs, (3) fire protection system(s), alarm (campus wide) and sprinkler, and (4) minimum ventilation for health/safety purposes. The fire alarm panel shall be located in the EHPA manager's office. A remote annunciator panel shall be located in or adjacent to the school administrator's office. When generators are installed, the facility housing the generator, permanent or portable, shall be an enclosed area designed to protect the generators from wind and missile impact. Air intakes and exhausts shall be designed and installed to meet the wind load and missile impact criteria. Generators hardened by the manufacturer to withstand the area's design wind and missile impact criteria shall be exempt from the enclosed area criteria requirement.

The fire alarm annunciator panel shall be located in or adjacent to the administration office.

Other Optional Power Sources: The Florida Building Code requires the EHPA to provide shelter for periods up to 8 hours (Section 423.25.1.1). In EHPA facilities where emergency generators are not permanently installed, consideration should be given to providing an 8-hour battery-operated emergency lighting system, including the illuminated exit signs, if no other options are available.

(See Appendix, EHPA Electrical and Emergency Power Systems.)

423.25.5.1 EHPA lighting.

Emergency lighting shall be provided within the EHPA area, EHPA manager's office, toilet rooms, main electrical room and generator spaces and shall be at least 10 footcandles (100 lux) of general illumination, which can be reduced to ½ footcandle (5 lux) in the sleeping areas during the night.

The recommended level of lighting defined under this section is a mandatory requirement. Higher levels may be provided if specified by the School Board.

The emergency lights in EHPA manager's office, generator spaces/rooms, and electrical rooms within the EHPA area, should have battery backup or be a stand-alone battery-operated fixture with the battery-charging system connected to the emergency power system. This will provide backup lighting to troubleshoot any electrical problem that may occur during the operation of the emergency power system. Footcandle level should be the same as specified in Section 423.25.5.1, Florida Building Code.

423.25.5.2 Optional standby circuits.

Additional nonlife safety systems, as defined by Chapter 27, NFPA 70 Article 702 (optional standby circuits), may be supplied power, if available, by the Standby Emergency Power System. These systems shall be connected to the Standby Emergency Power System via an electrical subpanel to the Standby Electrical Power System's main electrical panel. This will allow selective or total load shedding of power if required. The fire alarm, emergency lighting and illuminated exit signs throughout the entire campus shall receive first priority to power provided by the Standby Emergency Power System per Chapter 27, NFPA 70 Article 700. The systems listed are not all encompassing but are in order of priority. Local officials may request additional non-life safety systems they deem necessary for health, welfare and safety of the public during occupancy:

1. Remainder of the school's campus security lighting (building and site).
2. Additional ventilation systems within the EHPA, including heat.
3. Intercom system.
4. Food storage equipment.
5. Additional electric receptacles, other than those required by Section 423.25.5.3.

Providing power to the campus-wide fire protection system is the first priority under this section. Illuminated exit signs, emergency lights, and ventilation follow in order of priority. All other requests can be honored, provided that power is available and a method to shed the requested loads is available to the EHPA manager.

(See Appendix, EHPA Electrical and Emergency Power Systems.)

423.25.5.3 Receptacle outlets.

A minimum of four electrical outlets, served with power from the standby circuits, shall be provided in the EHPA manager's office.

Consideration should be given to providing an 8-hour DC to AC battery inverter system in EHPAs that do not have the emergency generator permanently installed in order to provide a power recharging source for communication equipment and to support any medical necessity.

423.25.6 Inspections.

EHPAs shall be considered "threshold buildings" in accordance with Section 553.71(7), Florida Statutes, and shall comply with Sections 553.79(5), 553.79(7), and 553.79(8), Florida Statutes.

423.25.6.1

Construction of EHPAs shall be inspected during the construction process by certified building code inspectors or the design architect/engineer(s) certified pursuant to Part XII Chapter 468, Florida Statutes and threshold inspectors for compliance with applicable rules and laws.

423.25.6.2

The emergency electrical systems shall be inspected during the construction process by certified electrical inspector or Florida-registered professional engineers certified pursuant to Part XII Chapter 468, Florida Statutes, skilled in electrical design.

423.25.6.3

EHPAs shall be inspected and recertified for compliance with the structural requirements of this section every five years by a Florida-registered professional engineer skilled in structural design. If any structural system, as specified in this section, is damaged or replaced, the recertification shall be obtained prior to the beginning of the next hurricane season.

423.25.6.4

All shutter systems, roofs, overflow scuppers, and structural systems of EHPAs shall be inspected and maintained annually prior to hurricane season and after a major event. All emergency generators shall be inspected under load conditions including activation of the fire alarms, emergency lights as per applicable equipment codes and NFPA standards, and including mechanical systems and receptacles connected to the emergency power.

423.26 Time-out rooms.

423.26.1

Locking an individual inside a space without a means of opening the door from within that space is contrary to the exiting philosophy of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal for educational facilities. The educational program which requires containment of the out-of-control student can be accommodated within this context only if the following are met:

The connection of the locking device to perform the operations described in Section 423.26.2, Florida Building Code, shall not be performed without the written approval of the State Fire Marshal.

Special permitting for the use of time-out rooms is required by State Fire Marshal Rule 69A-58.

423.26.2 Electromagnetic locking device.

When a time-out room is to be locked, an electromagnetic locking device may be used and shall have the following features:

423.26.2.1

The lock shall remain engaged only when a push button mounted outside the time-out room adjacent to the door frame, is continuously depressed by hand. Upon release of pressure, the door shall unlock. The locking device shall be designed so that it cannot be engaged by leverage of an inanimate object or in any other manner except by constant human contact.

423.26.2.2

The push button shall be recessed from the face of the unit housing, or in some other way designed to prevent taping or wedging the button in the engaged mode.

423.26.2.3

The device shall have an interface relay with the fire alarm system and shall automatically release upon activation of the fire alarm.

423.26.2.4

The locking device shall automatically disengage in the event of a power failure.

423.26.2.5

Timers shall not be used on the locking device.

423.26.3 Door requirements.

The door shall have only a push plate exposed on the interior of the room.

423.26.3.1

The door shall swing out of the room and shall be equipped with a fully concealed track type closer.

423.26.3.2

A vision panel shall be provided in the door, and it shall be no larger than 144 square inches (.1 m^2). The view panel shall consist of a clear ¼-inch-thick (6 mm) unbreakable plastic panel flush with the inside face of the door on the inside of the room. The panel shall be positioned in the door so that a staff member may continuously keep the student under surveillance.

423.26.3.3

The door frame and jamb/head reveal on the inside shall be minimal. If provided, a flat metal threshold shall be used.

423.26.4 Finishes.

The floor and walls shall be durable, vandal-resistant materials. The ceiling shall be of a solid and moisture-resistant material. There shall be no projections or protrusions from the walls, ceiling, or floor. All surfaces

shall be smooth and no electrical outlets, switches, plumbing clean-outs or similar items shall be inside the room. The room shall not contain anything that can be set on fire, torn, shredded or otherwise used for self-harm.

423.26.5 Minimum size.

The room shall be designed for a single occupant only and shall be a minimum of 6 feet by 6 feet (1828 mm by 1828 mm).

423.26.6 Lighting.

The room shall have a recessed vandal proof light fixture in the ceiling capable of being dimmed. The light switch shall be located outside the room adjacent to the door jamb.

423.26.7 HVAC required.

Time-out rooms shall be mechanically heated and cooled. Registers shall be ceiling mounted and vandal proof.

423.27 New relocatable buildings.

423.27.1 Relocatables.

The terms “relocatable” and “portable” are interchangeable and both terms are used to describe buildings which are constructed to the same building codes as permanent public school buildings, except they are designed to be moved. These buildings may be manufactured in a plant, constructed on site, may be made of demountable components, and may be combined. All new relocatables or portable classrooms shall be designed and constructed in compliance with the Florida Building Code, the Florida Fire PreventionCode as adopted by the State Fire Marshal and the Department of Community Affairs rules for factory-built school buildings. (See Section 428) The requirements for new relocatables contained herein are in addition to the minimum requirements of the Florida Building Code and the Florida Fire Prevention Code as adopted by the State Fire Marshal. New relocatables which do not comply with the building codes, fire codes and these standards shall not be used as classrooms or for any other student occupancy. For code requirements and other standards applicable to relocatables constructed prior to this code, which may be Type V (wood) relocatables, see Existing Relocatables, Volume 1, Section 5(2), State Requirements for Educational Facilities as referenced in the Florida Fire Prevention Code as adopted by the State Fire Marshal.

423.27.1.1

Factory-built school shelter means any site-assembled or factory-built school building that is designed to be portable, relocatable, demountable or reconstructable and that complies with the provisions for enhanced hurricane protection areas, as required by the applicable code (see Section 423.25).

423.27.2 Design, plan approval, construction.

Regardless of cost or fund source, whether used for classroom, auxiliary or ancillary space, whether leased, purchased, contracted, or constructed by the school board or Florida college board, plans and documents for relocatables, portables and modular schools shall be prepared by Florida registered design professionals and submitted to the authority having jurisdiction for review and approval for compliance with Florida laws, rules, building and life safety codes. The buildings shall be constructed and inspected by personnel licensed, certified or trained as required by Florida construction industry licensing laws.

423.27.2.1 District-wide foundation plans.

District-wide foundation plans for tie down and wind resistance for each type of relocatable and each type of known soil condition in the district, shall be prepared and reviewed at the time of the design and shall be required as a part of the approval of any relocatable. These documents shall be kept on file in the district, with an additional copy in each relocatable filed together with current annual local fire inspection reports, as required by law. The foundation plans shall be reviewed and updated when necessary for compliance with current code for subsequent installations of the relocatable. Relocatables which do not meet the requirements of code for tie down and wind resistance shall not be occupied.

(See Appendix, Relocatables for Classroom Use.)

423.27.2.2 DOT requirements.

Relocatable units designed to be moved on state roads shall comply with the maximum unit height, length and width requirements of the DOT.

423.27.2.3 Inventory/construction date signage.

A FISH inventory room number and the date of construction shall be noted on an inventory sign permanently affixed outside, beside or above the door, on all relocatables owned or leased by a district.

423.27.3 Construction type.

All new relocatables constructed, purchased or otherwise acquired by a board shall be noncombustible Type I, II or IV construction.

423.27.4 Accessibility.

All relocatables constructed, purchased or otherwise acquired by a board after the effective date of these standards shall comply with the Americans with

Disabilities Act as modified by Chapter 553, Florida Statutes, the Florida Building Code, Accessibility. Relocatables intended for use at facilities housing up to grades 5 or 6, shall also conform to the federal criteria Accessibility Standards for Children's Environments, which is available from the U.S. Architectural and Transportation Barriers Compliance Board.

423.27.5 Site standards/site plan.

Relocatables placed on educational plant sites shall comply with federal and state laws and rules relating to the placement of structures on sites, as well as building code, fire code site requirements.

423.27.5.1 Floodplain.

Compliance with floodplain standards is required for the initial and subsequent installation of public educational relocatable units. The finished floor shall be 12 inches (305 mm) above base flood elevation, the structure shall be designed to meet the Florida Building Code and anchored to resist buoyant forces.

Educational facilities in hazard areas shall comply with ASCE 24.

(See Appendix, Relocatables for Classroom Use.)

423.27.5.2 Covered walks and technology.

New relocatables and "modular schools" acquired by a board which are intended for long term use, shall be connected from exit door to the core facilities by accessible covered walkways, and shall contain wiring and computer technologies which connect to the facility's technology, communications and fire alarms infrastructure.

Exceptions:

1. Covered walks and public address systems are not required in Florida college facilities.
2. Temporary relocatables constructed after the date of this standard shall meet all construction requirements of this code, except that covered walks may be installed. The term "temporary relocatable" means relocatables which are used for less than four years to provide temporary housing while permanent replacement classrooms and related facilities are under construction, renovation or remodeling. The term "temporary relocatable" does not apply to relocatables which have been located on a school site for more than two years and used for classrooms or for student occupancy, where there is no identifiable permanent facility which is under construction, being remodeled, or renovated to house the students.

423.27.5.3 Separation of units.

Type I, II or IV, (noncombustible) relocatable units shall be separated as required by the Florida Building Code and the school site plan.

423.27.6 Structure.

Relocatable structures shall be positively anchored and designed to comply with Florida Building Code requirements.

(See Appendix, Relocatables for Classroom Use.)

423.27.7 Fire-retardant-treated wood (FRTW).

Only FRTW which does not contain ammonium phosphates, sulfates, or halides may be used in the roof structure of Type II construction, as authorized by other sections of the Florida Building Code. FRTW shall comply with the specific requirements found elsewhere in these public educational facilities requirements. Contractors shall provide evidence of compliance to inspectors. Inspection access panels shall be provided to facilitate initial and annual inspections for general condition assessment of FRTW and connectors.

423.27.8 Doors.

Exit doors shall swing in the direction of exit travel.

423.27.8.1 Classroom locksets.

Each door shall be equipped with a lockset, which is readily opened from the side from which egress is to be made at all times, a threshold, heavy duty hinges, and closer to control door closing. Each door shall have a view panel, with minimum dimensions of 8 inches by 42 inches (1067 mm) and a maximum of 1,296 square inches (.84 m^2), of ¼ inch (6 mm) tempered or safety glass installed with the bottom edge of the panel at 30

inches (762 mm) AFF. Each exterior door shall be protected from the elements by a roof overhang.

(See Appendix, Relocatables for Classroom Use.)

423.27.8.2 Roofed platform.

All exterior doors shall open onto a minimum 5 foot by 5 foot (1524 mm by 1524 mm) roofed platform with handrails, which is level with the interior floor.

(See Appendix, Relocatables for Classroom Use.)

423.27.9 Operable windows.

Classrooms shall have operable windows equal to at least 5 percent of the floor area of the unit where required by Section 1013.44, Florida Statutes. Exterior doors may be included in computing the required 5 percent. Awning, casement, or projecting windows shall not be placed in walls with adjacent walks, ramps, steps or platforms.

(See Appendix, Relocatables for Classroom Use.)

423.27.9.1 Rescue.

Windows for emergency rescue shall comply with NFPA 101, Florida edition as adopted by the Florida Fire Prevention Code, shall be operable from the inside by a single operation and shall be labeled "EMERGENCY RESCUE–KEEP AREA CLEAR."

423.27.10 Finishes.

Finishes in relocatable units shall comply with the following:

423.27.10.1 Interior walls and ceilings.

Interior wall and ceiling finishes in classrooms and other student use spaces shall be Class A or B as defined in NFPA 101, Florida edition as adopted by the Florida Fire Prevention Code. Corridor finishes shall be Class A. Formaldehyde levels shall not exceed the minimum HUD standards for manufactured housing.

423.27.10.2 Floors.

Floors shall be covered with resilient material, carpet, or other finished product. Carpet in classrooms shall be tested and certified by the manufacturer as passing the Radiant Panel Test Class II. Carpet in corridors shall be tested and certified by the manufacturer as passing the Radiant Panel Test Class I.

423.27.10.3 Toilet rooms, showers and bathing facilities.

Partitions and walls separating group toilet rooms shall be extended to the bottom of the roof deck.

423.27.10.3.1

Toilet room floors and base shall be finished with impervious nonslip materials. Toilet room walls shall be finished with impervious materials which shall be extended to a minimum height of 6 feet (1828 mm).

423.27.10.3.2

Ceilings shall be of solid-type moisture resistant-materials.

423.27.11 Fire extinguishers.

At least one appropriate fire extinguisher shall be provided in each relocatable classroom unit and in each classroom of a multiclassroom building.

423.27.12 Document storage.

Provision shall be made to secure foundation plans and to post the annual fire inspection report within each relocatable unit.

423.27.13 Time-out rooms.

Time-out rooms are not recommended but, when provided, shall comply with the specific requirements for time-out rooms found elsewhere in these public educational facilities code requirements.

423.27.14 Child care/day care units.

Standard classroom units intended to house birth to age 3 children, including Teenage Parent Programs (TAP), shall meet the additional criteria under the title of Child Care/Day Care/Prekindergarten Facilities for permanent buildings contained in these public educational facilities requirements, as well as the following:

423.27.14.1

All TAP spaces where residential kitchens are provided shall have two doors exiting directly to the outside and remotely located from each other. Areas designated for children's sleeping mats, cots or cribs, shall have a clearly marked exit passageway.

423.27.15 Illumination required.

Illumination in classroom units shall be designed to provide an average maintained 50 footcandles (500 lux) at desk top.

423.27.15.1 Emergency lighting.

Each classroom unit shall be equipped with emergency lighting.

423.27.15.2 Exterior lighting.

Exterior lighting shall be provided as required elsewhere in these public educational facilities code requirements.

423.27.15.3 Exit lighting.

Exit lights shall be provided as required by the Florida Fire Prevention Code adopted by the State Fire Marshal.

423.27.16 Air conditioning, heating and ventilation.

Relocatable facilities shall meet Florida Building Code requirements.

423.27.17 Technology.

Relocatables shall contain wiring and computer technology appropriate for the programs to be housed.

423.27.18 Fire safety requirements.

New relocatables shall be provided with fire alarm devices meeting the code requirements for permanent educational facilities and shall be connected to the facility's main fire alarm system as required by code.

423.27.19 Inspection of units during construction.

Boards shall provide for the inspection of relocatables during construction, as required by the Florida Building Code, as authorized by statute.

423.27.20 Inspection of units prior to occupancy.

Prior to occupancy new relocatables shall be inspected and approved for compliance to the Florida Building Code. New units shall have foundation plans provided and secured, in the relocatable along with the local fire inspector report. Certification of such inspection shall remain on file with the district. Inventory/date of construction signage shall be affixed to the relocatable. Where FRTW is used inspection access panels shall be provided and within easy reach to facilitate inspection for general condition assessment of FRTW and connectors.

SECTION 443
SCHOOLS, COLLEGES, AND UNIVERSITIES

443.1 Scope.

Florida's public and private schools, colleges, and universities shall comply with all applicable requirements of the code and the following standards. These are minimum standards; boards or owners may impose more restrictive requirements. Additional requirements for public educational facilities in Florida, including public schools and Florida's colleges, are found in Section 423, State Requirements for Educational Facilities.

443.2 Sites.

443.2.1 Drainage.

Soil, grass, and planting beds shall provide positive drainage away from sidewalks, but shall not fall away at more than a 3-percent gradient slope for a minimum distance of 5 feet (1524 mm) from the edge.

Wheelchair-bound individuals can inadvertently drift off a sidewalk. The 3 percent slope for 5 feet gives a wheelchair-bound individual a fairly flat surface from which to re-access the sidewalk. Also, a step-down between the sidewalk and the adjacent zone should not be allowed. A step-down presents an obstacle preventing an individual in a wheelchair from re-accessing the sidewalk and can also present a tripping hazard to a disabled person walking with a cane.

443.2.2 Playgrounds and Equipment.

Playground and equipment shall be safe, structurally sound, verminproof, and shall not have jagged or sharp projections. Playground equipment shall be anchored to suitable foundations to prevent toppling or dislodgement. Cushioning materials such as mats, wood chips, or sand shall be used under climbing equipment, slides, and swings.

443.2.3 Outdoor waste containers.

A smooth nonabsorbent surface shall be provided for outdoor waste containers.

443.3 Building construction.

443.3.1 Rodent proofing.

Buildings for Group E occupancies shall be rodent proofed per Appendix F, Rodentproofing.

443.3.2 Glare from natural light.

Sources of natural light in instructional spaces shall be glazed with glare reducing materials or shall be shielded to prevent glare that can interfere with seeing task within the instructional space.

443.3.3 Automated external defibrillator.

Automated external defibrillators shall be provided in public educational facilities that are a member of the Florida High School Athletic Association.

443.3.4 Diaper changing stations.

A diaper changing station shall be located in or adjacent to any classroom where children wearing diapers are in attendance. A hand washing lavatory shall be provided within the changing station area. Access shall be provided to the lavatory without opening doors or touching a handle.

443.3.5 Plumbing.

443.3.5.1 Standards.

Educational and ancillary facilities shall be provided with toilets, hand washing facilities, and drinking fountains for all occupants, in ratios and accessible as required by the Florida Building Code, Florida law, and federal requirements.

> **Exception:** A single unisex toilet room is allowed where provided in child care, pre-kindergarten through grade 3 and ESE classrooms.

443.3.5.2 Teacher toilets.

Faculty and staff toilets shall be separate from student toilets.

> **Exception:** Separation of faculty/staff and student toilet facilities is not required for colleges and universities.

443.3.5.3 Toilet room access.

443.3.5.3.1

Toilet facilities for Pre-K through Grade 12 shall be accessible under continuous roof cover from all student occupied spaces.

> **Exception:** Relocatable classrooms installed for temporary use.

443.3.5.3.2 Access to group toilet rooms.

Access to student group toilet rooms shall not be through an occupied space, storage space, or equipment space.

443.3.5.4 Shielding device.

The entry to each group toilet room shall be provided with a door, partition, or other shielding device to block from view the occupants in the toilet room. If a door is provided, it shall have a closer and shall swing out in the direction of egress.

443.3.5.5 Walls.

Walls in toilet rooms shall be impervious to a height of at least 4 feet (1219 mm) above the floor. Walls in kitchens, sculleries, can wash areas, and shower rooms shall be impervious to a height of at least 6 feet (1829 mm) above the floor. Toilet and shower partitions shall be impervious.

443.3.5.6 Floor drains and hose bibbs.

All group toilet rooms shall be provided with at least one floor drain and one easily accessible hose bibb. The floor shall be sloped down to the drain.

443.3.5.7 Handwashing facilities.

443.3.5.7.1

Handwashing facilities shall be located within or adjoining each toilet room.

443.3.5.7.2

Soap dispensers for liquid, foam or powdered soap shall be provided at all handwashing basins.

443.3.5.7.3

Individual towel dispensers or hot-air hand drying devices shall be provided near handwashing basins.

443.3.5.8 Showers.

443.3.5.8.1

Shower heads shall be based on the peak load to be accommodated at one time and provided at the ratio of one shower head for each five students, located a minimum of 30 inches (762 mm) apart.

443.3.5.8.2

Floors shall be drained in such a manner that waste water from any shower head will not pass over areas occupied by other bathers.

443.3.5.8.3

Water shall be heated and the temperature at the shower head shall not exceed 110°F (43°C) nor be less than 95°F (35°C).

443.3.6 Mechanical.

443.3.6.1 Natural ventilation.

Natural ventilation shall not be provided in toilet rooms, shower rooms, locker rooms, and storage rooms for athletic equipment or soiled clothes.

443.3.6.2 Fans and blowers.

Fans and blowers shall be sized and designed to provide the required air movement without excessive or disturbing noise that would interfere with the educational program provided in the space being ventilated.

443.3.6.3 Kilns.

Kiln rooms and areas shall be provided with adequate exhaust to dispel emitted heat to the exterior, and they shall not be connected to any other exhaust system.

443.3.6.4 Chemistry laboratories and science classrooms.

HVAC systems in chemistry labs and science classrooms shall be designed and installed to ensure that chemicals originating from the space are not re-circulated.

> **Exception:** A high capacity emergency exhaust system providing twenty (20) air changes per hour may be used in chemistry laboratories and science classrooms with fume hoods. Positive ventilation may be provided via doors or windows opening to the exterior. Signs providing operational instructions shall be permanently installed at the emergency exhaust system fan switch and adjacent to the door(s) or window(s) to be opened.

443.3.6.5 Chemistry storage.

Rooms used for the storage, handling, and disposal of chemicals used in school, college, and university laboratories shall be vented to the exterior. The ventilation system shall not be connected to the air-conditioning return air system, and the rooms shall be kept at moderate temperatures. Chemical storage cabinets, when vented to the exterior, shall be mechanically vented in accordance with NFPA 30 and NFPA 91.

443.3.7 Lighting.

See Section 423.17.1 Florida Building Code for emergency lighting.

443.3.7.1 Illumination level in classrooms/ instructional spaces.

Illumination at the normal task level for the type of classroom/instruction space shall be a minimum of forty (40) foot-candles (400 Lux).

The forty (40) foot-candles (400 Lux) is a minimum. DOE recommends fifty (50) foot-candles in classrooms, fifty to sixty (50 to 60) foot-candles in science labs, thirty to forty (30 to 40) in computer labs, and fifty to seventy-five (50 to 75) in technology labs, depending on the type of technology.

443.3.7.2 Illumination uniformity in classrooms/ instruction spaces.

Luminaries shall have a ceiling arrangement or positioned around the walls such that a uniformed illumination level, within ten (10) foot-candles (100 Lux), is maintained at the students required normal task level for the type of classroom/instruction space.

Placement of the luminaries should be such that overlapping reduces shadows and increases task level illumination.

443.3.7.3 Brightness ratio in classrooms/ instructional spaces.

The brightness ratio between the student task level and the instruction area or areas or visual display location shall be one (1) to five (5) or less.

443.3.7.4 Illumination failure of general and means of egress luminaries.

Illumination systems shall be designed and maintained so that the failure of any single lighting unit, such as an electric luminary, does not leave any occupied space or means of egress in the dark. (See FBC 1006 for additional means of egress requirements.)

443.3.7.5 Glare elimination.

Illumination of permanently installed markerboards, chalkboards, and other instruction aids shall be designed

to eliminate glare and shadows.

Chapter 5
GENERAL BUILDING HEIGHTS AND AREAS
Florida Building Code, Building

SECTION 501
GENERAL

501.1 Scope.

The provisions of this chapter control the height and area of structures hereafter erected and additions to existing structures.

SECTION 503
GENERAL BUILDING HEIGHT AND AREA LIMITATIONS

TABLE 503
ALLOWABLE BUILDING HEIGHTS AND AREAS[a]
Building height limitations shown in feet above grade plane. Story limitations shown as stories above grade plane. Building area limitation shown in square feet, as determined by the definition of "Area, building", per story.

		TYPE OF CONSTRUCTION				
		TYPE I		TYPE II		TYPE IV
GROUP		A	B	A	B	HT
	HEIGHT	UL	160	65	55	65
A-1	S A	UL UL	5 UL	3 15,500	2 8,500	3 15,000
A-2	S A	UL UL	11 UL	3 15,500	2 9,500	3 15,000
A-3	S A	UL UL	11 UL	3 15,500	2 9,500	3 15,000
A-4	S A	UL UL	11 UL	3 15,500	2 9,500	3 15,000
A-5	S A	UL UL	UL UL	UL UL	UL UL	UL UL
B	S A	UL UL	11 UL	5 37,500	3 23,000	5 36,000
E/D	S A	UL UL	5 UL	3 26,500	2 14,500	3 25,500
M	S A	UL UL	11 UL	4 21,500	2 12,500	4 20,500
S-1	S A	UL UL	11 48,000	4 26,000	2 17,500	4 25,500

UL = unlimited, NP – Not permitted

a. See the following section for general exceptions to Table 503:
   1. Section 504.2, Allowable building height and story increase due to automatic sprinkler system installation.
   2. Section 506.2, Allowable building area increase due to street frontage.
   3. Section 506.3, Allowable building area increase due to automatic sprinkler system installation.
   4. Section 507, Unlimited area buildings.

b. For open parking structures, see Section 406.3.

503.1 General.

The building height and area shall not exceed the limits specified in Table 503 based on the type of construction as determined by Section 602 and the occupancies as determined by Section 302 except as modified hereafter. Each portion of a building separated by one or more fire walls complying with Section 706 shall be considered to be a separate building.

Area separations require a fire wall constructed as defined in Section 702.1, Florida Building Code.

When the square footage of an addition to an existing building increases the overall square footage in excess of the area limits allowed for the construction type, as set forth in Table 503, a fire wall shall divide the building into allowable areas.

503.1.2 Buildings on same lot.

Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the building height of each building and the aggregate building area of the buildings are within the limitations of Table 503 as modified by Sections 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.

503.1.5 Group A and E basements.

Group A and E basements used as classrooms or assembly rooms shall be counted as a story.

When the square footage of an addition to an existing building increases the overall square footage in excess of the area limits allowed for the construction type, as set forth in Table 503, a fire wall shall divide the building into allowable areas.

SECTION 504
BUILDING HEIGHT

504.2 Automatic sprinkler system increase.

Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum building height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one. These increases are permitted in addition to the building area increase in accordance with Sections 506.2

and 506.3.

Exceptions:
1. NA
2. Buildings, or potions of buildings classified as a Group H-1, H-2, H-3 or H-5 occupancy.

SECTION 506
BUILDING AREA MODIFICATIONS

506.1 General.

The building areas limited by Table 503 shall be permitted to be increased due to frontage (I_f) and automatic sprinkler system protection (I_s) in accordance with the following:

$$A_a = \{A_t + [A_t \times I_f] + [A_t \times I_s]\}$$
(Equation 5-1)

where:
A_a = Allowable building area per story(square feet).
A_t = Tabular building area per story in accordance with Table 503 (square feet).
I_f = Area increase factor due to frontage as calculated in accordance with Section 506.2.
I_s = Area increase factor due to sprinkler protection as calculated in accordance with Section 506.3.

506.2 Frontage increase.

Every building shall adjoin or have access to a public way to receive a building area increase for frontage. Where a building has more than 25 percent of its perimeter on a public way or open space having a minimum width of 20 feet (6096 mm), the frontage increase shall be determined in accordance with the following:

$$I_f = [F / P - 0.25] W/30$$
(Equation 5-2)

Where:
I_f = Area increase due to frontage.
F = Building perimeter that fronts on a public way or open space having 20 feet (6096 mm) open minimum width (feet).
P = Perimeter of entire building (feet).
W = Width of public way or open space (feet) in accordance with Section 506.2.1.

506.2.1 Width limits.

The value of W shall be at least 20 feet (6096 mm). Where the value of W varies along the perimeter of the building, the calculation performed in accordance with Equation 5-2 shall be based on the weighted average of each portion of exterior wall and open space where the value of W is greater than or equal to 20 feet (6096 mm)

Where the value of W exceeds 30 feet (9144 mm), a value of 30 feet (9144 mm) shall be used in calculating the weighted average, regardless of the actual width of the open space. Where two or more buildings are on the same lot, W shall be measured from the exterior face of a building to the exterior face of an opposing building, as applicable.

Exception: The value of W divided by 30 shall be permitted to be a maximum of 2 when the building meets all requirements for Section 507 except for compliance with the 60-foot (18 288 mm) public way or yard requirement, as applicable.

506.2.2 Open space limits.

Such open space shall be either on the same lot or dedicated for public use and shall be accessed from a street or approved fire lane.

506.3 Automatic sprinkler system increase.

Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the building area limitation in Table 503 is permitted to be increased by an additional 200 percent (I_S =2) for buildings with more than one story above grade plane and an additional 300 percent (I_S =3) for buildings with no more than one story above grade plane. These increases are permitted in addition to the height and story increases in accordance with Section 504.2.

Exceptions: The building area limitation increases shall not be permitted for the following conditions:

1. The automatic sprinkler system increase shall not apply to buildings with an occupancy in Group H-1.
2. The automatic sprinkler system increase shall not apply to the building area of our occupancy in Group H-2 or H-3. For buildings containing such occupancies, the allowable building area shall be determined in accordance with Section 508.4.2, with the sprinkler increase applicable only to the portions of the building not classified as Group H-2 or H-3.

506.4 Single occupancy building with more than one story.

The total allowable building area of a single occupancy building with more than one story above grade plane shall be determined in accordance with this section. The actual aggregate building area at all stories in the building

shall not exceed the total allowable building area.

Exceptions: A single basement need not be included in the total allowable building area, provided such basement does not exceed the area permitted for a building with no more than one story above grade plane.

506.4.1 Area determination.

The total allowable building area of a single occupancy building with more than one story above grade plane shall be determined by multiplying the allowable building area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane as listed below:

1. For building with two stories above grade plane, multiply by 2;
2. For buildings with three or more stories above grade plane, multiply by 3; and
3. No story shall exceed the allowable building area per story (A_a), as determined in Section 506.1, for the occupancies on the story.

Exceptions:

1. Unlimited area buildings in accordance with Section 507.
2. The maximum area of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per story (A_a), as determined in Section 506.1, by the number of stories above grade plane.

506.5 Mixed occupancy area determination.

The total allowable building area for buildings containing mixed occupancies shall be determined in accordance with the applicable provisions of this section. A single basement need not be included in the total allowable building area, provided such basement does not exceed the area permitted for a building with no more than one story above grade plane.

506.5.1 No more than one story above grade plane.

For buildings with no more than one story above grade plane and containing mixed occupancies, the total building area shall be determined in accordance with the applicable provisions of Section 508.1.

506.5.2 More than one story above grade plane.

For buildings with more than one story above grade plane and containing mixed occupancies, each story shall individually comply with the applicable requirements of Section 508.1. For building with more than three stories above grade plane, the total building area shall be such that the aggregate sum of the ratios of the actual area of each story divided by the allowable area of such stories based on the applicable provisions of Section 508.1 shall not exceed 3.

SECTION 507
UNLIMITED AREA BUILDINGS

507.3 Sprinklered, one story.

The area of a Group B, F, M or S building no more than one story above grade plane, or a Group A-4 building no more than one story above grade plane of other than Type V Construction, shall not be limited when the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Building and structures of Types I and II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Section 507.3, 903.3.1.1 and Chapter 23 of the Florida Fire Prevention Code.
2. The automatic sprinkler system shall not shall not be required In areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies In Group A-4, provided that:
   2.1 Exit doors directly to the outside are provided for occupants of the participant sports areas; and
   2.2 The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.

507.3.1 Mixed occupancy buildings with Group A-1 and A-2.

Group A-1 and A-2 occupancies of other than Type V construction shall be permitted within mixed occupancy buildings of unlimited area complying with Section 507.3, provided:

1. Group A-1 and A-2 occupancies are separated from other occupancies as required for separated from other occupancies as required for separated occupancies in Section 508.4.4 with no reduction allowed in the fire-resistance rating of the separation based upon the installation of an automatic sprinkler system;

2. Each area of the portions of the building used for Group A-1 and A-2 occupancies shall not exceed the maximum allowable area permitted for such occupancies In Section 503.1; and
3. All exit doors from Group A-1 and A-2 occupancies shall discharge directly to the exterior of the building.

507.4 Two story.

The area of a Group B, F, M, or S building no more than two stories above grade plane shall not be limited when the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

507.5 Reduced open space.

The public ways or yards of 60 feet (18 288 mm) in width required in Section 507.2, 507.3, 507.4, 507.6 and 507.11 shall be permitted to be reduced to not less than 40 feet (12 192 mm) in width provided all of the following requirements are met:

1. The reduced width shall not be allowed for more than 75 percent of the perimeter of the building.
2. The exterior walls facing the reduced width shall have a minimum fire-resistance rating 3 hours.
3. Openings in the exterior walls facing the reduced width shall have opening protectives with a minimum fire protection rating of 3 hours.

507.6 Group A-3 buildings of Type II construction.

The area of a Group A-3 building no more than one story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type II construction, shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 building of Type IV construction.

The area of a Group A-3 building no more than one story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type IV construction, shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.
4. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

507.10 Group E buildings.

The area of a Group E building no more than one story above grade plane, of Type II or IV construction, shall not be limited when all the following criteria are met:

1. Each classroom shall have not less than two means of egress, with one of the means of egress being a direct exit to the outside of the building complying with Section 1020.
2. The building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The building is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

If the second exit is to an interior corridor, the interior corridor shall meet requirements for smoke-tight construction.

SECTION 508
MIXED USE AND OCCUPANCY

508.1 General.

Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 or 508.4, or a combination of these sections.

Exceptions:
1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2, and H-3 occupancies shall be

located in a separate and detached building or structure.

3. Uses within live/work units, complying with Section 438, are not considered separate occupancies.

508.2 Accessory occupancies.

Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections 508.2.1 through 508.2.5.3.

508.2.1 Area limitations.

Aggregate accessory occupancies shall not occupy more than 10 percent of the building area of the story In which they are located and shall not exceed the tabular values In Table 503, without building area Increases in accordance with Section 506 for such accessory occupancies.

508.2.2 Occupancy classification.

Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classifications of that space.

508.2.3 Allowable building area and height.

The allowable building area and height of the building shall be based on the allowable building area and height for the main occupancy in accordance with Section 503.1. The height of each accessory occupancy shall not exceed the tabular values In Table 503, without Increases in accordance with Section 504 for such accessory occupancies. The building area of the accessory occupancies shall be in accordance with Section 508.2.1.

508.2.4 Separation of occupancies.

No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.2.5
2. Incidental accessory occupancies required to be separated or protected by Section 508.4.

508.2.5 Separation of incidental accessory occupancies.

The Incidental accessory occupancies listed in Table 508.2.5 shall be separated from the reminder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance with table 508.2.5.

508.2.5.1 Fire-resistance-rated separation.

Where Table 508.2.5 specifies a fire-resistance-rated separation, the incidental accessory occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 707 or a horizontal assembly constructed in accordance with Section 712, or both. Construction supporting 1-hour fire-resistance-rated fire barriers or horizontal assemblies used for incidental accessory occupancy separations in buildings of Type IIB construction are not required to be fire-resistance rated unless required by other sections of this code.

Fire-rated walls shall extend from the floor to the deck above. If the fire-rated walls stop at the ceiling, verify that the ceiling assembly itself is fire-rated for the entire floor level.

508.2.5.2 Nonfire-resistance-rated separation and protection.

Where Table 508.2.5 permits an automatic fire-extinguishing system without a fire barrier, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor assembly below to the underside of the ceiling that is component of a fire-resistance-rated floor assembly or roof assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic-closing upon detection of smoke in accordance with Section 715.4.8.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Walls surrounding the incidental accessory occupancy shall not have air transfer opening unless provided with smoke dampers in accordance with Section 711.7.

508.2.5.3 Protection.

Except as specified in Table 508.2.5 for certain incidental accessory occupancies, where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.2.5, only the space occupied by the incidental accessory occupancy need be equipped with such a system.

508.3 Nonseparated occupancies.

Building or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.

508.3.1 Occupancy classification.

Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.

508.3.2 Allowable building area and height.

The allowable building area and height of the building or portions thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

508.4 Separated occupancies.

Buildings or portions of buildings that comply with the provisions of this section shall be considered as separated occupancies.

508.4.1 Occupancy classification.

Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building.

508.4.2 Allowable building area.

In each story, the building area shall be such that the sum of the ratios of the actual building area of each separated occupancy divided by the allowable building area of each separated occupancy shall not exceed 1.

508.4.3 Allowable height.

Each separated occupancy shall comply with the building height limitations based on the type of construction of the building in accordance with Section 503.1.

Exception: Special provisions permitted by Section 509.

508.4.4 Separation.

Individual occupancies shall be separated from adjacent occupancies in accordance with Table 508.4.

508.4.4.1 Construction.

Required separation shall be fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with section 712, or both, so as to completely separate adjacent occupancies.

TABLE 508.2.5
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION and/or PROETECTION
Furnace room where any piece of equipment is over 400,000 BTU per hour input	1 hour or provide automatic fire-extinguishing system
Rooms with any boiler where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic fire-extinguishing system
Refrigerant machinery rooms	1 hour or provide automatic sprinkler system
Incinerator rooms	2 hours and automatic sprinkler system
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic fire-extinguishing system
Laboratories and vocational shops, not classified as Group h, located in Group E or I-2 occupancies	1 hour or provide automatic fire-extinguishing system
Laundry rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Waste and linen collection rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies	1 hour in Group B, F, M, S, and U occupancies; 2 hours in Group A, E, I occupancies
Rooms containing fire pumps in nonhigh-rise buildings	2 hours; or 1 hour and provide automatic sprinkler system throughout the building

For SI:
1 square foot = 0.0929 m, 1 pound per square inch = 6.9 kPa,
1 British thermal unit (BTU) per hour = 0.293 watts,
1 horsepower = 746 watts,
1 gallon = 3.785 L.

The Florida Building Code identifies assembly areas in Educational occupancies as part of the Educational occupancy and does not classify them as a mixed or separate occupancy for the purposes of space separation, construction type, and fire sprinkler systems.

Section 423.8.1.1 indicates that support spaces such as

media centers, administrative offices, cafeterias and kitchens are not separate or mixed occupancies, but that auditoriums and gymnasiums are separate or mixed occupancies. The Florida Fire Prevention Code and recent rulings for the State Fire Marshal's Office identify assembly spaces with 300 occupants or more as either a mixed or separate occupancy and the Florida Fire Prevention Code requirements for mixed and separate occupancies shall be met.

Gymnasiums, auditoriums, and cafeterias are classified as separate assembly occupancies and shall be separated from Educational occupancies in accordance with Table 1.1.14.4.1(a), Florida Fire Prevention Code.

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

Occupancy	A[d], D, E		I-1		R		F-2, F-3, S-2[b], U		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[d], D, E	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
S-2[b], U	-	-	-	-	-	-	N	N	1	2	NP	NP	3	4	2	3[a]
B, M, S-1	-	-	-	-	-	-	-	-	N	N	NP	NP	2	3	1	2[a]

For SI: 1 square foot = 0.0929 m²

S = Building equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Building not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted

a. For Group H-5 occupancies, see Section 903.2.5.2
b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.
c. See Section 406.1.1.
d. Commercial kitchens need not be separated from the restaurant seating area that they serve.
e. Separation is not required between occupancies of the same classification.

Chapter 6
TYPES OF CONSTRUCTION
Florida Building Code, Building

SECTION 601
GENERAL

601.1 Scope.

The provisions of this code shall control the classification of building as to type of construction.

SECTION 602
CONSTRUCTION CLASSIFICATION

602.1 General.

Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602. Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

Only construction Types I, II and IV are permitted in the construction of public educational facilities.

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame[g] (see Section 202)	3[ah]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[f,g] Interior	4 4[a]	3 3[a]	1 1	0 0	2 1	2 0	2 2[q]/HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and secondary members (see Section 202)	3[h]	2	1[d]	0[d,i]	1[d]	0[d, i]	HT	1	0
Roof construction and secondary members (see Section 202)	1½[b, h]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

For SI: 1 foot = 304.7 mm.

a. Fire-resistance rating of primary structural frame and bearing walls are permitted to be reduced by 1-hour where supporting one floor or one roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. Group B and M in occupancies of Type II construction five stories in height shall be required to have a minimum 2-hour fire-resistance rating for the floor construction located over the basement.
e. Not less than the fire-resistance rating required by other sections for this code.
f. Not less than the fire-resistance rating based on the fire separation distance (see Table 602).
g. Not less than the fire-resistance rating as references in Section 704.10.
h. For Group A, B, and E occupancies and parking garages, the required fire-resistance rating for the structural frame, floor and roof construction, including supporting beams and joists, shall be permitted to be reduced by 1-hour where the building is protected throughout with an approved automatic sprinkler system in accordance with section 903.3.1.1, but the fire-resistance rating shall not be less than 1-hour.
i. For unsprinklered Group E occupancies of Type II-B and IV construction, the floor construction located immediately above usable space in basements shall have a fire-resistance rating of not less than 1-hour.

602.1.1 Minimum requirements.

A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE [a, e]

FIRE SPARATION DISTANCE = x (feet)	TYPE OF CONSTRUCTION	GROUP M, S-1	GROUP A, B, E, I, S-2, U[b]
X < 5[c]	I-A, I-B, IV others	3 2	3 1
5 ≤ X < 10	I-A, I-B, IV others	2 1	2 1
10 ≤ X < 20	I-A, I-B, IV IIB, others	2 0 1	2[d] 0 1[d]
20 ≤ X < 30	I-A, I-B, IV others	1 0	1[d] 0
X ≥ 30	ALL	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2.
c. See Section 706.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. For special requirements for Group H occupancies, see Section 412.4.1.

602.2 Types I and II.

Type I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

602.3 Type III.

Type III Construction is that type of construction in which the exterior walls are noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.

Combustible construction is not permitted in public educational facilities.

Fire-retardant-treated wood is not permitted in public educational facilities.

602.4 Type IV.

Type IV Construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section.

Fire-retardant-treated wood is not permitted in public educational facilities.

602.4.6 Partitions.

Partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards of laminated construction 4 inches (102 mm) thick, or of 1-hour fire-resistance-rated construction.

In accordance with Section 423.11.7, Florida Building Code, interior non-loaded-bearing wood studs or partitions shall not be used in permanent educational and auxiliary facilities or relocatable buildings.

602.4.7 Exterior structural members.

Where a horizontal separation of 20 feet (6096 mm) or more is provided, wood columns and arches conforming to heavy timber sizes shall be permitted to be used externally.

602.5 Type V.

Type V construction is that type of construction in which the structural elements, exterior walls and interior walls are of any materials permitted by this code.

Combustible construction is not permitted in public educational facilities.

Chapter 7
FIRE AND SMOKE PROTECTION FEATURES
Florida Building Code, Building

SECTION 701
GENERAL

701.2 Scope.

The provisions of this chapter shall govern the materials, systems and assemblies used for structural fire resistance and fire-resistance-rated construction separation of adjacent spaces to safeguard against the spread of fire and smoke within a building and the spread of fire to or from buildings.

SECTION 706
FIRE WALLS

706.1 General.

Each portion of a building separated by one or more fire walls that comply with provisions of this section shall be considered a separate building. The extent and location of such fire walls shall provide a complete separation. Where a fire wall also separates occupancies that are required to be separated by a fire barrier wall, the most restrictive requirements of each separation shall apply.

706.1.1 Party walls.

Any wall located on a lot line between adjacent buildings which is used or adapted for joint service between the two buildings, shall be constructed as a fire wall in accordance with Section 706, without openings and shall create separate buildings.

706.2 Structural stability.

Fire walls shall have sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall for the duration of time indicated by the required fire-resistance rating.

706.3 Materials.

Fire walls shall be of any approved noncombustible materials.

706.4 Fire-resistance rating.

Fire walls shall have a fire-resistance rating of not less than required by Table 706.4.

TABLE 706.4
FIRE WALL FIRE-RESISTANCE RATINGS

GROUP	FIRE-RESISTANCE RATING (hours)
A, B, D, E,	3[a]
M; S-1	3

a. In Type II construction, walls shall be permitted to have a 2-hour fire-resistance rating.

706.5 Horizontal continuity.

Fire walls shall be continuous from exterior wall to exterior wall and shall extend at least 18 inches (457 mm) beyond the exterior surface of exterior walls.

See the Florida Building Code, Section 706.5 for exceptions.

706.5.1 Exterior walls.

Where the fire wall intersects exterior walls, the fire-resistance rating and opening protection of the exterior walls shall comply with one of the following:

1. The exterior walls on both sides of the fire wall shall have a 1-hour fire-resistance rating with ¾-hour protection where opening protection is required by Section 705.8. The fire-resistance rating of the exterior wall shall extend a minimum of 4 feet (1220 mm) on each site of the intersection of the fire wall to exterior wall. Exterior wall intersections at fire walls that form an angle equal to or greater than 180 degrees (3.14 rad) do not need exterior wall protection.
2. Buildings or spaces on both sides of the intersection fire wall shall assume to have an imaginary lot line at the fire wall and extending beyond the exterior of the fire wall. The location of the assumed line in relation to the exterior walls and the fire walls shall be such that the exterior wall and opening protection meet the requirement set forth in Section 705.5 and 705.8. Such protection is not required for exterior walls terminating at fire walls that form an angle equal to or greater than 180 degrees (3.14 rad).

706.5.2 Horizontal projecting elements.

Fire walls shall extend to the outer edge of horizontal projecting elements such as balconies, roof overhangs, canopies, marquees and similar projections that are within 4 feet (1220 mm) of the fire wall.

See the Florida Building Code, Section 706.5.2, for exceptions.

706.6 Vertical continuity.

Fire walls shall extend from the foundation to a termination point at least 30 inches (762 mm) above both adjacent roofs.

See Florida Building Code, Section 706.6 for exceptions.

706.6.1 Stepped buildings.

Where a fire wall serves as an exterior wall for a building and separates buildings having different roof levels, such wall shall terminate at a point not less than 30 inches (762 mm) above the lower roof level, provided the exterior wall for a height of 15 feet (4572 mm) above the lower roof is not less than 1-hour fire-resistance-rated construction from both sides with openings protected by fire assemblies having a fire protection rating of no less than 3/4 hour.

See the Florida Building Code, Section 706.6.1, for exceptions.

706.8 Openings.

Each opening through a fire wall shall be protected in accordance with Section 715.4 and shall not exceed 156 square feet (15m^2). The aggregate width of openings at any floor level shall not exceed 25 percent of the length of the wall.

Exceptions:

1. Openings are not permitted in party walls constructed in accordance with Section 706.1.1.
2. Openings shall not be limited to 156 square feet (15 m^2) where both buildings are equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

706.9 Penetrations.

Penetrations of fire walls shall comply with Section 713.

706.10 Joints.

Joints made in or between fire walls shall comply with Section 714.

706.11 Ducts and air transfer openings.

Ducts and air transfer openings shall not penetrate fire walls.

Exception: Penetrations by ducts and air transfer openings of fire walls that are not on a lot line shall be allowed provided the penetrations comply with Section 716. The size and aggregate width of all openings shall not exceed the limitations of Section 706.8.

SECTION 707
FIRE BARRIERS

707.1 General.

Fire barriers installed as required elsewhere in this code or the Florida Fire Prevention Code, shall comply with this section.

Exit passageways and horizontal exits are not permitted in public educational facilities.

707.2 Materials.

Fire barriers shall be of material permitted by the building type of construction.

707.3 Fire-resistance rating.

The fire-resistance rating of fire barriers shall comply with this section.

707.3.1 Shaft enclosures.

The fire-resistance rating of the fire barrier separating building areas from a shaft shall comply with Section 708.4.

707.3.2 Exit enclosures.

The fire-resistance rating of the fire barrier separating building areas from an exit shall comply with Section 1022.1.

707.3.6 Incidental accessory occupancies.

The fire barrier separating incidental accessory occupancies from other spaces in a building shall have a fire-resistance rating of not less than that indicated in Table 508.2.5.

707.3.8 Separated occupancies.

Where the provisions of Section 508.4 are applicable, the fire barrier separating mixed occupancies shall have a fire-resistance rating of not less than that indicated in Section 508.4 based on the occupancies being separated.

Educational occupancies shall be separated from other occupancies, such as auditoriums and gymnasiums, by at least 2-hour fire-rated construction.

707.3.9 Fire areas.

The fire barrier or horizontal assembly, or both, separating a single occupancy into different fire areas shall have a fire-resistance rating of not less than that Indicated In table 707.3.9.

707.5 Continuity.

Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed spaces, such as the space above a suspended ceiling

707.5.1 Supporting construction.

The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 717.2 at every floor level.

Exceptions:

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in Section 415.6.2.2 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 708.12.
3. Supporting construction for 1-hour fire barriers required by Table 508.2.5 in buildings of Type IIB construction is not required to be fire-resistance rated unless required by other sections of this code.

All fire-rated partitions shall extend tight to the deck above, except in exit access corridor walls, which may terminate at a ceiling where the ceiling is a complete assembly having a 1-hour fire-resistance rating when tested as a wall.

(See Appendix, Corridor Protection.)

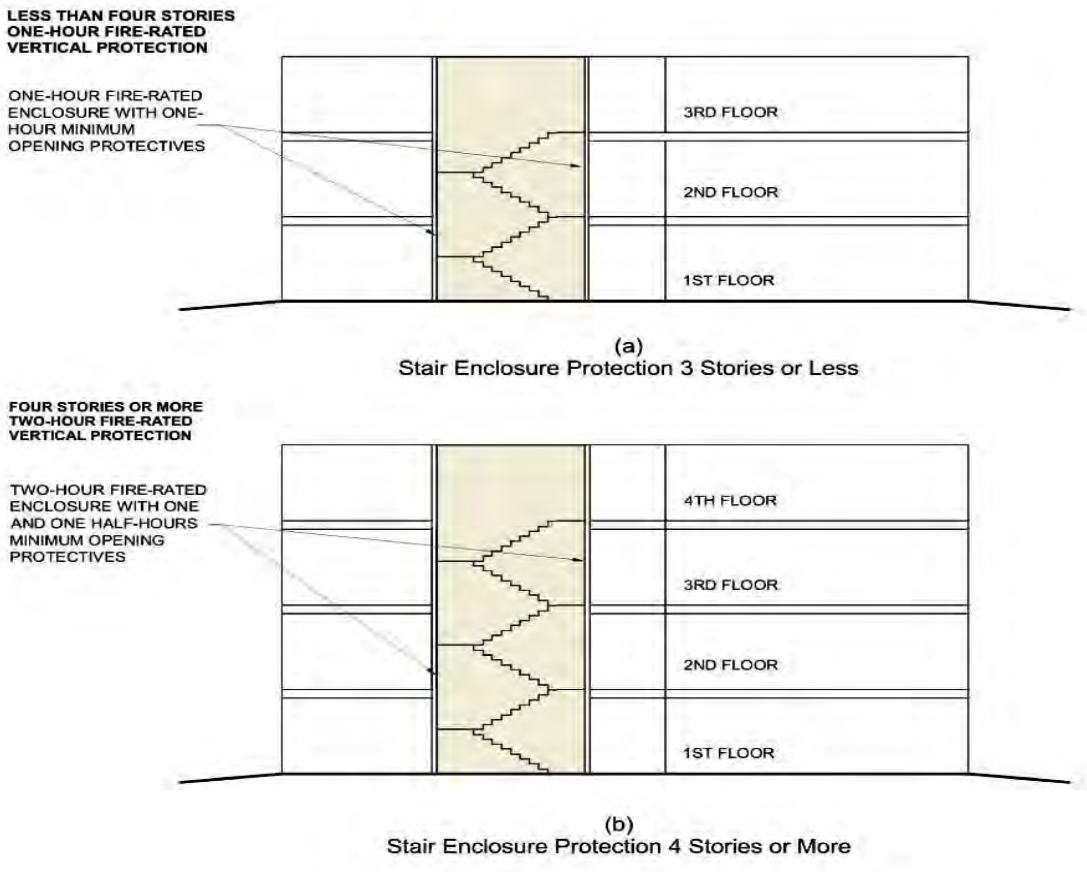


Figure 707.4
Shaft Enclosure Fire-Resistance Rating

SECTION 708
SHAFT ENCLOSURES

708.1 General.

The provisions of this section shall apply to shafts required to protect openings and penetrations through floor/ceiling and roof/ceiling assemblies. Shaft enclosures shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies in accordance with Section 712, or both.

708.3 Materials.

The shaft enclosure shall be of materials permitted by the building type of construction.

Only noncombustible construction shall be used in public educational facilities.

708.4 Fire-resistance rating.

Shaft enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the shaft enclosure shall include any basements but not any mezzanines. Shaft enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Shaft enclosures shall meet requirements of Section 703.2.1.

708.5 Continuity.

Shaft enclosures shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both and shall have continuity in accordance with Section 707.5 for fire barriers or Section 712.4 for horizontal assemblies as applicable.

708.6 Exterior walls.

Where exterior walls serve as a part of a required shaft enclosure, such walls shall comply with the requirements of Section 705 for exterior walls and the fire-resistance-rated enclosure requirements shall not apply.

> **Exception:** Exterior walls required to be fire-resistance rated in accordance with Section 1019.2 for exterior egress balconies, Section 1022.6 for exit enclosures and Section 1026.6 for exterior exit ramps and stairways.

The above exception applies to exterior ramps and stairway protection.

708.7 Openings.

Openings in a shaft enclosure shall be protected in accordance with Section 715 as required for fire barriers. Doors shall be self or automatic closing by smoke detection in accordance with Section 715.4.8.3.

708.7.1 Prohibited openings.

Openings other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

708.8 Penetrations.

Penetrations in a shaft enclosure shall be protected in accordance with Section 713 as required for fire barriers.

708.8.1 Prohibited penetrations.

Penetrations other than those necessary for the purpose of the shaft shall not be permitted in shaft enclosures.

Section 1022.4, Florida Building Code, allows penetrations in vertical exit enclosures for ductwork necessary for independent pressurization.

708.9 Joints.

Joints in a shaft enclosure shall comply with Section 714.

708.10 Ducts and air transfer openings.

Penetrations of a shaft enclosure by ducts and air transfer openings shall comply with Section 716.

708.11 Enclosure at the bottom.

Shafts that do not extend to the bottom of the building or structure shall comply with one of the following:

1. They shall be enclosed at the lowest level with construction of the same fire-resistance rating as the lowest floor through which the shaft passes, but not less than the rating required for the shaft enclosure;
2. They shall terminate in a room having a use related to the purpose of the shaft. The room shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 707 or of horizontal assemblies constructed in accordance with Section 712, or both. The fire resistance rating and opening protective shall be at least equal to the protection required for the shaft enclosure;

3. They shall be protected by approved fire dampers installed in accordance with their listing at the lowest floor level within the shaft enclosure.

Exceptions:
1. The fire-resistance-rated room separation is not required, provided there are no openings in or penetrations of the shaft enclosure to the interior of the building except at the bottom. The bottom of the shaft shall be closed off around the penetrating items with materials permitted by Section 717.3.1 for draft stopping, or the room shall be provided with an approved automatic fire suppression system.
2. A shaft enclosure containing a refuse chute or laundry chute shall not be used for any other purpose and shall terminate in a room protected in accordance with Section 708.13.4.
3. The fire-resistance-rated room separation and the protection at the bottom of the shaft are not required provided there are no combustibles in the shaft and there are no openings or other penetrations through the shaft enclosure to the interior of the building.

SECTION 709
FIRE PARTITIONS

709.1 General.

The following wall assemblies shall comply with this section.

1. NA
2. NA
3. NA
4. Corridor walls as required by Section 1018.1.
5. Elevator lobby separation as required by Section 708.14.1
6. Wall separating individual tenant spaces.

   Exceptions:
   1. In Group B and S occupancies, walls used to separate tenants shall not be required to have a fire-resistances rating, provided no area between partitions having a 1-hour fire-resistance rating exceeds 3,000 square feet (279 m^2)

The occupant load for administration areas should not only be based on 100 gross sq. ft. per person. However, spaces such as conference rooms, career rooms, and other similar rooms are considered unconcentrated Assembly; these occupant loads are based on 15 net sq. ft. per person. If the total number of occupants exceeds 30, the exit access corridor must have a fire-resistance rating of not less than 1-hour, or meet requirements for smoke-tight construction if the building is fully sprinklered.

709.2 Materials.

The walls shall be of materials permitted by the building type of construction.

709.3 Fire-resistance rating.

Fire partitions shall have a fire-resistance rating of not less than 1 hour.

Exceptions:
1. Corridor walls permitted to have a 1/2-hour fire-resistance rating by Table 1018.1.

709.4 Continuity.

Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above, and shall be securely attached thereto. If the partitions are not continuous to the sheathing, deck or slab, and where constructed of combustible construction, the space between the ceiling and the sheathing, deck or slab above shall be fireblocked or draftstopped in accordance with Sections 717.2 and 717.3 at the partition line. The supporting construction shall be protected to afford the required fire-resistance rating of the wall supported, except for walls separating tenant spaces, sleeping units and corridor walls in buildings of Type IIB construction.

Only noncombustible construction shall be used in public educational facilities.

Exceptions:
1. The wall need not be extended into the crawl space below where the floor above the crawl space has a minimum 1-hour fire-resistance rating.
2. Where the room-side fire-resistance-rated membrane of the corridor is carried through to the underside of the floor or roof sheathing, deck or slab of a fire-resistance-rated floor or roof above, the ceiling of the corridor shall be permitted to be protected by the use of ceiling materials as required for a 1-hour fire-resistance-rated floor or roof system.
3. Where the corridor ceiling is constructed as required for the corridor walls, the walls shall be permitted to terminate at the upper membrane of such ceiling assembly.

4. NA
5. NA
6. Fireblocking or draftstopping is not required at the partition line in buildings equipped with an automatic sprinkler system installed throughout in accordance with Section 903.3.1.1 or 903.3.1.2 provided that automatic sprinklers are installed in combustible floor/ceiling and roof/ceiling spaces.

SECTION 710
SMOKE BARRIERS

710.1 General.

Smoke barriers shall comply with this section.

710.2 Materials.

Smoke barriers shall be of materials permitted by the building type of construction.

710.3 Fire-resistance rating.

A 1-hour fire-resistance rating is required for smoke barriers.

710.4 Continuity.

Smoke barriers shall form an effective membrane continuous from outside wall to outside wall and from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, deck or slab above, including continuity through concealed spaces, such as those found above suspended ceiling, and interstitial structural and mechanical spaces. The supporting construction shall be protected to afford the required fire-resistance rating of the wall or floor supported in building of other than Type IIB, IIIB or VB construction.

Only noncombustible construction shall be used in public educational facilities.

> **Exception:** Smoke-barrier walls are not required in interstitial spaces where such spaces are designed and constructed with ceilings that provide resistance to the passage of fire and smoke equivalent to that provided by the smoke barrier walls.

710.5 Openings.

Openings in a smoke barrier shall be protected in accordance with Section 715.

710.6 Penetrations.

Penetrations through smoke barriers shall comply with Section 713.

710.7 Joints.

Joints made in or between smoke barriers shall comply with Section 714.

710.8 Ducts and air transfer openings.

Penetration in a smoke barrier by ducts and air transfer openings shall comply with Section 716.

Sections 714 and 716, Florida Building Code, pertain to the materials and methods of protection of fire-rated walls from penetrations and openings made by items such as ducts and air transfer openings.

SECTION 711
SMOKE PARTITIONS

711.1 General.

Smoke partitions installed as required elsewhere in the code shall comply with this section.

711.2 Materials.

The walls shall be of materials permitted by the building type of construction.

711.3 Fire-resistance rating.

Unless required elsewhere in the code, smoke partitions are not required to have a fire-resistance rating.

711.4 Continuity.

Smoke partitions shall extend from the top of the foundation or floor below to the underside of the floor or roof sheathing, deck or slab above or to the underside of the ceiling above where the ceiling membrane is constructed to limit the transfer of smoke.

711.5 Openings.

Windows shall be sealed to resist the free passage of smoke or be automatic-closing upon detection of smoke. Doors in smoke partitions shall comply with this section.

711.5.1 Louvers.

Doors in smoke partitions shall not include louvers.

711.5.2 Smoke and draft control doors.

Where required elsewhere in the code, doors in smoke partitions shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.015424 $m^3/(s•m^2)$) of door opening at 0.10 inch (24.9 Pa) of water for the ambient temperature test and elevated temperature exposure test. Installation of smoke doors shall be in accordance with NFPA 105.

711.5.3 Self-or automatic-closing doors.

Where required elsewhere in the code, doors in smoke partitions shall be self-or automatic-closing by smoke detection in accordance with Section 715.4.8.3.

711.6 Penetrations and joints.

The space around penetrating items and in joints shall be filled with an approved material to limit the free passage of smoke.

711.7 Ducts and air transfer openings.

The space around a duct penetrating a smoke partition shall be filled with an approved material to limit the free passage of smoke. Air transfer openings in smoke partitions shall be provided with a smoke damper complying with Section 716.3.2.2.

Exception: Where the installation of a smoke damper will interfere with the operation of a required smoke control system in accordance with Section 909, approved alternative protection shall be utilized.

SECTION 715
OPENING PROTECTIVES

715.1 General.

Opening protectives required by other sections of this code shall comply with the provisions of this section.

715.2 Fire-resistance-rated glazing.

Fire-resistance-rated glazing tested as part of a fire-resistance-rated wall assembly in accordance with ASTM E119 or UL 263 and labeled in accordance with Section 703.5 shall be permitted in fire doors and fire window assemblies in accordance with their listings and shall not otherwise be required to comply with this section.

715.4 Fire door and shutter assemblies.

Approved fire door and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Section 715.4.1, 715.4.2 or 715.4.3 and the fire protection rating indicated in Table 715.4. Fire door frames with transom lights, sidelights or both shall be permitted in accordance with Section 715.4.5. Fire door assemblies and shutters shall be installed in accordance with the provisions of this section and NFPA 80.

Exceptions:

1. Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B and UL 14C for tin-clad fire door assemblies.
2. Floor fire door assemblies in accordance with Section 712.8.

715.4.1 Side-hinged or pivoted swinging doors.

Fire door assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. After 5 minutes into the NFPA 252 test, the neutral pressure level in the furnace shall be established at 40 inches (1016 mm) or less above the sill.

715.4.2 Other types of assemblies.

Fire door assemblies with other types of doors, including swinging elevator doors and fire shutter assemblies shall be tested in accordance with NFPA 252 or UL 10B. The pressure in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible. Once established, the pressure shall be maintained during the entire test period.

715.4.3 Door assemblies in corridors and smoke barriers.

Fire door assemblies required to have a minimum fire protection rating of 20 minutes where located in corridor walls or smoke-barrier walls having a fire-resistance rating in accordance with Table 715.4 shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

(See Appendix, Doors and Appendix, Door Fire-Rating Label.)

715.4.4 Doors in exit enclosures and exit passageways.

Fire door assemblies in exit enclosures and exit passageways shall have a maximum transmitted temperature end point of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

> **Exception:** The maximum transmitted temperature rise is not limited in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Exit passageways are not permitted in public educational facilities.

715.4.4.1 Glazing in doors.

Fire-protection-rated glazing in excess of 100 square inches (0.065 m^2) shall be permitted in fire door assemblies when tested as components of the door assemblies and not as glass lights, and shall have a maximum transmitted temperature rise of 450°F (250°C) in accordance with Section 715.4.4.

> **Exception:** The maximum transmitted temperature end point is not required in buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

715.4.6 Labeled protective assemblies.

Fire door assemblies shall be labeled by an approved agency. The labels shall comply with NFPA 80, and shall be permanently affixed to the door or frame.

715.4.7.2 Exit and elevator protectives.

Approved fire-protection-rated glazing used in fire door assemblies in elevator and exit enclosures shall be so located as to furnish clear vision of the passageway or approach to the elevator ramp or stairway.

715.4.7.3 Labeling.

Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section 715.5.9.1 that shall be issued by an approved agency and shall be permanently affixed to the glazing.

715.4.7.4 Safety glazing.

Fire-protection-rated glazing installed in fire doors in areas subject to human impact in hazardous locations shall comply with Chapter 24.

See Section 423.13.7, Florida Building Code, for required locations of safety glazing.

715.4.8 Door closing.

Fire doors shall be self-or automatic closing in accordance with this section.

715.4.8.1 Latch required.

Unless otherwise specifically permitted, single fire doors and both leaves of pairs of side-hinged swinging fire doors shall be provided with an active latch bolt that will secure the door when it is closed.

715.4.8.2 Automatic-closing fire door assemblies.

Automatic-closing fire door assemblies shall be self-closing in accordance with NFPA 80.

715.4.8.3 Smoke-activated doors.

Automatic-closing doors installed in the following locations shall be automatic closing by the actuation of smoke detectors installed in accordance with Section 907.3 or by loss of power to the smoke detector or hold-open device. Doors that are automatic-closing by smoke detection shall not have more than a 10-second delay before the door starts to close after the smoke detector is actuated:

1. Doors installed across a corridor.
2. Doors that protect openings in exits or corridors required to be of fire-resistance-rated construction.
3. Doors that protect openings in walls that are capable of resisting the passage of smoke in accordance with Section 508.2.5.2.
4. Doors installed in smoke barriers in accordance with Section 710.5.
5. Doors installed in fire partitions in accordance with Section 709.6.
6. Doors installed in a fire wall in accordance with Section 706.8.
7. Doors installed in shaft enclosures in accordance with Section 708.7
8. Doors installed in refuse and laundry chutes and access and termination rooms in accordance with Section 708.13.
9. Doors installed in the walls for compartmentation of underground buildings in accordance with Section 405.4.2.
10. Doors installed in the elevator lobby walls of underground buildings in accordance with Section 405.4.3.
11. Doors installed in smoke partitions in accordance with Section 711.5.3.

715.5 Fire-protection-rated glazing.

Glazing in fire window assemblies shall be fire-protection-rated in accordance with this section and Table 715.5. Glazing in fire door assemblies shall comply with Section 715.4.7. Fire-protection-rated glazing shall be tested in accordance with and shall meet the acceptance criteria of NFPA 257 or UL 9. Fire-protection-rated glazing shall also comply with NFPA 80. Openings in nonfire-resistance-rated exterior wall assemblies that require protection in accordance with Section 705.3, 705.8, 705.8.5 or 705.8.6 shall have a fire-protection rating of not less than 3/4 hour.

Exceptions:
1. NA
2. Fire-protection-rated glazing in 0.5-hour fire-resistance-rated partitions is permitted to have an 0.33-hour fire-protection rating.

715.5.5 Nonwired glass.

Glazing other than wired glass in fire window assemblies shall be fire-protection-rated glazing installed in accordance with and complying with the size limitations set forth in NFPA 80.

Wire glass shall meet CPSC 16 CFR 1201 requirements.

715.5.6 Installation.

Fire-protection-rated glazing shall be in the fixed position or be automatic-closing and shall be installed in approved frames.

715.5.7 Window mullions.

Metal mullions that exceed a nominal height of 12 feet (3658 mm) shall be protected with materials to afford the same fire-resistance rating as required for the wall construction in which the protective is located.

715.5.8 Interior fire window assemblies.

Fire-protection-rated glazing used in fire window assemblies located in fire partitions and fire barriers shall be limited to use in assemblies with a maximum fire-resistance rating of 1 hour in accordance with this section.

715.5.8.1 Where ¾-hour fire protection window assemblies permitted.

Fire-protection-rated glazing required 45-minute opening protection in accordance with Table 715.5 shall be limited to fire partitions designed in accordance with Section 709 and fire barriers utilized in the applications set forth in Sections 707.3.6 and 707.3.8 where the fire-resistance rating does not exceed 1 hour.

715.5.8.2 Area limitations.

The total area of windows shall not exceed 25 percent of the area of a common wall with any room.

The 25 percent includes the area of the wall within the corridor from the floor to the ceiling. The area does not include the space above the ceiling.

(See Appendix, Safety and Fire-Rated Glazing.)

715.5.9 Labeling requirements.

Fire-protection-rated glazing shall bear a label or other identification showing the name of the manufacturer, the test standard and information required in Section 715.5.9.1 that shall be issued by an approved agency and shall be permanently affixed to the glazing.

SECTION 719
THERMAL-AND SOUND-INSULATING MATERIALS

719.1 General.

Insulating materials, including facings such as vapor retarders and vapor-permeable membranes, similar coverings, and all layers of single and multilayer reflective foil insulations, shall comply with the requirements of this section. Where a flame spread index or a smoke-developed index is specified in this section, such index shall be determined in accordance with ASTM E 84 or UL 723. Any material that is subject to an increase in flame spread index or smoke-developed index beyond the limits herein established through the effects of age, moisture, or other atmospheric conditions shall not be permitted.

Exceptions:
1. Fiberboard insulation shall comply with Chapter 23.
2. Foam plastic insulation shall comply with Chapter 26.
3. Duct and pipe insulation and duct and pipe coverings and linings in plenums shall comply with the Florida Building Code, Mechanical.

719.2 Concealed installation.

Insulating materials, where concealed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Cellulose loose-fill insulation that is not spray applied, complying with the requirements of Section 719.6, shall only be required to meet the smoke-developed index of not more than 450.

See Section 423.12.2, Florida Building Code, for additional requirements.

719.3 Exposed insulation

Insulating materials, where exposed as installed in buildings of any type of construction, shall have a flame spread index of not more than 25 and a smoke-developed index of not more than 450.

Exception: Cellulose-fill insulation that is not spray applied complying with the requirements of Section 719.6 shall only be required to meet the smoke-developed index of not more than 450.

See Section 423.12.2, Florida Building Code, for additional requirements.

Glass fiber batt insulation placed above the ceiling requires a flame-spread rating of not more than 25 and a smoke-developed rating of not more than 450.

SECTION 720
PRESCRIPTIVE FIRE RESISTANCE

720.1 General.

The provisions of this section contain prescriptive details of fire-resistance-rated building elements components or assemblies. The materials of construction listed in Tables 720.1(1), 720.1(2), and 720.1(3) shall be assumed to have the fire-resistance ratings prescribed therein. Where materials that change the capacity for heat dissipation are incorporated into a fire-resistance-rated assembly, fire test results or other substantiating data shall be made available to the building official to show that the required fire-resistance-rating time period is not reduced.

See commentary under Section 721.

SECTION 721
CALCULATED FIRE RESISTANCE

721.1 General.

The provisions of this section contain procedures by which the fire resistance of specific materials or combinations of materials is established by calculations. These procedures apply only to the information contained in this section and shall not be otherwise used. The calculated fire resistance of concrete, concrete masonry, and clay masonry assemblies shall be permitted in accordance with ACI 216.1/TMS 0216. The calculated fire resistance of steel assemblies shall be permitted in accordance with Chapter 5 of ASCE 29.

The code allows both a prescriptive and calculated method for figuring assembly fire ratings. See Sections 720 and 721, Florida Building Code, for specific requirements.

Chapter 8
INTERIOR FINISHES
Florida Building Code, Building

SECTION 801
GENERAL

801.1 Scope.

Provisions of this chapter shall govern the use of materials used as interior finishes, trim and decorative materials.

See Section 423, Florida Building Code, for interior finish requirements in educational facilities.

801.2 Interior wall and ceiling finish.

The provisions of Section 803 shall limit the allowable fire performance and smoke development of interior wall and ceiling finish materials based on occupancy classification.

801.3 Interior floor finish.

The provisions of Section 804 shall limit the allowable fire performance of interior floor finish materials based on occupancy classification.

801.4 Decorative materials and trim

Decorative materials and trim shall be restricted by combustibility and the flame propagation performance criteria of NFPA 701, in accordance with Section 806.

TABLE 803.9
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY *

GROUP	SPRINKLERED			NONSPRINKLERED		
	Exit enclosures [a,b]	Corridors	Room and enclosed spaces [c]	Exit enclosures [a,b]	Corridors	Room and enclosed spaces [c]
A-1 & A-2	B	B	C	A	A [d]	B [e]
A-3, A-4 & A-5	B	B	C	A	A [d]	C
B, E, M	B	C	C	A	B	C
S	C	C	C	B	B	C

For SI: 1 inch - 25.4mm, 1 square foot - 0.0929m²
a. Class C interior finish materials shall be permitted for wainscoting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to enclose noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.11.1.
b. In exit enclosures of buildings less than three stories above grade plane in other than Group I-3, Class B interior finish for nonsprinklered building and Class C interior finish for sprinklered building shall be permitted.
c. Requirements for room and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosed partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosed spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.
d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.
e. Class C interior finish materials shall be permitted in place of assembly with an occupant load of 300 persons or less.
f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.
g. Class B material is required where the building exceeds two stories.
h. Class C interior finish materials shall be permitted in administrative spaces.
i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.
j. Class B materials shall be permitted as wainscoting extending not more than 48 inches above the finished floor in corridors
k. Finish materials as provided for in other sections of this code.
l. Applies when the exit enclosures, exit passageways, corridors or rooms and enclosed spaces are protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

Exit passageways are not allowed in educational facilities.

SECTION 803
WALL AND CEILING FINISHES

803.1 General.

Interior wall and ceiling finish materials shall be classified for fire performance and smoke development in accordance with Section 803.1.1 or 803.1.2, except as shown in Sections 803.2 through 803.13. Materials tested in accordance with Section 803.1.2 shall not be required to be tested in accordance with Section 803.1.1.

803.1.1 Interior wall and ceiling finish materials.

Interior wall and ceiling finish materials shall be classified in accordance with ASTM E 84 or UL 723. Such interior finish materials shall be grouped in the following classes in accordance with their flame spread and smoke-developed indexes.

Class A: Flame spread index 0-25; smoke-developed index 0-450.
Class B: Flame spread index 26-75; smoke-developed index 0-450
Class C: Flame spread index 76-200; smoke-developed index 0-450.

803.9 Interior finish requirements based on group.

Interior wall and ceiling finish shall have a flame spread index not greater than that specified in Table 803.9 for the group and location designated. Interior wall and ceiling finish materials tested in accordance with NFPA 286 and meeting the acceptance criteria of Section 803.1.2.1 shall be permitted to be used where a Class A classification in accordance with ASTM E 84 or UL 723 is required.

Chapter 9
FIRE PROTECTION SYSTEMS
Florida Building Code, Building

SECTION 901
GENERAL

901.1 Scope.

The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation and operation of fire protection systems, and carbon monoxide detection alarms.

SECTION 903
AUTOMATIC SPRINKLER SYSTEMS

[F] 903.1 General.

Automatic sprinkler systems shall comply with this section.

[F] 903.2 Where required.

Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.12.

[F] 903.2.1 Group A.

An automatic sprinkler system shall be provided throughout buildings and portions thereof used as Group A occupancies as provided in this section. For Group A-1, A-2, A-3 and A-4 occupancies, the automatic sprinkler system shall be provided throughout the floor area where the Group A-1, A-2, A-3 or A-4 occupancy is located, and in all floors from the Group A occupancy, to and including, the nearest level of exit discharge serving the Group A occupancy. For Group A-5 occupancies, the automatic sprinkler system shall be provided in the spaces indicated in Section 903.2.1.5

[F] 903.2.1.1 Group A-1.

An automatic sprinkler system shall be provided for Group A-1 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet ($1115 m^2$);
2. The fire area has an occupant load of 300 or more;
3. The fire area is located on a floor other than the level of exit discharge, serving such occupancies; or
4. The fire area contains a multitheater complex.

[F] 903.2.1.3 Group A-3.

An automatic sprinkler system shall be provided for Group A-3 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet ($1115 m^2$);
2. The fire area has an occupant load of 300 or more; or
3. The fire area is located on a floor other than the level of exit discharge, serving such occupancies.

[F] 903.2.1.4 Group A-4.

An automatic sprinkler system shall be provided for Group A-4 occupancies where one of the following conditions exists:

1. The fire area exceeds 12,000 square feet (1115 m^2;
2. The fire area has an occupant load of 300 or more; or
3. The fire area is located on a floor other than the level of exit discharge, serving such occupancies.

[F] 903.2.3 Group E.

An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. Throughout all Group E fire areas greater than 12,000 square feet (1115 m^2) in area.
2. Throughout every portion of educational buildings below the lowest level of exit discharge, serving that portion of the building.

Buildings housing classrooms under 12,000 square feet with fire-rated separation walls and independent exiting directly to the exterior are not required to be sprinklered.

> **Exception:** An automatic fire sprinkler system is not required in existing educational buildings unless 50 percent of the aggregate area of the building is being remodeled.

When 50 percent or more of the aggregate area of an existing educational facility is being remodeled, and the facility's fire areas are greater than 12,000 square feet, an automatic sprinkler system is required.

[F] 903.2.7 Group M.

An automatic sprinkler system shall be provided throughout buildings containing a Group M occupancy where one of the following conditions exists:

1. A Group M fire area exceeds 12,000 square feet (1115 m^2).
2. A Group M fire area is located more than three stories above grade plane.
3. The combined area of all Group M fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. A Group M occupancy is used for the display and sale of upholstered furniture.

[F] 903.2.9 Group S-1.

An automatic sprinkler system shall be provided throughout all buildings containing a Group S-1 occupancy where one of the following conditions exists:

1. A Group S-1 fire area exceeds 12,000 square feet (1115 m^2);
2. NA
3. The combined area of all Group S-1 fire areas on all floors, including any mezzanines, exceeds 24,000 square feet (2230 m^2).
4. A Group S-1 fire area used for the storage of commercial trucks or buses where the fire area exceeds 5,000 square feet (464 m^2).

[F] 903.2.11.6 Other required suppression systems.

In addition to the requirements of Section 903.2, the provisions indicated in Table 903.2.11.6 also require the installation of a fire suppression system for certain buildings and areas.

Stages with an area over 1,000 square feet require an automatic sprinkler system.

(See Appendix, Legitimate Stage.)

SECTION 905
STANDPIPE SYSTEMS

905.1 General.

Standpipe systems shall be provided in all new buildings and structures in accordance with this section. Fire hose threads used in connection with standpipe systems shall be approved and shall be compatible with fire department hose threads. The location of the fire department hose connections shall be approved. In buildings used for high piled combustible storage, fire protection shall be in accordance with the Florida Fire Prevention Code.

[F] 905.2 Installation standard.

Standpipe systems shall be installed in accordance with this section and NFPA 14.

[F] 905.3 Required installations.

Standpipe systems shall be installed where required by Sections 905.3.1 through 905.3.7 and in the locations indicated in Sections 905.4, 905.5 and 905.6. Standpipe systems are allowed to be combined with automatic sprinkler systems.

[F] 905.3.4 Stages.

Stages greater than 1,000 square feet in area (93 m^2) shall be equipped with a Class III wet standpipe system with 1 ½ -inch and 2 ½ - inch (38 mm and 64 mm) hose connections on each side of the stage.

> **Exception:** Where the building or area is equipped throughout with an automatic sprinkler system, a 1½-inch (38 mm) hose connection shall be installed in accordance with NFPA 13 or in accordance with NFPA 14 for Class II or III standpipes.

(See Appendix, Legitimate Stage.)

905.3.4.1 Hose and cabinet.

The 1½-inch (38 mm) hose connections shall be equipped with sufficient lengths of 1½-inch (38 mm) hose to provide fire protection for the stage area. Hose connections shall be equipped with an approved adjustable fog nozzle and be mounted in a cabinet or on a rack.

SECTION 907
FIRE ALARM AND DETECTION SYSTEMS

(F) 907.1 General.

This section covers the application, installation, performance and maintenance of fire alarm systems and their components.

[F] 907.2 Where required new buildings and structures.

An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with Section 907.5,

unless other requirements are provided by another section of this code. A minimum of one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

Exceptions:

1. The manual fire alarm box is not required for fire alarm systems dedicated to elevator recall control and supervisory services.

Alarms for warning devices must meet Section 11-4.28 Alarms, Florida Building Code.

See [F] 907.2.3, Group E Exceptions for further restrictions on a single pull station.

[F] 907.2.1 Group A.

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group A occupancies having an occupancy load of 300 or more. Portions of Group E occupancies occupied for assembly purposes shall be provided with a fire alarm system as required for the Group E occupancy.

Exception: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterfl ow.

This exception does not apply to educational facilities. See Sections 9.6.2.1 and 14.3.4.2.2, Florida Fire Prevention Code.

[F] 907.2.1.1 System initiation in Group A occupancies with an occupant load of 1,000 or more.

Activation of the fire alarm in Group A occupancies with an occupant load of 1,000 or more shall initiate a signal using an emergency voice/alarm communications system in accordance with Section 907.5.2.2.

Exception: Where approved, the prerecorded announcement is allowed to be manually deactivated for a period of time, not to exceed 3 minutes, for the sole purpose of allowing a live voice announcement from an approved, constantly attended location.

907.2.2 Group B.

A manual fire alarm system in accordance with Section 907 shall be provided in all business occupancies where any one of the following conditions exists:

1. The building is two or more stories in height above the level of exit dischange.
2. The occupancy is subject to 50 or more occupants above or below the level of exit dischange.
3. The occupancy is subject to 300 or more total occupants.

Exceptions: Manual fire alarm boxes are not required where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 and the occupant notification appliances will activate throughout the notification zones upon sprinkler waterflow.

[F] 907.2.3 Group E.

A manual fire alarm system that activates the occupant notification system in accordance with Section 907.5 shall be installed in Group E occupancies. When automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. A manual fire alarm system is not required in Group E occupancies with an occupant load of less than 50.
2. Manual fire alarm boxes are not required in Group E where all of the following apply:
   - 2.1. Interior corridors are protected by smoke detectors.
   - 2.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.
   - 2.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.
   - 2.4. The capability to activate the evacuation signal from a central point is provided.
   - 2.5. In buildings where normally occupied spaces are provided with a two-way communication system between such spaces and a constantly attended receiving station from where a general evacuation alarm can be sounded, except in locations specifically designated by the fire code official.

When following these exceptions, carefully read Section 14.3.4.2 and all subsections and Section 15.3.4.2 and all subsections of the 2010 Florida Fire Prevention Code. Please note that Exception 2.5 does not apply to new facilities. Also, note that if an off-site monitoring service is not used, the central point capability to activate the evacuation system, or Exception 2.4, shall be manned at all times unless the five alarm system is simultaneously capable of automatically providing the evacuation signal and notifying the fire department. All exceptions must be met collectively.

[F] 907.4.2 Manual fire alarm boxes.

Where a manual fire alarm system is required by another section of this code, it shall be activated by fire alarm boxes installed in accordance with Sections 907.4.2.1 through 907.4.2.5.

[F] 907.4.2.1 Location.

Manual fire alarm boxes shall be located not more than 5 feet (1524 mm) from the entrance to each exit. Additional manual fire alarm boxes shall be located so that travel distance to the nearest box does not exceed 200 feet (60 960 mm).

[F] 907.4.2.2 Height.

The height of the manual fire alarm boxes shall be a minimum of 42 inches (1067 mm) and a maximum of 48 inches (1219 mm), measured vertically, from the floor level to the activating handle or lever of the box.

Chapter 10
MEANS OF EGRESS
Florida Building Code, Building

SECTION 1001
ADMINISTRATION

1001.1 General.

Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof.

SECTION 1003
GENERAL MEANS OF EGRESS

1003.1 Applicability.

The general requirements specified in Sections 1003 through 1013 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge detailed elsewhere in this chapter.

1003.2 Ceiling height.

The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

Exceptions:
1. Sloped ceilings in accordance with Section 1208.2.
2. NA
3. Allowable projections in accordance with Section 1003.3.
4. Stair headroom in accordance with Section 1009.2.
5. Door height in accordance with Section 1008.1.1.

(See Appendix, Doors.)

1003.3 Protruding objects.

Protruding objects shall comply with the requirements of Sections 1003.3.1 through 1003.3.4.

1003.3.1 Headroom.

Protruding objects are permitted to extend below the minimum ceiling height required by Section 1003.2 provided a minimum headroom of 80 inches (2032 mm)shall be provided for any walking surface, including walks, corridors, aisles and passageways. Not more than 50 percent of the ceiling area of a means of egress shall be reduced in height by protruding objects.

Exception: Door closers and stops shall not reduce headroom to less than 78 inches (1981 mm).

A barrier shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such a barrier shall be located 27 inches (686 mm) maximum above the floor.

1003.5 Elevation change.

Where changes in elevation of less than 12 inches (305 mm) exist in the means of egress, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5-percent slope), ramps complying with Section 1010 shall be used. Where the difference in elevation is 6 inches (152 mm) or less, the ramp shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.

Exceptions:
1. A single step with a maximum riser height of 7 inches (178 mm) is permitted for buildings with occupancies in Group S at exterior doors not required to be accessible by Chapter 11.
2. A stair with a single riser or with two risers and a tread is permitted at locations not required to be accessible by Chapter 11, provided that the risers and treads comply with Section 1009.4, the minimum depth of the tread is 13 inches (330 mm) and at least one hand-rail complying with Section 1012 is provided within 30 inches (762 mm) of the centerline of the normal path of egress travel on the stair.
3. A step is permitted in aisles serving seating that has a difference in elevation less than 12 inches (305 mm) at locations not required to be accessible by Chapter 11, provided that the risers and tread comply with Section 1028.11 and the aisle is provided with a hand-rail complying with Section 1028.13.

SECTION 1004
OCCUPANT LOAD

1004.1 Design occupant load.

In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. Where occupants from accessory areas egress through a primary space, the calculated occupant load for the primary space shall included the total occupant load of the primary space plus the number of occupants egressing through it from the accessory area.

TABLE 1004.1.1
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	FLOOR AREA IN SQ. FT. PER OCCUPANT
Accessory storage areas, mechanical equipment room	300 gross
Assembly with fixed seats	See Section 1004.7
Assembly without fixed seats	
Concentrated (chairs only-not fixed)	7 net
Standing space	5 net
Unconcentrated (tables and chairs)	15 net
Business areas	100 gross
Day Care	20 net
Dormitories	50 gross
Educational	
Classroom area	20 net
Shops and other vocational room areas	50 net
Kitchens, commercial	200 gross
Library	
Reading rooms	50 net
Stack area	100 gross
Locker rooms	50 gross
Mercantile	
Areas on other floors	60 gross
Basement and grade floor areas	30 gross
Stages and platforms	15 net
Warehouses	500 gross

For SI: 1 square foot = 0.0929m²

See 423.18.1 for occupant load for dressing rooms and gymnasiums.

1004.1.1 Areas without fixed seating.

The number of occupants shall be computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.1. For areas without fixed seating, the occupant load shall not be less than that number determined by dividing the floor area under consideration by the occupant per unit of area factor assigned to the occupancy as set for the in table 1004.1.1. Where an intended use is not listed in Table 1004.1.1, the building official shall establish a use based on a listed use that most nearly resembles the intended use.

(See Appendix, Minimum Occupant Loads.)

See Section 423, Florida Building Code, for additional requirements on occupant load that may be more restrictive.

1004.2 Increased occupant load.

The occupant load permitted in any building, or portion thereof, is permitted to be increased from that number established for the occupancies in Table 1004.1.1 provided that all other requirements of the code are also met based on such modified number and the occupant load does not exceed one occupant per 7 square feet (0.65 m^2) of occupiable floor space. Where required by the building official, an approved aisle, seating or fixed equipment diagram substantiating any increase in occupant load shall be submitted. Where required by the building official, such diagram shall be posted.

1004.3 Posting of occupant load.

Every room or space that is an assembly occupancy shall have the occupant load of the room or space posted in a conspicuous place, near the main exit or exit access doorway from the room or space. Posted signs shall be of an approved legible permanent design and shall be maintained by the owner or authorized agent.

This section addresses the location of occupant load signs in rooms or spaces used for assembly. The intent of the Florida Building Code is not to specify the exact location for these signs and only requires that they should be located to be easily visible. However, Section 423, Florida Building Code, does specify the location of such signs in public educational facilities. See Section 423.14.2.2 and Figure 423.14.2.2, Florida Building Code, Building, for these additional requirements.

SECTION 1005
EGRESS WIDTH

1005.1 Minimum required egress width.

The means of egress width shall not be less than required by this section. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by 0.3 inch (7.62 mm) per occupant for stairways and by 0.2 inch (5.08 mm) per occupant for other egress components. The width shall not be less than specified elsewhere in this code. Multiple means of egress shall be sized such that the loss of any

one means of egress shall not reduce the available capacity to less than 50 percent of the required capacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

(See Appendix, Exit and Means of Egress Width.)

SECTION 1006
MEANS OF EGRESS ILLUMINATION

1006.1 Means of egress illumination.

1006.1.1

Illumination of means of egress shall be provided in accordance with this section for every building and structure. For the purposes of this requirement, exit access shall include only designed stairs, aisles, corridors, ramps, escalators, and passageways leading to an exit. For the purpose of this requirement, exit discharge shall include only designed stairs, aisles, corridors, ramps, escalators, walkways and exit passageways leading to a public way.

Exit passageways and horizontal exits are not permitted in public educational facilities.

See also Section 423.17.1, Florida Building Code, for additional requirements for educational occupancy emergency lighting.

1006.2 Emergency lighting and standby power

1006.2.1

Emergency lighting facilities for means of egress shall be provided in accordance with this section for the following:

1. Every building or structure where required in Table 1006
2. Windowless and underground structures
3. High-rise structures.

TABLE 1006
EMERGENCY LIGHTING REQUIREMENTS

OCCUPANCY	CONDITIONS	EXCEPTIONS
Educational	**For interior stairs and corridors, normally occupied spaces, flexible and open-plan areas, interior or windowless portions shops and labs.**	**Exempted from administrative areas, general classrooms, mechanical rooms and storage rooms.**
Mercantile	**>1 story > 3000 sq ft gross sales area.**	**None**
Business	**> 2 stories above LED or ≥ 50 people above or below LED or ≥ 300 people total**	**None**
Storage	**None**	**When approved by the building official, special purpose without routine occupancy or day light operations with windows.**
Day Care Centers	**For interior stairs and corridors, normally occupied spaces, flexible and open plan areas, interior or windowless portions, shops and labs.**	**Exempted from administrative areas, general classrooms, mechanical rooms and storage rooms.**

In accordance with Section 423.17.1, Florida Building Code, emergency lighting is required in all student-occupied areas including general classroom, administration areas, and group toilets.

1006.3 Exit signs.

1006.3.1

Exits shall be marked by an approved sign readily visible from any direction of exit access. Every exit sign shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be visible in both normal and emergency lighting.

SECTION 1008
DOORS, GATES AND TURNSTILES

1008.1 Doors.

Means of egress doors shall meet the requirements of this section. Doors serving a means of egress system shall meet the requirements of this section and Section 1020.2. Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section. For accessibility provisions related to doors, refer to the Florida Building Code, Accessibility.

Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

(See Appendix, Exit and Means of Egress Width.)

1008.1.1 Size of doors.

The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1 219 mm) nominal. The height of doors shall not be less than 80 inches (2032 mm).

In accordance with Section 423.13, Florida Building Code, doors when fully opened shall not extend into the required exit width of corridors and should be either recessed or hinged to swing 90 degrees. See Section 423.13.2 for more information regarding doors in educational facilities.

(See Appendix, Doors.)

1008.1.1.1 Projections into clear width.

There shall not be projections into the required clear width lower than 34 inches (864 mm) above the floor or ground. Projections into the clear opening width between 34 inches (864mm) and 80 inches (2032 mm) above the floor or ground shall not exceed 4 inches (102 mm).

In accordance with Section 423.13, Florida Building Code, doors when fully opened shall not extend into the required exit width of corridors. See Section 423.13.2 for more information regarding doors in educational facilities.

(See Appendix, Doors.)

1008.1.4.4 Access-controlled egress doors.

The entrance doors in a means of egress in buildings with an occupancy in Group A, B, D, E, M, and entrance doors to tenant spaces in occupancies in Groups A, B, D, E, and M are permitted to be equipped with an approved entrance and egress access control system which shall be installed in accordance with all of the following criteria:

1. A sensor shall be provided on the egress side arranged to detect an occupant approaching the doors. The doors shall be arranged to unlock by a signal from or loss of power to the sensor.
2. Loss of power to that part of the access control system which locks the doors shall automatically unlock the doors.
3. The doors shall be arranged to unlock from a manual unlocking device located 40 inches to 48 inches (1016 mm to 1219 mm) vertically above the floor and within 5 feet (1524 mm) of the secured doors. Ready access shall be provided to the manual unlocking device and the device shall be clearly identified by a sign that reads “PUSH TO EXIT.” When operated, the manual unlocking device shall result in direct interruption of power to the lock—independent of the access control system electronics— and the doors shall remain unlocked for a minimum of 30 seconds.
4. Activation of the building fire alarm system, if provided, shall automatically unlock the doors, and the doors shall remain unlocked until the fire alarm system has been reset.
5. Activation of the building automatic sprinkler or fire detection system, if provided, shall automatically unlock the doors. The doors shall remain unlocked until the fire alarm system has been reset.

6. Entrance doors in buildings with an occupancy in Group A, B, E or M shall not be secured from the egress side during periods that the building is open to the general public.

Public educational facilities shall allow egress at all times.

1008.1.5 Floor elevation.

There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 1 unit vertical in 50 units horizontal (2-percent slope).

Exceptions:
1. NA
2. NA
3. NA
4. Variations in elevation due to differences in finish materials, but not more than ½ inch (12.7 mm).

(See Appendix, Doors.)

1008.1.6 Landings at doors.

Landings shall have a width not less than the width of the stairway or the door, whichever is the greater. Doors in the fully open position shall not reduce a required dimension by more than 7 inches (178 mm). When a landing serves an occupant load of 50 or more, doors in any position shall not reduce the landing to less than one-half its required width. Landings shall have a length measured in the direction of travel of not less than 44 inches (1 118 mm).

1008.1.7 Thresholds.

Thresholds at doorways shall not exceed ¾ inch (19.1 mm) in height for sliding doors serving dwelling units or ½ inch (12.7 mm) for other doors. Raised thresholds and floor level changes greater than ¼ inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

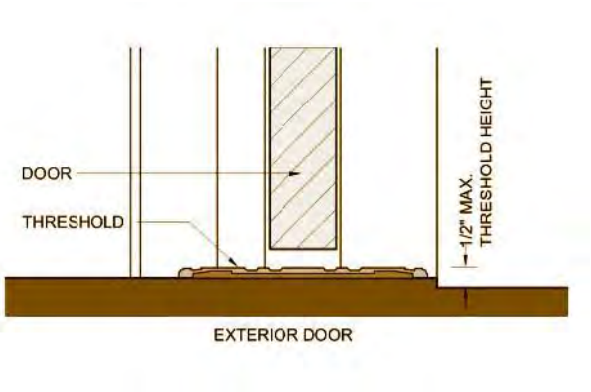


Figure 1008.1.6
Threshold

1008.1.9.7 Delayed egress locks.

Approved, listed, delayed egress locks shall be permitted to be installed on doors serving any occupancy except Group A, E and H occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or an approved automatic smoke or heat detection system installed in accordance with Section 907, provided that the doors unlock in accordance with Items 1 through 6 below. A building occupant shall not be required to pass through more than one door equipped with a delayed egress lock before entering an exit.

1. The doors unlock upon actuation of the automatic sprinkler system or automatic fire detection system.
2. The doors unlock upon loss of power controlling the lock or lock mechanism.
3. The door locks shall have the capability of being unlocked by a signal from the fire command center.
4. The initiation of an irreversible process which will release the latch in not more than 15 seconds when a force of not more than 15 pounds (67 N) is applied for 1 second to the release device. Initiation of the irreversible process shall activate an audible signal in the vicinity of the door. Once the door lock has been released by the application of force to the releasing device, relocking shall be by manual means only.

Exception: Where approved, a delay of not more than 30 seconds is permitted.

5. NA
6. Emergency lighting shall be provided at the door.

Section 423.13.6, Florida Building Code, provides an exception for media centers, alternative education centers, and exceptional student education centers.

1008.1.9.10 Stairways doors.

Interior stairway means of egress doors shall be openable from both sides without the use of a key or special knowledge or effort.

Exceptions:

1. Stairways discharge doors shall be openable from the egress side and shall only be locked from the opposite side.
2. This section shall not apply to doors arranged in accordance with Section 403.5.3.
3. In stairways serving not more than four stories, doors are permitted to be locked from the side opposite the egress side, provided they are openable from the egress side and capable of being unlocked simultaneously without unlatching upon a signal from the fire command center, if present or a signal by emergency personnel from a single location inside the main entrance to the building.

1008.1.10 Panic and fire exit hardware.

Doors serving a Group H occupancy and doors serving rooms or spaces with an occupancy load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock unless it is panic hardware or fire exit hardware.

Exception: A main exit of a Group A occupancy in compliance with Section 1008.1.3, Item 2.

Electrical rooms with equipment rated 1,200 amperes or more and over 6 feet (1829 mm) wide that a contain overcurrent devices, switching devices or control devices with exit or exit access doors shall be equipped with panic hardware or fire exit hardware. The doors shall wing in the direction of egress travel.

1008.1.10.1 Installation.

Where panic or fire exit hardware is installed, it shall comply with the following:

1. Panic hardware shall be listed In accordance with UL 305:
2. Fire exit hardware shall be listed in accordance with UL 10C and UL 305;
3. The actuating portion of the releasing device shall extend at least one-half of the door leaf width; and
4. The maximum unlatching force shall not exceed 15 pounds (67 N).

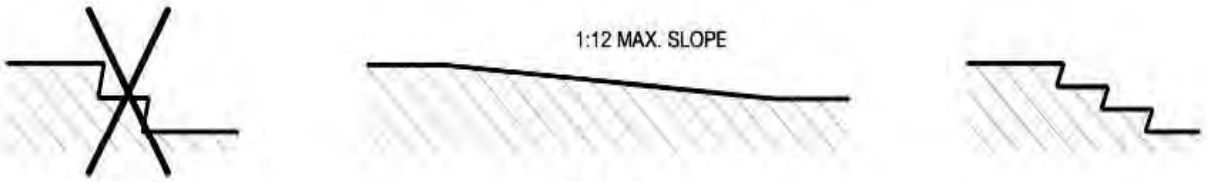
SECTION 1009
STAIRWAYS

1009.1 Stairway width.

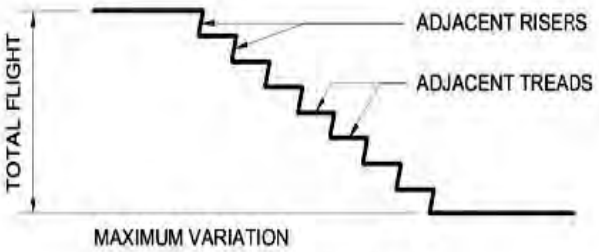
The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.3 for accessible means of egress stairways.

Exceptions:

1. Stairways serving an occupant load of less than 50 or less shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.9.
3. Aisle stairs complying with Section 1028.



(a)
Changes in elevation of 12 inches or less in exit access corridors, exits, and exit discharges shall be made by ramps



DEPTH 3/16" ADJACENT TREADS
HEIGHT 3/16" ADJACENT RISERS

3/8" TOTAL FLIGHT

(b)
Dimensional Uniformity

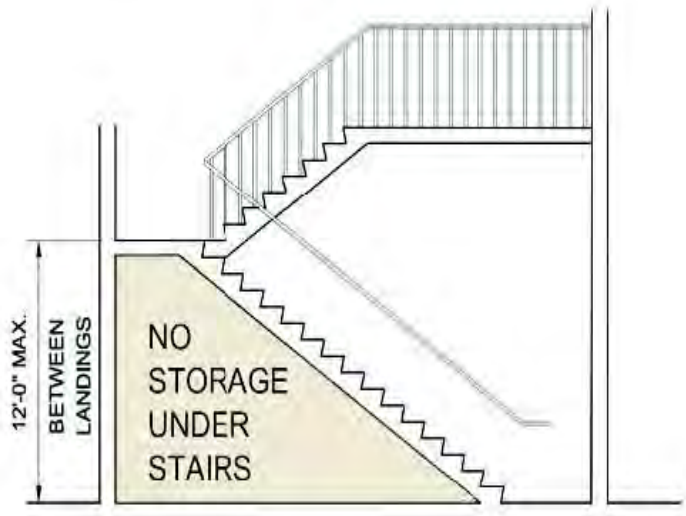
STAIR TREADS AND RISERS

MINIMUM RISER 4"
MAXIMUM RISER 7" MINIMUM TREAD 11"

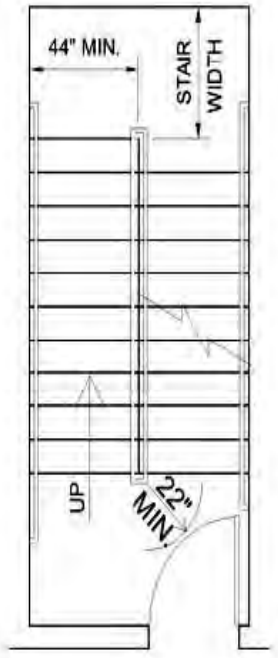
RULE OF THUMB

2 R (RISERS) + 1 T (TREADS) = 24 TO 25

(c)
Stair Risers and Treads



(d)
Stair Landings



(e)
Stair Clearances

1009.2 Headroom.

Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

Exception:
1. Spiral stairways complying with Section 1009.9 are permitted a 78-inch (1981 mm) headroom clearance.

1009.4.2 Riser height and tread depth

Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. Rectangular tread depth shall be 11 inches (279 mm) minimum measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersection with the walkline and a minimum tread depth of 10 inches (254 mm) within the clear width of stair.

Exceptions:
1. Alternating tread devices in accordance with Section 1009.10.
2. Ship ladders in accordance with Section 1009.11.
3. Spiral stairways in accordance with Section 1009.9.
4. Aisle stairs in assembly seating areas where the stair pitch or slope is set, for sightline reasons, by the slope of the adjacent seating area in accordance with Section 1028.11.2.

1009.4.4 Dimensional uniformity.

Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed ⅜ inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the walkline within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

(See Appendix, Stairs.)

Where the bottom or top riser adjoins a sloping public way, walkway or driveway having an established grade and serving as a landing, the bottom or top riser is permitted to be reduced along the slope to less than 4 inches (102 mm) in height with the variation in height of the bottom or top riser not to exceed one unit vertical in 12 units horizontal (8.333-percent slope) of stairway width. The nosings or leading edges of treads at such nonuniform height risers shall have a distinctive marking stripe, different from any other nosing marking provided on the stair flight. The distinctive marking stripe shall be visible in descent of the stair and shall have a slip-resistant surface. Marking stripes shall have a width of at least 1 inch (25 mm) but not more than 2 inches (51mm).

1009.5 Stairway landings.

There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 48 inches (1219 mm) where the stairway has a straight run. Doors opening onto a landing shall not reduce the landing to less than one-half of the required width. When fully open, the door shall not project more than 7 inches (178 mm) into a landing. When wheelchairs spaces are required on the stairway landing in accordance with the Florida Building Code, Accessibility, the wheelchair spaces shall not be located in the required width of the landing and doors shall not swing over the wheelchair spaces.

(See Appendix, Stairs.)

Exception:
1. Aisle stairs complying with Section 1028.

1009.12 Handrails.

Stairways shall have handrails on each side and shall comply with Section 1012. Where glass is used to provide the handrail, the handrail shall also comply with Section 2407

Exceptions: Handrails for aisle stairs are not required where permitted by Section 1028.13.

SECTION 1010
RAMPS

1010.1 Scope.

The provisions of this section shall apply to ramps used as a component of a means of egress.

Exceptions:
1. Other than ramps that are part of the accessible routes providing access in accordance with the provision of the Florida Building Code, Accessibility, ramped aisles within assembly rooms or spaces shall conform with the provisions in Section 1028.11.

2. Curb ramps shall comply with ICC A117.1.
3. Vehicle ramps in parking garages for pedestrian exit access shall not be required to comply with the provision of the Florida Building Code, Accessibility, when they are not an accessible route serving accessible parking spaces, other required accessible elements or part of an accessible means of egress.

1010.2 Slope.

Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8.333-percent slope). The slope of other pedestrian ramps shall not be steeper than one unit vertical in eight units horizontal (12.5-percent slope).

Exceptions:
1. Aisle ramp slope in occupancies of Group A shall comply with Section 1028.11.

1010.3 Cross slope.

The slope measured perpendicular to the direction of travel of a ramp shall not be steeper than one unit vertical in 48 units horizontal (2-percent slope).

1010.4 Vertical rise.

The rise for any ramp run shall be 30 inches (762 mm) maximum.

1010.5 Minimum dimensions.

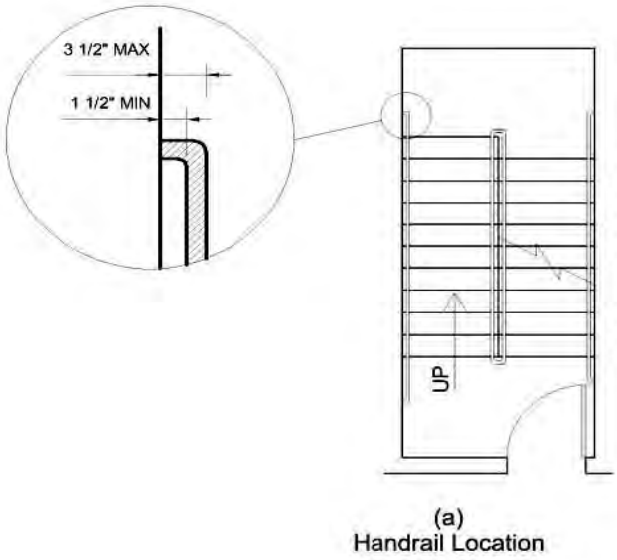
The minimum dimensions of means of egress ramps shall comply with Sections 1010.5.1 through 1010.5.3.

1010.5.1 Width.

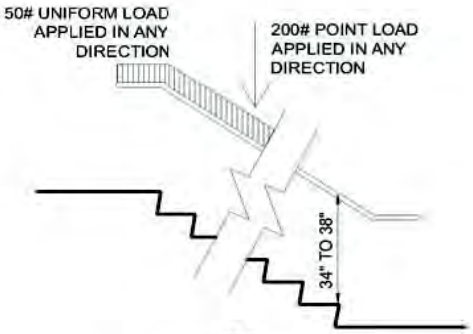
The minimum width of a means of egress ramp shall not be less than that required for corridors by Section 1018.2. The clear width of a ramp between handrails, if provided or other permissible projections shall be 36 inches (914 mm) minimum.

1010.5.2 Headroom.

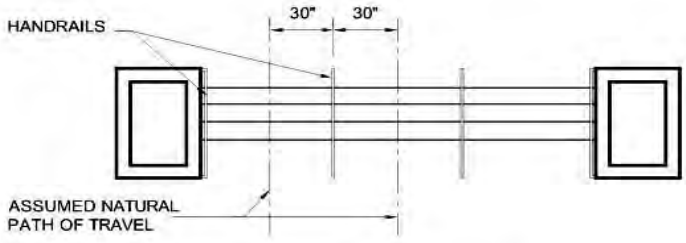
The minimum headroom in all parts of the means of egress ramp shall not be less than 80 inches (2032 mm).



(a)
Handrail Location



(b)
Handrail Height and Loading



(c)
Handrail Spacing

1010.5.3 Restrictions.

Means of egress ramps shall not reduce in width in the direction of egress travel. Projections into the required ramp and landing width are prohibited. Doors opening onto a landing shall not reduce the clear width to less than 42 inches (1067 mm).

1010.6 Landings.

Ramps shall have landings at the bottom and top ofeach ramp, points of turning, entrance, exits and at doors and in accordance with the Florida Building Code, Accessibility. Landings shall comply with Sections 1010.6.1 through 1010.6.5.

1010.6.1 Slope.

Landings shall have a slope not steeper than one unit vertical in 48 units horizontal (2-percent slope) in any direction. Changes in level are not permitted.

1010.6.2 Width.

The landing shall be at least as wide as the widest ramp run adjoining the landing.

1010.7 Ramp construction.

All ramps shall be built of materials consistent with the types permitted for the type of construction of the building, except that wood handrails shall be permitted for all types of construction. Ramps used as an exit shall conform to the applicable requirements of Sections 1022.1 through 1022.6 for exit enclosures.

1010.7.1 Ramp surface.

The surface of ramps shall be of slip-resistant materials that are securely attached.

1010.7.2 Outdoor conditions.

Outdoor ramps and outdoor approaches to ramps shall be designed so that water will not accumulate on walking surfaces.

1010.7.3

All ramps that serve as required means of egress shall be of permanent, fixed construction.

1010.7.4

The ramp floor and landings shall be solid and without perforations.

1010.8 Handrails.

Handrails shall be provided along both sides of a ramp run with a rise greater than 6 inches (152 mm) and shall conform to the requirements in Sections 1012. If handrails are not continuous, they shall extend at least 18 inches (305 mm) beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface. Ends of handrails shall be either rounded or returned smoothly to floor, wall or post.

Handrails shall not rotate within their fittings. Top of the handrail gripping surface shall be not less than 34 inches (864 mm) nor more than 38 inches (965 mm) above the ramp surface.

Exceptions:

1. Handrails are not required when the total ramp run rise is 6 inches (152 mm) or less and the horizontal projection is 72 inches or less, except where required to be accessible.
2. Aisles in Group A occupancies (see Section 1028.13).
3. NA
4. Handrails are not required on curb ramps.

1010.9 Edge protection.

Edge protection complying with Sections 1010.9.1 or 1010.9.2 shall be provided on each side of ramp runs and at each side of ramp landings.

1010.10 Guards.

Guards shall be provided where required by Section 1013 and shall be constructed in accordance with Section 1013.

In accordance with Section 423.10.2.1, Florida Building Code, guardrails shall be required where difference in elevation is 18 inches or more.

SECTION 1012
HANDRAILS

1012.1 Where required.

Handrails for stairways and ramps shall be adequate in strength and attachment in accordance with Section 1607.7. Handrails required for stairways by Section 1009.12 shall comply with Sections 1012.2 through 1012.9. Handrails required for ramps by Section 1010.8 shall comply with Sections 1012.2 through 1012.8.

1012.2 Heights.

Handrail height, measured above stair tread nosings, or finish surface of ramp slope, shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

Exception: Handrails for stairs not required to be accessible that form part of a guardrail may be 42 inches (1067 mm) high.

1012.3 Handrail graspability.

All required handrails shall comply with Section 1012.3.1 or shall provide equal graspability.

Exceptions:
1. NA
2. Accessible handrails shall meet the requirements of Florida Building Code, Accessibility.

1012.4 Continuity.

Handrail gripping surfaces shall be continuous, without interruption by newel posts or other obstructions.

Exception:
1. NA
2. NA
3. Handrail brackets or balusters attached to the bottom surface of the handrail that do not project horizontally beyond the sides of the handrail within 1½ inches (38 mm) of the bottom of the handrail shall not be considered obstructions. For each ½ inch (12.7 mm) of additional handrail perimeter dimension above 4 inches (102 mm), the vertical clearance dimension of 1½ inches (38 mm) shall be permitted to be reduced by ⅛ inch (3 mm).
4. Where handrails are provided along walking surfaces with slopes not steeper than 1:20, the bottoms of the handrails gripping surfaces shall be permitted to be obstructed along their entire length where they are integral to crash rails or bumper guards.

1012.6 Handrail extensions.

Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight or ramp run. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrails shall extend horizontally above the landing 12 inches (305 mm) minimum beyond the top and bottom of ramp runs. The extensions of handrails shall be in the same direction of the stair flights at stairways and the ramp run at ramps.

Exception:
1. NA
2. Aisle handrails in Group A and E occupancies in accordance with Section 1028.13.
3. NA
4. Accessible handrail extensions shall be as per the Florida Building Code, Accessibility.

1012.7 Clearance.

Clear space between a handrail and a wall or other surface shall be a minimum of 1½ inches (38 mm). A handrail and a wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements.

Exception: Accessible handrails shall comply with Section 11-4.8.5(3).

1012.8 Projections.

On ramps, the clear width between handrails shall be 36 inches (914 mm) minimum. Projections into the required width of stairways and ramp at each handrail shall not exceed 4½ inches (114 mm) at or below the handrail height. Projections into the required width shall not be limited above the minimum headroom height required in Section 1009.2.

1012.9 Intermediate handrails.

Stairways shall have intermediate handrails located in such a manner that all portions of the stairways width required for egress capacity are within 30 inches (762 mm) of a handrail. On monumental stairs, handrails shall be located along the most direct path of egress travel.

SECTION 1013
GUARDS

1013.1 Where required.

Guards shall be located along open-sided walking, surfaces, including mezzanines, equipment platforms, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Guards shall be adequate in strength and attachment in accordance with Section 1607.7.

Exception: Guards are not required for the following locations:
1. On the loading side of loading docks and piers.
2. On the audience side of stages and raised platforms, including steps leading up to the stage and raised platforms.
3. On raised stage and platform areas such as runways, ramps and side stages used for entertainment or presentations.
4. At vertical openings in the performance area of stage and platforms.
5. At elevated walking surfaces appurtenant to stages and platforms for access to and utilization of special lighting or equipment.

6. Along vehicle service pits not accessible to the public.
7. In assembly seating where guards in accordance with Section 1028.14 are permitted and provided.

In public educational facilities, any vertical drop of 18 inches or more shall be protected by a wall or guardrail a minimum of 42 inches in height. Guardrails shall have intermediate rails or ornamental patterns such that a 4-inch diameter sphere cannot pass through any opening up to a height of 34 inches.

See Sections 423.10.2.4 and 1013.3, Florida Building Code, for further information.

1013.2 Height.

Required guards shall be not less than 42 inches (1067 mm) high, measured vertically above the adjacent walking surfaces, adjacent to fixed seating of the line connecting the leading edge of treads.

Exceptions:
1. NA
2. NA
3. The height in assembly seating areas shall be in accordance with Section 1028.14

1013.3 Opening limitations.

Required guards shall not have openings which allow passage of a sphere 4 inches (102 mm) in diameter from the walking surface to the required guard height. The High Velocity Hurricane Zone shall comply with Sections 1618.4.3 and 1618.4.4.

Exceptions:
1. From a height of 36 inches (914 mm) to 42 inches (1067 mm), guards shall not have opening which allow passage of a sphere 4⅜ inches (111 mm) in diameter.
2. The triangle openings at the open sides of a stair, formed by the riser, tread and bottom rail shall not allow passage of a sphere 6 inches (152 mm) in diameter.
3. At elevated walking surfaces for access to and use of electrical, mechanical or plumbing systems or equipment, guards shall not have opening which allow passage of a sphere 21 inches (533 mm) in diameter.
4. In areas that are not open to the public within occupancies in Group I-3, F, H or S and for alternating tread devices and ship ladders, guards shall not have opening which allow passage of a sphere 21 inches (533 mm) in diameter.
5. In assembly seating areas, guards at the end of aisles where they terminate at a fascia of boxes, balconies and galleries shall not have openings which allow passage of sphere 4 inches in diameter (102 mm) up to a height of 26 inches (660 mm). From a height of 26 inches to 42 inches (660 mm to 1067 mm) above the adjacent walking surfaces, guards shall not have openings which allow passage of a sphere 8 inches (203 mm) in diameter.

SECTION 1014
EXIT ACCESS

1014.1 General.

The exit access shall comply with the applicable provisions of Sections 1003 through 1013. Exit assess arrangement shall comply with Section 1014 through 1019.

1014.2 Egress through intervening spaces.

Egress through intervening spaces shall comply with this section.

1. Egress from a room or space shall not pass through adjoining or intervening rooms or areas, except where such adjoining rooms or areas and the area served are accessory to one or the other, are not a Group H occupancy and provide a discernible path of egress travel to an exit.

Exception: Means of egress are not prohibited through adjoining or intervening rooms or space in a Group H, S or F occupancy when the adjoining or intervening rooms or space are the same or a lesser hazard occupancy group.

2. An exit access shall not pass through a room that can be locked to prevent egress.
3. NA
4. Egress shall not pass through kitchens, storage rooms, closets or space used for similar purposes.

Exceptions:
1. Means of egress are not prohibited through a kitchen area serving adjoining rooms constituting part of the same dwelling unit or sleeping unit.
2. Means of egress are not prohibited through stockrooms in Group M occupancies when all of the following are met:
   - 2.1 The stock is of the same hazard classification as that found in the main retail area;
   - 2.2 Not more than 50 percent of the exit access is through the stockroom;

2.3 The stockroom is not subject to locking from the egress side; and

2.4 There is a demarcated, minimum 44-inch-wide (1118 mm) aisle defined by full-or partial-height fixed walls or similar construction that will maintain the required width and lead directly from the retail area to the exit without obstructions.

1014.3 Common path of egress travel.

In occupancies other than Groups H-1, H-2 and H-3, the common path of egress travel shall not exceed 75 feet (22 860 mm). In Group H-1, H-2 and H-3 occupancies, the common path of egress travel shall not exceed 25 feet (7620 mm). For common path of egress travel in Group A occupancies and assembly occupancies accessory to Group E having fixed seating, see Section 1028.8.

Exceptions:

1. The length of a common path of egress travel in Group B, M and S occupancies shall not be more than 100 feet (30 480 mm), provided that the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
2. Where a tenant space in Group B, S and U occupancies has an occupant load of not more than 30, the length of a common path of egress travel shall not be more than 100 feet (30 480 mm).
3. NA
4. NA
5. Where a tenant space In Group A occupancy has an occupant load of more than 50, the length of a common path of egress travel shall not be more than 20 feet (6098 mm).
6. NA
7. The common path of egress travel in occupancies in group F and S shall be 50 feet (15 240 mm) in unsprinklered buildings.
8. The common path of egress travel in group S2 parking garages shall be 50 feet (15 240 mm).
9. In occupancy group S2 common paths of egress travel shall not be limited.

(See Appendix, Travel Distance.)

SECTION 1015
EXIT AND EXIT ACCESS DOORWAYS

1015.1 Exits or exit access doorways from spaces.

Two exits or exit access doorways from any space shall be provided where one of the following conditions exists:

1. The occupant load of the space exceeds the values in Table 1015.1.
2. The common path of egress travel exceeds the limitations of Section 1014.3.
3. Where required by Sections 1015.3, 1015.4, 1015.5, 1015.6 or 1015.6.1.

Table 1015.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

Occupancy	Maximum Occupant Load
A, B, E[a], F, M, U	49
H-1, H-2, H-3	3
D, H-4, H-5, I-1, I-3	10
S	29

a daycare maximum occupancy load is 10.

(See Appendix, Number of Required Means of Egress.)

1015.2 Exit or exit access doorway arrangement.

Required exits shall be located in a manner that makes their availability obvious. Exits shall be unobstructed at all times. Exit and exit access doorways shall be arranged in accordance with Sections 1015.2.1 and 1015.2.2.

1015.2.1 Two exits or exit access doorways.

Where two exits or exit access doorways are required from any portion of the exit access, the exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways. Interlocking or scissor stairs shall be counted as one exit stairway.

(See Appendix, Separation of Means of Egress.)

Exceptions:

1. Where exit enclosures are provided as a portion of the required exit and are interconnected by a 1-hour fire-resistance-rated corridor conforming to the requirements of Section 1018, the required exit separation shall be measured along the shortest direct line of travel within the corridor.

2. Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2, the separation distance of the exit doors or exit access doorways shall not be less than one-third of the length of the maximum overall diagonal dimension of the area served.

1015.6 Stage means of egress.

Where two means of egress are required, based on the stage size or occupant load, one means of egress shall be provided on each side of the stage.

(See Appendix, Legitimate Stage.)

SECTION 1016
EXIT ACCESS TRAVEL DISTANCE

1016.1 Travel distance limitations.

Exits shall be so located on each story such that the maximum length of exit access travel, measured from the most remote point within a story along the natural and unobstructed path of egress travel to an exterior exit door at the level of exit discharge, an entrance to a vertical exit enclosure an exit passageway, a horizontal exit, an exterior exit stairway or an exterior exit ramp, shall not exceed the distances given in Table 1016.1.

Exceptions:

1. Travel distance in open parking garages is permitted to be measured to the closest riser of open exit stairways.
2. In outdoor facilities with open exit access components and open exterior exit stairways or exit ramps, travel distance is permitted to be measured to the closest riser of an exit stairway or the closest slope of the exit ramp.
3. In other than occupancy Group H and I, the exit access travel distance to a maximum of 50 percent of the exits is permitted to be measured from the most remote point within a building to an exit using unenclosed exit access stairways or ramps when connecting a maximum of two stories. The two connected stories shall be provided with at least two means of egress. Such interconnected stories shall not be open to other stories.
4. In other than occupancy Groups H and I, exit access travel distance is permitted to be measured from the most remote point within a building to an exit using unenclosed exit access stairways or ramps in the first and second stories above grade plane in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. The first and second stories above grade plane shall be provided with at least two means of egress. Such interconnected stories shall not be open to other stories.

Where applicable, travel distance on unenclosed exit access stairways or ramps and on connecting stories shall also be included in the travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stairway.

Exit passageways and horizontal exits are not allowed in educational facilities.

(See Appendix, Travel Distance and Appendix, Dead-End Corridors.)

TABLE 1016.1
EXIT ACCESS TRAVEL DISTANCE [a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
M	150	250 [c]
A	200	250 [b]
B	200	300 [c]
S-1	200	400 [c]
S-2	300	400 [c]
E, D, S-2[f]	150	200 [c]

For SI: 1 foot = 304.8

a. See the following sections for modifications to exit access travel distance requirements:
   Section 402.4: For the distance limitation in malls.
   Section 404.9: For increased limitation through an atrium space.
   Section 1021.2: For buildings with one exit.
   Section 1028.7: For increased limitation for assembly seating
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where sprinklers systems are permitted in accordance with Section 903.3.1.2.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
d. NA
e. NA
f. Enclosed parking garage.

SECTION 1017
AISLES

1017.1 General.

Aisles serving as a portion of the exit access in the means of egress system shall comply with the requirements of this section. Aisles shall be provided from all occupied portions of the exit access which contain seats, tables, furnishings, displays and similar fixtures or equipment. Aisles serving assembly areas shall comply with Section 1028. Aisles serving reviewing stands grandstands and bleachers shall also comply with Section 1028. The required width of aisles shall be unobstructed.

1017.2 Aisles in Groups B and M.

In Group B and M occupancies, the minimum clear aisle width shall be determined by Section 1005.1 for the occupant load served, but shall not be less than 36 inches (914 mm).

Exception: Non public aisles serving less than 50 people and not required to be accessible by Chapter 11 need not exceed 28 inches (711 mm) in width.

1017.3 Aisle accessway in Group M.

An aisle accessway shall be provided on at least one side of each element within the merchandise pad. The minimum clear width for an aisle accessway not required to be accessible shall be 30 inches (762 mm). The required clear width of the aisle accessway shall be measured perpendicular to the elements and merchandise within the merchandise pad. The 30-inch (762 mm) minimum clear width shall be maintained to provide a path to an adjacent aisle or aisle accessway. The common path of travel shall not exceed 30 feet (9144 mm) from any point in the merchandise pad.

Exception: For areas serving not more than 50 occupants, the common path of travel shall not exceed 75 feet (22880 mm).

1017.4 Seating at tables.

Where seating is located at a table or counter and is adjacent to an aisle or aisle accessway, the measurement of required clear width of the aisle or aisle accessway shall be made to a line 19 inches (483 mm) away from and parallel to the edge of the table or counter. The 19-inch (483 mm) distance shall be measured perpendicular to the side of the table or counter. In the case of other side boundaries for aisle or aisle accessways, the clear width shall be measured to walls, edges of seating and tread edges, except that handrail projections are permitted.

Exception: Where table or counters are served by fixed seats, the width of the aisle accessway shall be measured from the back of the seat.

1017.4.1 Aisle accessway for tables and seating.

Aisle accessways serving arrangements of seating at tables or counters shall have sufficient clear width to conform to the capacity requirements of Section 1005.1 but shall not have less than the appropriate minimum clear width specified in Section 1017.4.2.

1017.4.2 Table and seating accessway width.

Aisle accessways shall provide a minimum of 12 inches (305 mm) of width plus ½ inch (12.7 mm) of width for each additional 1 foot (305 mm), or fraction thereof, beyond 12 feet (3658 mm) of aisle accessway length measured from the center of the seat farthest from an aisle.

Exception: Portions of an aisle accessway having a length not exceeding 6 feet (1829 mm) and used by a total of not more than four persons.

1017.4.3. Table and seating aisle accessway length.

The length of travel along the aisle accessway shall not exceed 30 feet (9144 mm) from any seat to the point where a person has a choice of two or more paths of egress travel to separate exits.

SECTION 1018
CORRIDOR

1018.1 Construction.

Corridors shall be fire-resistance rated in accordance with Table 1018.1. The corridor walls required to be fire-resistance rated shall comply with Section 709 for fire partitions.

Exceptions:

1. A fire-resistance rating is not required for corridors in an occupancy in Group E where each room that is used for instruction has at least one door opening directly to the exterior and rooms for assembly purposes have at least one-half of the required means of egress doors opening directly to the exterior. Exterior doors specified in this exception are required to be at ground level.
2. NA.
3. A fire-resistance rating is not required for corridors in open parking garages.
4. A fire-resistance rating is not required for corridors in an occupancy in Group B which is a space requiring only a single means of egress complying with Section 1015.1

TABLE 1018.1
CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system [c]
B, D, E [c], M, S	Greater than 30	1	0

c. In buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 903, corridor walls shall not be required to be rated, provided that such walls form smoke partitions in accordance with the Florida Fire Prevention Code

1018.2 Corridor width.

The minimum corridor width shall be as determined in Section 1005.1, but not less than 44 inches (1118 mm).

Exceptions:

1. Twenty-four inches (610 mm) -For access to and utilization of electrical, mechanical or plumbing systems or equipment.
2. Thirty-six inches (914 mm)-with a required occupancy capacity of less than 50.
3. Thirty-six inches (914 mm)-within a dwelling unit.
4. Seventy-two inches (1829 mm)-In Group E with a corridor having a required capacity of 100 or more.

1018.3 Corridor obstruction.

The required width of corridors shall be unobstructed.

Exception: Door complying with Section 1005.2

1018.4 Dead ends.

Where more than one exit or exit access doorways is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet (6096 mm) in length.

Exceptions:

1. NA
2. In occupancies in Groups B, F, M, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet (15 2440 mm).
3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

1018.5. Air movement in corridors.

Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

1. Use of a corridor as a source of makeup air for exhaust system in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.
2. NA
3. Where located within tenant spaces of 1,000 square feet (93 m²) or less in area, utilization of corridors for conveying return air is permitted.

1018.5.1 Corridor ceiling.

Use of the space between the corridor ceiling and the floor or roof structure above as a return plenum is permitted for one or more of the following conditions:

1. The corridor is not required to be for fire-resistance-rated construction;
2. The corridor is separated from the plenum by fire-resistance-rated construction;
3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by the Florida Building Code, Mechanical;
4. The air-handling system serving the corridor is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an automatic sprinkler system; or
5. The space between the corridor ceiling and the floor or roof structure above the corridor is used as a component of an approved engineered smoke control system

1018.6 Corridor continuity.

Fire-resistance-rated corridors shall be continuous from the point of entry to an exit, and shall not be interrupted by intervening rooms.

Exception: Foyers, lobbies or reception rooms constructed as required for corridors shall not be construed as intervening rooms.

SECTION 1019
EGRESS BALCONIES

1019.1 General.

Balconies used for egress purposes shall conform to the same requirements as corridors for width, head-room, dead ends and projections.

1019.2 Wall separation.

Exterior egress balconies shall be separated from the interior of the building by walls and opening protective's as required for corridors.

> **Exception**: Separation is not required where the exterior egress balcony is served by at least two stairs and a dead-end travel condition does not require travel past an unprotected opening to reach a stair.

1019.3 Openness.

The long side an egress balcony shall be at least 50 percent open, and the open area above the guards shall be so distributed as to minimize the accumulation of smoke or toxic gases.

SECTION 1020
EXITS

1020.1 General.

Exits shall comply with Sections 1020 through 1026 and the applicable requirements of Sections 1003 through 1013. An exit shall not be used for any purpose that interferes with its functions as a means of egress. Once a given level of exit protection is achieved, such level of protection shall not be reduced until arrival at the exit discharge.

SECTION 1022
EXIT ENCLOSURES

1022.1 Enclosures required.

Interior exit stairways and interior exit ramps shall be enclosed with fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 712, or both. Exit enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories. The number of stories connected by the exit enclosure shall include any basements but not any mezzanines. Exit enclosures shall have a fire-resistance rating not less than the floor assembly penetrated, but need not exceed 2 hours. Exit enclosures shall lead directly to the exterior of the building or shall be extended to the exterior of the building with an exit passageway conforming to the requirements of Section 1023, except as permitted in Section 1027.1. An exit enclosure shall not be used for any purpose other than means of egress.

Exit passageways and horizontal exits are not permitted in public educational facilities.

> **Exception:**
> 1. In all occupancies, other than Group H and I occupancies, a stairway is not required to be enclosed when the stairway serves an occupant load of less than 10 and the stairway complies with either Item 1.1 or 1.2. In all cases, the maximum number of connecting open stories shall not exceed two.
>
> 1.1. The stairway is open to not more than one story above its level of exit discharge; or
>
> 1.2 The stairway is open to not more than one story below its level of exit discharge.
>
> 2. Exits in buildings of Group A-5 where all portions of the means of egress are essentially open to the outside need not be enclosed.
> 3. NA
> 4. Stairways in open parking structures that serve only the parking structure are not required to be enclosed.
> 5. NA
> 6. Means of egress stairways as required by Sections 410.5.3 and 1015.6.1 are not required to be enclosed.
> 7. Means of egress stairways from balconies, galleries or press boxes as provided for in Section 1028.5.1 are not required to be enclosed.

(See Appendix, Interior Stairs.)

1022.3 Openings and penetrations.

Exit enclosure opening protectives shall be in accordance with the requirements of Section 715.

Openings in exit enclosures other than unexposed exterior openings shall be limited to those necessary for exit access to the enclosure from normally occupied spaces and for egress from the enclosure. Elevators shall not open into an exit enclosure.

Spaces such as mechanical rooms, custodial rooms, storage rooms, and any other non-occupied space shall not open into an exit enclosure.
(See Appendix, Stairs.)

1022.6 Exit enclosure exterior walls.

Exterior walls of an exit enclosure shall comply with the requirements of Section 705 for exterior walls. Where nonrated walls or unprotected openings enclose the exterior of the stairway and the walls or openings are exposed by other parts of the building at an angle of less than 180 degrees (3.14 rad), the building exterior walls within 10 feet (3048 mm) horizontally of a nonrated wall or unprotected opening shall have a fire-resistance rating of no less than 1 hour. Openings within such exterior walls shall be protected by opening protective's having a fire protection rating of not less than 3/4 hour. This construction shall extend vertically from the ground to a point 10 feet (3048 mm) above the top most landing of the stairway or to the roof line, whichever is lower.

SECTION 1026
EXTERIOR EXIT RAMPS AND STAIRWAYS

1026.1 Exterior exit ramps and stairways.

Exterior exit ramps and stairways serving as an element of a required means of egress shall comply with this section.

Exception: Exterior exit ramps and stairways for outdoor stadiums complying with Section 1022.1, Exception 2.

1026.2 Use in a means of egress.

For occupancies in other than Group I-2, exterior exit ramps and stairways shall be permitted as an element of a required means of egress for buildings not exceeding four stories above grade plan or having occupied floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access.

1026.3 Open side.

Exterior exit ramp and stairways serving as an element of a required means of egress shall not be less than 50 percent open on one side. Outside stairs shall be arranged to restrict the accumulation of smoke.

1026.4 Side yards.

The open areas adjoining exterior exit ramps or stairways shall be either yards, courts or public ways; the remaining sides are permitted to be enclosed by the exterior walls of the building.

1026.5 Location.

Exterior exit ramps and stairways shall be located in accordance with Section 1027.3.

1026.6 Exterior ramps and stairway protection.

Exterior exit ramps and stairways shall be separated from the interior of the building as required in Section 1022.1. Openings shall be limited to those necessary for egress from normally occupied spaces.

Exceptions:

1. Separation from the interior of the building is not required for occupancies, other than those in Group R-1 or R-2, in buildings that are no more than two stories above grade plane where the level of exit discharge serving such occupancies is the first story above grade plane.
2. Separation from the interior of the building is not required where the exterior ramp or stairway is served by an exterior ramp or balcony that connects two remote exterior stairways or other approved exits, with a perimeter that is not less than 50 percent open. To be considered open, the opening shall be a minimum of 50 percent of the height of the enclosing wall, with the top of the openings no less than 7 feet (2134 mm) above the top of the balcony.
3. Separation from the interior of the building is not required for an exterior ramp or stairway located in a building or structure that is permitted to have unenclosed interior stairways in accordance with Section 1022.1.
4. Separation from the interior of the building is not required for exterior ramps or stairways connected to open-ended corridors, provided that Items 4.1 through 4.4 are met:
   - 4.1. The building, including corridors, ramps and stairs, shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2.
   - 4.2. The open-ended corridors comply with Section 1018.
   - 4.3. The open-ended corridors are connected on each end to an exterior exit ramp or stairway complying with Section 1026.
   - 4.4. At any location in an open-ended corridor where a change of direction exceeding 45 degrees (0.79 rad) occurs, a clear opening of not less than 35 square feet (3.3 m^2) or an exterior ramp or stairway shall be provided. Where clear openings are provided, they shall be located so as to minimize the accumulation of smoke or toxic gases.

(See Appendix, Separation and Protection of Exterior Stairs and Appendix, Exceptions to Separation and Protection of Exterior Stairs.)

SECTION 1027
EXIT DISCHARGE

1027.1 General.

Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access to grade. The exit discharge shall not reenter a building. The combined use at Exceptions l and 2 below shall not exceed 50 percent of the number and capacity of the required exits.

Exceptions:

1. A maximum of 50 percent of the number and capacity of the exit enclosures is permitted to egress through areas on the level of discharge provided all of the following are met:
   1.1. Such exit enclosures egress to a free and unobstructed path of travel to the exterior exit door and such exits is readily visible and identifiable from the point of termination of the exit enclosure.
   1.2. The entire area of the level of discharge is separated from areas below by construction conforming to the fire-resistance rating for the exit enclosure.
   1.3. The egress path from the exit enclosure on the level of discharge is protected throughout by an approved automatic sprinkler system. All portions of the level of discharge with access to the egress path shall either be protected throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2, or separated from the egress path in accordance with the requirements for the enclosure of exits.
2. A maximum of 50 percent of the number and capacity of the exit enclosures is permitted to egress through a vestibule provided all of the following are met:
   2.1. The entire area of the vestibule is separated from areas below by construction conforming to the fire-resistance rating for the exit enclosure.
   2.2. The depth from the exterior of the building is not greater than 10 feet (3048 mm) and the length is not greater than 30 feet (9 144 mm).
   2.3. The area is separated from the remainder of the level of exit discharge by construction providing protection at least the equivalent of approved wired glass in steel frames.
   2.4. The area is used only for means of egress and exits directly to the outside.
3. Stairways in open parking garages complying with Section 1022.1, Exception 4, are permitted to egress through the open parking garage at the level of exit discharge.

Wire glass shall comply with CPSC 16 CFR 1201 in Educational occupancies. In educational facilities the exit level shall not be reduced in accordance with Section 1018.1, Florida Building Code.

1027.2 Exit discharge capacity.

The capacity of the exit discharge shall be not less than the required discharge capacity of the exits being served.

1027.3 Exit discharge location.

Exterior balconies, stairways and ramps shall be located at least 10 feet (3 048 mm) from adjacent lot lines and from other buildings on the same lot unless the adjacent building exterior walls and openings are protected in accordance with Section 705 based on fire separation distance.

(See Appendix, Exceptions to Separation and Protection of Exterior Stairs.)

SECTION 1028
ASSEMBLY

1028.1 General.

Occupancies in Group A and assembly occupancies accessory to Group E which contain seats, tables, displays, equipment or other material shall comply with this section.

1028.2 Assembly main exit.

Every assembly occupancy shall be provided with a main entrance/exit. The minimum aggregate width of the main entrance for Group A occupancies shall be sufficient to accommodate 50 percent of the occupant load and shall be at the level of exit discharge or shall connect to a stairway or ramp leading to a street. Each level of a Group A occupancy shall have access to a main exit and such access shall have sufficient capacity to accommodate 50 percent of the occupant load of such levels. Where the main exit from an assembly occupancy is through a lobby or foyer, the aggregate capacity of all exits from the lobby or foyer shall be permitted to provide the required capacity of the main exit regardless of whether all such exits serve as entrances to the building.

Exception:
1. NA
2. In assembly occupancies where there is no well-defined entrance/exit, exits may be distributed around the perimeter of the building, provided the total exit width furnishes a minimum of 100 percent of the width needed to accommodate the maximum occupant content.

1028.3 Assembly other exits.

Each level of an assembly occupancy shall have access to a main exit and shall be provided with additional exits of sufficient width to accommodate one-half of the total occupant load served by that level. Such additional exits shall be located as far from the main entrance/exit as practicable. Such exits shall be accessible from a cross aisle or a side aisle.

Exception: In assembly occupancies where there is no well-defined main exit or where multiple main exits are provided, exits shall be permitted to be distributed around the perimeter of the building, provided that the total width of egress is not less than 100 percent of the required width needed to accommodate the maximum occupant content.

1028.8 Common path of egress travel.

A common path of travel shall be permitted for the 20 feet (6.1 m) from any point where serving any number of occupants and for the first 75 feet (22 860 mm) from any point where serving not more than 50 occupants.

Exception:
1. For smoke-protected assembly seating, the common path of travel shall not exceed 50 feet (1524 mm) from any seat to a point where a person has a choice of two directions of egress travel.

1028.8.1 Path through adjacent row.

Where one of the two paths of travel is across the aisle through a row of seats to another aisle, there shall be not more than 24 seats between the two aisles, and the minimum clear width between rows for the row between the two aisles shall be 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row between aisles.

Exception: For smoke-protected assembly seating there shall not be more than 40 seats between the two aisles and the minimum clear width shall be 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat.

1028.9 Assembly aisles are required.

Every occupied portion of any occupancy in Group A or assembly occupancies accessory of Group E that contains seats, tables, displays, similar fixtures or equipment shall be provided with aisles leading to exits or exit access doorways in accordance with this section. Aisle accessways for tables and seating shall comply with Section 1017.4.

1028.9.1 Minimum aisle width.

The minimum clear width for aisles serving seating not at tables shall be as shown:

1. Forty-eight inches (1219 mm) for aisle stairs having seating on each side.
   Exception: Thirty-six inches (914 mm) where the aisle serves less than 50 seats.
2. Thirty-six inches (914 mm) for aisle stairs having seating on only one side.
3. Twenty-three inches (584 mm) between an aisle stair handrail or guard and seating where the aisle is subdivided by a handrail.
4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.
   Exceptions:
   1. Thirty-six inches (914 mm) where the aisle serve less than 50 seats.
   2. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.
5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.
   Exception:
   1. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.
   2. Twenty-three inches (584 mm) between an aisle stair handrail and seating where an aisle does not serve more than five rows on one side.

1028.9.2 Means of egress capacity.

The capacity of means of egress shall be in accordance with Section 1005. The width of aisles and other means of egress serving theater-type seating or similar seating arranged in rows shall provide sufficient capacity in accordance with Section s 1028.9.2.1 and 1028.9.2.2.

1028.9.2.1

Minimum clear widths of aisles and other means of egress serving theater-type seating, or similar seating arranged in rows, shall be in accordance with Table 1028.9.2.1.

1028.9.2.2

The minimum clear widths shown in Table 1028.9.2.1 shall be modified in accordance with all of the following:

1. If risers exceed 7 inches (178 mm) in height, multiply the stair width in the table by factor A, where

$$A = 1 + \frac{\text{(riser height - 7 inches)}}{5}$$

2. Stairs not having a handrail within a 30-inch (762 mm) horizontal distance shall be 25 percent wider than otherwise calculated (i.e. multiply by factor B=1.25).
3. Ramps steeper than 1:10 slope where used in ascent shall have their width increased by 10 percent (i.e. multiply by factor C=1.10).
   Exceptions:
   1. NA
   2. Grandstand, bleachers and folding and telescopic seating as permitted by Section 1028.6.2.

1028.9.2.3

Clear width shall be measured to walls, edges of seating and tread edges except for permitted projections.

TABLE 1028.9.2.1
CAPACTY FACTORS

No. of Seats	Nominal Flow Time (sec)	Inch of Clear Width Per Seat Served	
		Stairs	Passageways, Ramps and Doorways
Unlimited	200	0.300 AB	0.220 C

1028.9.3 Converging aisles.

Where aisles converge to form a single path of egress travel, the required egress capacity of that path shall not be less than the combined required capacity of the converging aisles.

1028.9.4 Uniform width.

Those portions of aisles, where egress is possible in either of two directions, shall be uniform in required width.

1028.9.5 Assembly aisle termination.

Each end of an aisle shall terminate at cross aisle, foyer, doorway, vomitory or concourse having access to an exit.

Exceptions:
1. Dead-end aisles shall not be greater than 20 feet (6096 mm) in length.
2. Dead-end aisles longer than 20 feet (6096 mm) are permitted where seats beyond the 20-foot (6096 mm) dead-end aisle are no more than 24 seats from another aisle, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row.
3. For smoke-protected assembly seating, the dead-end aisle length of vertical aisles shall not exceed a distance of 21 rows.
4. For smoke-protected assembly seating, a longer dead-end aisle is permitted where seats beyond the 21-row dead-end aisle are not more than 40 seats from another aisle, measured along a row of seats having an aisle accessway with a minimum clear width of 12 inches (305 mm) plus 0.3 inch (7.6 mm) for each additional seat above seven in the row.

1028.9.6 Assembly aisle obstructions.

There shall be no obstructions in the required width of aisles except for handrails as provided in Section 1028.13.

1028.10 Aisle accessways.

The aisle accessway between rows of seating shall have a clear width of not less than 12 inches (305 mm), and the minimum width shall be increased in accordance with Sections 1028.10.2 for seating not at tables and Section 1028.10.2.2 for seating at tables. The width of aisle access-ways shall be the clear horizontal distance from the back of the row ahead and the nearest projection of the row behind. Where chairs have automatic or self-rising seats that comply with ASTM F 851, Test Method for Self-Rising Seat Mechanisms, the measurement shall be made with seats In the raised position. Where any chair in the row does not have an automatic or self-rising seat, the measurements shall be made with the seat in the down position. For seats with folding tablet arms, row spacing shall be determined with the tablet in the useable position.

Exception: When not more than four persons are served, there shall be no minimum clear width requirement for the portion of the aisle accessway having a length not exceeding 6 feet (1.8 m) measured from the center of the seat farthest from the aisle.

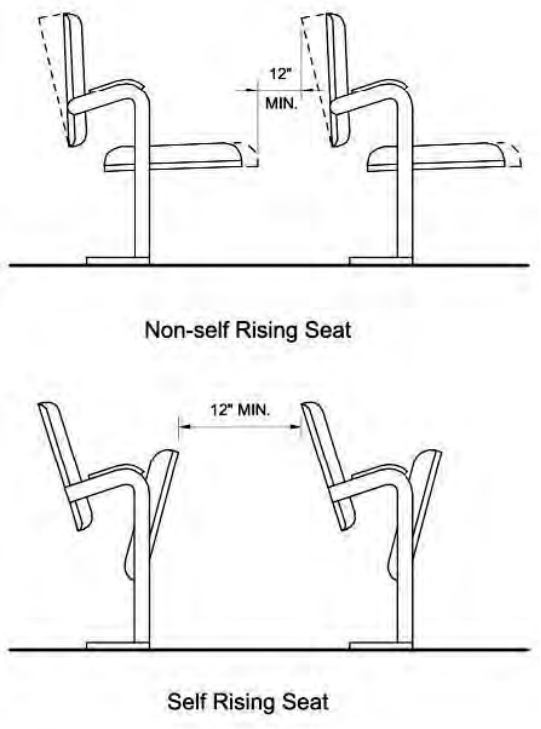


Figure 1025.10
Auditorium Seating

1028.10.1 Dual access.

Reserved

1028.10.2 Single access.

For rows of seating not at tables served by aisles or doorways at both ends there shall be no more than 100 seats per row and the 12 inches (305 mm) minimum clear width of aisle accessways shall be increased by 0.3 inch (7.6 mm) for every additional seat beyond 14, but the minimum clear width shall not be required to exceed 22 inches (559 mm).

(See Appendix, Auditorium Seating.)

Exception: For smoke-protected assembly seating, the row length limits for a 12-inch-wide (305 mm) aisle accessway, beyond which the aisle accessway minimum clear width shall be increased, are in Table 1028.10.2.

1028.10.2.1

For rows of seating not at tables served by an aisle or doorway at one end only, the 12 inches (305 mm) minimum clear width of aisle accessways shall be increased by 0.6 inch (15.2 mm) for every additional seat beyond seven, but the minimum clear width shall not be required to exceed 22 inches (559 mm).

Exception: For smoke-protected assembly seating, the row length limits for a 12-inch-wide (305 mm) aisle accessway, beyond which the aisle accessway minimum clear width shall be increased, are in Table 1028.10.2.

1028.10.2.1.2

For rows of seating not at tables served by an aisle or doorway on one end only, the path of travel shall not exceed 30 feet (9144 mm) from any seat to a point where a person has a choice of two paths of travel to two exits.

(See Appendix, Auditorium Seating.)

1028.10.2.2

Aisle accessways serving seating at tables shall have a minimum clear width of 12 inches (305 mm).

(See Appendix, Aisle Serving Seating at Tables.)

1028.10.2.2.1

Where nonfixed seating is located between a table and an aisle accessway, the measurement of required clear width of the aisle accessway shall be made to a line 19 inches (483 mm) away from the edge of the table. The 19 inches (483 mm) distance shall be measured perpendicularly to the edge of the table.

(See Appendix, Aisle Serving Seating at Tables.)

1028.10.2.2.2

The minimum 12-inches (305 mm) width required for an aisle accessway shall be increased by 0.5 inches (13 mm) for each additional 12 inches (305 mm) or fraction thereof beyond 12 feet (3.7 mm) of aisle accessway length where measured from the center of the seat farthest from an aisle.

(See Appendix, Aisle Serving Seating at Tables.)

1028.10.2.2.3

The path of travel along the aisle accessway shall not exceed 36 feet (10.9 m) from any seat to the closest aisle or egress doorway.

(See Appendix, Aisle Serving Seating at Tables.)

1028.11 Assembly aisle walking surfaces.

Aisles with a slope not exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a ramp having a slip-resistant walking surface. Aisles with a slope exceeding one unit vertical in eight units horizontal (12.5-percent slope) shall consist of a series of risers and treads that extends across the full width of aisles and complies with Sections 1028.11.1 through 1028.11.3.

(See Appendix, Aisle Ramps and Stairs.)

1028.11.1 Treads.

Tread depths shall be a minimum of 11 inches (279 mm) and shall have dimensional uniformity.

Exception: The tolerance between adjacent treads shall not exceed $^{3}/_{16}$ (4.8 mm).

(See Appendix, Aisle Ramps and Stairs.)

1028.11.2 Risers.

Where the gradient of aisle stairs is to be the same as the gradient of adjoining seating areas, the riser height shall not be less than 4 inches (102 mm) nor more than 8 inches (203 mm) and shall be uniform within each flight.

Exceptions:

1. The riser height of aisle stairs in folding and telescopic seating shall be permitted to be not less than $3^{1}/_{2}$ inches (89 mm) and shall not exceed 11 inches (279 mm).
2. Riser heights not exceeding 9 inches (229 mm) shall be permitted where they are necessitated by the slope of the adjacent seating areas to maintain sightlines.

(See Appendix, Aisle Ramps and Stairs.)

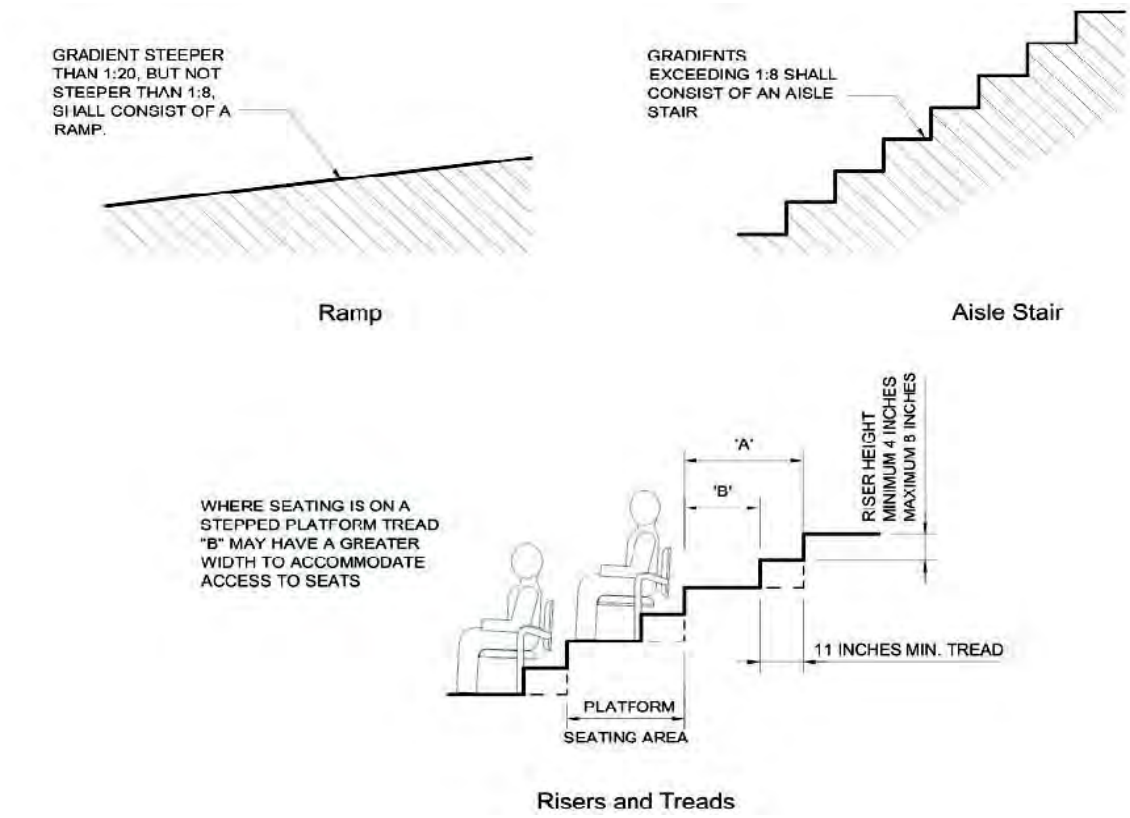


Figure 1025.11
Aisle Ramps and Stairs

1028.11.3 Tread contrasting marking stripe.

A contrasting marking stripe shall be provided on each tread at the nosing or leading edge such that the location of each tread is readily apparent when viewed in descent. Such stripe shall be a minimum of 1 inch (25 mm), and a maximum of 2 inches (51 mm), wide.

Exception: The contrasting marking stripe is permitted to be omitted where tread surfaces are such that the location of each tread is readily apparent when viewed in descent.

1028.12 Seat stability.

In places of assembly, the seats shall be securely fastened to the floor.

Exceptions:

1. In places of assembly or portions thereof without ramped or tiered floors for seating and with 200 or fewer seats, the seats shall not be required to be fastened to the floor.
2. In places of assembly or portions thereof with seating at tables and without ramped or tiered floors for seating, the seats shall not be required to be fastened to the floor.
3. In places of assembly or portions thereof without ramped or tiered floors for seating and with greater than 200 seats, the seats shall be fastened together in groups of not less than three or the seats shall be securely fastened to the floor.
4. In places of assembly where flexibility of the seating arrangement is an integral part of the design and function of the space and seating is on tiered levels, a maximum of 200 seats shall not be required to be fastened to the floor. Plans showing seating, tiers and aisles shall be submitted for approval.
5. Groups of seats within a place of assembly separated from other seating by railings, guards, partial height walls or similar barriers with level floors and having no more than 14 seats per group shall not be required to be fastened to the floor.
6. Seats intended for musicians or other performers and separated by railings, guards, partial height walls or similar barriers shall not be required to be fastened to the floor.
7. Restaurants, cafeterias, cafetoriums, gymnasiums, gymnatoriums and similar multipurpose assembly occupancies.
8. Movable seating in rows with seats fastened together in groups of not less than three nor more than seven.
9. Seats in balconies, galleries, railed in enclosures, boxes or loges with level floor surfaces and having occupant loads not exceeding 14.
10. Assembly occupancies in accordance with Exceptions 1 or 3 shall not have more than one seat for 15 square feet (1.4 m^2) of net floor area and shall provide adequate aisles to reach exits.

1028.13 Handrails.

Ramped aisles having a slope exceeding one unit vertical in 15 units horizontal (6.7-percent slope) and aisle stairs shall be provided with handrails located either at the side or within the aisle width. Handrails shall not be required where otherwise permitted by the following:

Exceptions:

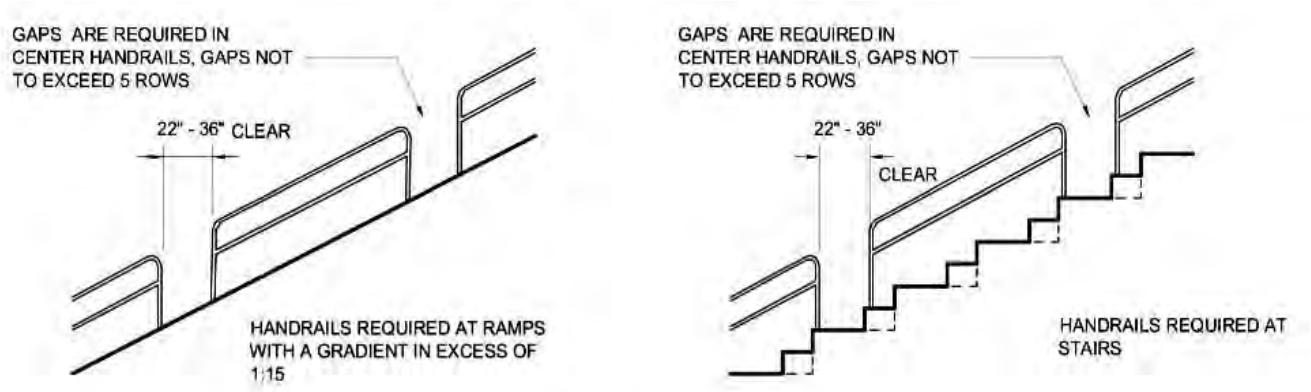
1. Handrails shall not be required for ramped aisles having a gradient not steeper than 1:8 and having seating on both sides where the aisle does not serve as an accessible route.
2. The requirement for a handrail shall be satisfied by the use of a guard provided with a rail that complies with the graspability requirements for handrails and located at the consistent height between 34 inches and 42 inches (865 mm and 1065 mm), measured using one of the following methods:
   a. Vertically from the top of the rail to the leading edge (nosing) of stair treads.
   b. Vertically from the top of the rail to the adjacent walking surface in the case of a ramp.
3. Handrail extensions are not required at the top and bottom of aisle stairs and aisle ramp runs to permit crossovers within the aisles.

(See Appendix, Aisle Ramps and Stairs.)

1028.13.1 Discontinuous handrails.

Where there is seating on both sides of the aisle, the handrails shall be discontinuous with gaps or breaks at intervals not exceeding five rows to facilitate access to seating and to permit crossing from one side of the aisle to the other. These gaps or breaks shall have a clear width of at least 22 inches (559 mm) and not greater than 36 inches (914 mm), measured horizontally, and the handrail shall have rounded terminations or bends.

(See Appendix, Aisle Ramps and Stairs.)



Handrails

1028.13.2 Intermediate handrails.

Where handrails are provided in the middle of aisle stairs, there shall be an additional intermediate handrail located approximately 12 inches (305 mm) below the main handrail.

SECTION 1029
EMERGENCY ESCAPE AND RESCUE

1029.4 Operational constraints.

Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. Bars, grilles, grates or similar devices are permitted to be placed over emergency escape and rescue openings provided the minimum net clear opening size complies with Section 1029.2 and such devices shall be releasable or removable from the inside without the use of a key, tool or force greater than that which is required for normal operation of the escape and rescue opening. Where such bars, grilles, grates or similar devices are installed in existing buildings, smoke alarms shall be installed in accordance with Section 907.2.11 regardless of the valuation of the alteration.

1029.4.1

Every room or space greater than 250 square feet (23.2 m^2) in educational occupancies used for classroom or other educational purposes or normally subject to student occupancy and every room or space normally subject to client occupancy, other than bathrooms, in Group D occupancies shall have not less than one outside window for emergency rescue that complies with the following:

1. Such windows shall be openable from the inside without the use of tools and shall provide a clear opening of not less than 20 inches (508 mm) in width, 24 inches (610 mm) in height, and 5.7 square feet (0.53 m^2) in area.
2. The bottom of the opening shall be not more than 44 inches (1118 mm) above the floor, and any latching device shall be capable of being operated from not more than 54 inches (1372 mm) above the finished floor.

Emergency escape openings are not required in Florida Colleges in accordance with Section 1029.4.1, Florida Building Code.

(See Appendix, Emergency Rescue Openings.)

SECTION 1030
BUSINESSS

1030.1 Doors.

Egress doors shall conform to the requirements of Section 1008 except doors serving office areas with an occupant load of 10 or less need not be side-swinging type.

1030.2 Handrails and guardrails.

Handrails and guardrails shall be in accordance with Section 1012 and 1013.

> **Exception**: In areas not accessible to the public and in fully enclosed stairways in office buildings not serving a Group A or E occupancy, the cleardistance between rails or ornamental pattern shall be such as to prevent the passage of a 21-inch (533 mm) diameter sphere.

1030.3. Stairs.

Spiral stairs complying the Section 1009.9 shall be permitted as a component in a means of egress.

1030.4 Common path of travel.

In Group B buildings, which are sprinkle red throughout, a common path of travel not exceeding 100 feet (30 480 mm) shall be permitted.

SECTION 1031
EDUCATIONAL

1031.1 Exterior corridors or balconies.

1031.1.1

A corridor roofed over and enclosed on its long sides and open to the atmosphere at the ends may be considered an exterior corridor provided:

1. Clear story openings not less than one-half the height of the corridor walls are provided on both sides of the corridor and above adjacent roofs or buildings, or
2. The corridor roof has unobstructed openings to the sky with the open area not less than 50 percent of the area of the roof. Openings shall be equally distributed with any louvers fixed open. The clear area of openings with fixed louvers shall be based on the actual openings between louver vanes.

1031.1.2

The minimum width of such corridors shall be sufficient to accommodate the occupant load but shall in no case be less than 6 feet (1829 mm).

1031.2 Panic and fire exit hardware.

1031.2.1

Each door in a means of egress from an area of Group E occupancy having an occupant load of 100 or more may be provided with a latch or lock only if it is panic hardware or fire exit hardware, which releases when a force of no more than 15 pounds (67 N) is applied to the releasing devices in the direction of exit travel. Such releasing devices may be bars or panels extending not less than one-half the width of the door and placed at heights suitable for the service required, but not less than 34 inches (864 mm) nor more than 48 inches (1219 mm) above the floor. Whenever panic hardware is used on a labeled fire door, the panic hardware shall be labeled as fire exit hardware.

Section 1008.1.10, Florida Building Code, requires panic hardware for an occupant load of 50 or more.

1031.2.2

If balanced doors are used and panic hardware is required, the panic hardware shall be of the pushpad type and the pad shall not extend more than one-half the width of the door measured from the latch side.

1031.3

Doors that swing into an exit access corridor shall be recessed to prevent interference with corridor traffic; any doors not recessed shall open 180 degrees (3.1 rad) to stop against the wall. Doors in any position shall not reduce the required corridor width by more than one-half.

Chapter 12
INTERIOR ENVIRONMENT
Florida Building Code, Building

SECTION 1201
GENERAL

1201.1 Scope.

The provisions of this chapter shall govern ventilation, temperature control, lighting, yards and courts, sound transmission, room dimensions, surrounding materials and rodent proofing associated with the interior spaces of buildings.

SECTION 1205
LIGHTING

1205.1 General.

Every space intended for human occupancy shall be provided with natural light by means of exterior glazed openings in accordance with Section 1205.2 or shall be provided with artificial light in accordance with Section 1205.3. Exterior glazed openings shall open directly onto a public way or onto a yard or court in accordance with Section 1206.

SECTION 1210
SURROUNDING MATERIALS

1210.1 Floors and walls base finished materials.

In other than dwelling units, toilet, bathing and shower room floor finish materials shall have a smooth, hard, nonabsorbent surface. The intersection of such floors with walls shall have a smooth, hard, nonabsorbent vertical base that extends upward onto the walls at least 4 inches (102 mm).

1210.2 Walls and partitions.

Walls and partitions within 2 feet (610 mm) of urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet (1219 mm) above the floor and except for structural elements, the material used in such walls shall be of a type that Is not adversely affected by moisture.

Exceptions:
1. Dwelling units and sleeping units.
2. Toilet rooms that are not accessible to the public and which have not more than one water closet.

Accessories such as grab bars, towel bars, paper dispensers and soap dishes, provided on or within walls, shall be installed and sealed to protect structural elements from moisture. For wall and partitions also see Section 2903

See Section 423.14.8, Florida Building Code, Interior Finishes.

1210.3 Showers.

Shower compartments and walls above bathtubs with installed shower heads shall be finished with a smooth, nonabsorbent surface to a height not less than 70 inches (1778 mm) above the drain inlet.

1210.4 Waterproof joints.

Built-in tubs with showers shall have waterproof joints between the tub and adjacent wall.

Chapter 24
GLASS AND GLAZING
Florida Building Code, Building

SECTION 2401
GENERAL

2401.1 Scope.

The provisions of this chapter shall govern the materials, design, construction and quality of glass, light transmitting ceramic and light-transmitting plastic panels for exterior and interior use in both vertical and sloped applications in buildings and structures.

Exception: Buildings and structures located within the high-velocity hurricane zone shall comply with the provisions of Sections 2410 through 2415.

SECTION 2403
GENERAL REQUIREMENTS FOR GLASS

2403.1 Identification.

Each pane shall bear the manufacturer's mark designating the type and thickness of the glass or glazing material. With the exception of tempered glazing materials or laminated materials, the identification shall not be omitted unless approved and an affidavit is furnished by the glazing contractor certifying that each light is glazed in accordance with approved construction documents that comply with the provisions of this chapter. Safety glazing shall be identified in accordance with Section 2406.2.

Each pane of tempered glass, except tempered spandrel glass, shall be identified by the manufacturer and each panel of laminated glass shall be permanently identified with the laminator, overall glass thickness and trade name of the interlayer. The identification mark shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that, once applied, cannot be removed without being destroyed.

Tempered or laminated spandrel glass shall be provided with a removable paper marking by the manufacturer.

2403.2 Glass supports.

Where one or more sides of any pane of glass are not firmly supported, or are subjected to unusual load conditions, detailed construction documents, detailed shop drawings and analysis or test data assuring safe performance for the specific installation shall be prepared by a registered design professional.

2403.3 Framing.

To be considered firmly supported, the framing members for each individual pane of glass shall be designed so the deflection of the edge of the glass perpendicular to the glass pane shall not exceed 1/175 of the glass edge length or 3/4 inch (19.1mm), whichever is less, when subjected to the larger of the positive or negative load where loads are combined as specified in Section 1605.

SECTION 2406
SAFETY GLAZING

2406.1 Human impact loads.

Individual glazed areas, including glass mirrors, in hazardous locations as defined in Section 2406.4 shall comply with Sections 2406.1.1 through 2406.1.4.

2406.1.1 Impact rest.

Except as provided in Sections 2406.1.2 through 2406.1.4, all glazing shall pass the test requirements of Section 2406.2.

Wire glass in educational facilities shall comply with CPSC 16 CFR 1201.

2406.1.2 Plastic glazing.

Plastic glazing shall meet the weathering requirements of ANSI Z97.1.

2406.1.3 Glass block.

Glass-block walls shall comply with Section 2101.2.5.

2406.1.4 Louvered windows and jalousies.

Louvered windows and jalousies shall comply with Section 2403.5.

2406.3 Identification of safety glazing.

Except as indicated in Section 2406.3.1, each pane of safety glazing installed in hazardous locations shall be identified by a manufacturer's designation specifying who applied the designation, the manufacturer or installer and the safety glazing standard with which it complies, as well as the information specified in Section 2403.1. The designation shall be acid etched, sand blasted, ceramic fired, laser etched, embossed or of a type that once applied, cannot be removed without being

destroyed. A label as defined in Section 202.1 and meeting the requirements of this section shall be permitted in lieu of the manufacturer's designation.

Exceptions:

1. For other than tempered glass, manufacturer's designations are not required, provided the building official approves the use of a certificate, affidavit or other evidence confirming compliance with this code.
2. Tempered spandrel glass is permitted to be identified by the manufacturer with a removable paper designation.

2406.3.1 Multi-pane assemblies.

Multi-pane glazed assemblies having individual panes not exceeding 1 square foot (0.09 m²) in exposed area shall have at least one pane in the assembly marked as indicated in Section 2406.3. Other panes in the assembly shall be marked “CPSC 16 CFR 1201” or "ANSI Z97.1," as appropriate.

2406.4 Hazardous locations.

The following shall be considered specific hazardous locations requiring safety glazing materials:

1. Glazing in swinging doors except jalousies (see Section 2406.4.1).
2. Glazing in fixed and sliding panels of sliding door assemblies and panels in sliding and bifold closet door assemblies.
3. Glazing in storm doors.
4. Glazing in unframed swinging doors.
5. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. Glazing in any portion of a building wall enclosing these compartments where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above a standing surface.
6. Glazing in an individual fixed or operable panel adjacent to a door where the nearest exposed edge of the glazing is within a 24-inch (610 mm) arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches (1524 mm) above the walking surface.

Section 423.13.7, Florida Building Code, requires safety glazing within 48 inches of a door in public educational facilities.

7. Glazing in an individual fixed or operable panel, other than in those locations described in preceding Items 5 and 6, which meets all of the following conditions:
   7.1. Exposed area of an individual pane greater than 9 square feet (0.84 m^2);
   7.2. Exposed bottom edge less than 18 inches (457 mm) above the floor;
   7.3. Exposed top edge greater than 36 inches (914 mm) above the floor; and
   7.4. One or more walking surface(s) within 36 inches (914 mm) horizontally of the plane of the glazing.

In educational facilities, a horizontal bar not less than 1½ inches wide, set between 24 and 36 inches above the floor, shall be installed.

8. Glazing in guards and railings, including structural baluster panels and nonstructural in-fill panels, regardless of area or height above a walking surface.
9. Glazing in walls and fences enclosing indoor and outdoor swimming pools, hot tubs and spas where all of the following conditions are present:
   9.1. The bottom edge of the glazing on the pool or spa side is less than 60 inches (1524 mm) above a walking surface on the pool or spa side of the glazing; and
   9.2. The glazing is within 60 inches (1524 mm) horizontally of the water’s edge of a swimming pool or spa.
10. Glazing adjacent to stairways, landings and ramps within 36 inches (914 mm) horizontally of a walking surface; when the exposed surface of the glass is less than 60 inches (1524 mm) above the plane of the adjacent walking surface.
11. Glazing adjacent to stairways within 60 inches (1524 mm) horizontally of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches (1524 mm) above the nose of the tread.

2406.4.1 Exceptions:

The following products, materials and uses shall not be considered specific hazardous locations:

1. Openings in doors through which a 3-inch (76 mm) sphere is unable to pass.
2. NA
3. Glazing materials used as curved glazed panels in revolving doors.
4. Commercial refrigerated cabinet glazed doors.
5. Glass-block panels complying with Section 2101.2.5.

(See Appendix, Safety and Fire-Rated Glazing.)

2406.5 Fire department access panels.

Fire department glass access panels shall be of tempered glass. For insulating glass units, all panes shall be tempered glass.

Chapter 3
GENERAL REGULATIONS
Florida Building Code, Mechanical

SECTION 301
GENERAL

301.1 Scope.

This chapter shall govern the approval and installation of all equipment and appliances that comprise parts of the building mechanical systems regulated by this code in accordance with Section 101.2.

SECTION 304
INSTALLATION

304.1 General.

Equipment and appliances shall be installed as required by the terms of their approval, in accordance with the conditions of the listing, the manufacturer's installation instructions and this code. Manufacturer's installation instructions shall be available on the job site at the time of inspection.

SECTION 307
CONDENSATE DISPOSAL

307.2.1 Condensate disposal.

Condensate from all cooling coils and evaporators shall be conveyed from the drain pan outlet to an approved place of disposal. Such piping shall maintain a minimum horizontal slope in the direction of discharge of not less than one-eighth unit vertical in 12 units horizontal (1-percent slope). Condensate shall not discharge into a street, alley or other areas so as to cause a nuisance.

307.2.3 Auxiliary and secondary drain systems.

In addition to the requirements of Section 307.2.1, where damage to any building components could occur as a result of overflow from the equipment primary condensate removal system, one of the following auxiliary protection methods shall be provided for each cooling coil or fuel-fired appliance that produces condensate:

1. An auxiliary drain pan with a separate drain shall be provided under the coils on which condensation will occur. The auxiliary pan drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The pan shall have a minimum depth of 1½ inches (38 mm), shall not be less than 3 inches (76 mm) larger than the unit or the coil dimensions in width and length and shall be constructed of corrosion-resistant material. Galvanized sheet steel pans shall have a minimum thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage). Nonmetallic pans shall have a minimum thickness of not less than 0.0625 inch (1.6 mm).
2. A separate overflow drain line shall be connected to the drain pan provided with the equipment. Such overflow drain shall discharge to a conspicuous point of disposal to alert occupants in the event of a stoppage of the primary drain. The overflow drain line shall connect to the drain pan at a higher level than the primary drain connection.
   As an alternate to a separate drain line, a water-level detection device that will shut off the equipment served prior to overflow of the pan shall be provided. The water level detection device shall connect to the drawn pan at a higher level than the primary drain connection.
3. An auxiliary drain pan without a separate drain line shall be provided under the coils on which condensate will occur. Such pan shall be equipped with a water-level detection device confirming to UL 508 that will shut off the equipment served prior to overflow of the pan. The auxiliary drain pan shall be constructed in accordance with Item 1 of this section.

Chapter 4
VENTILATION
Florida Building Code, Mechanical

SECTION 401
GENERAL

401.1 Scope.

This chapter shall govern the ventilation of spaces within a building intended to be occupied. Mechanical exhaust systems, including exhaust systems serving clothes dryers and cooking appliances; hazardous exhaust systems; dust, stock and refuse conveyor systems; subslab soil exhaust systems; smoke control systems; energy recovery ventilation systems and other systems specified in Section 502 shall comply with Chapter 5.

401.2 Ventilation required.

Every occupied space shall be ventilated by natural means in accordance with Section 402 or by mechanical means in accordance with Section 403.

401.3 When required.

Ventilation shall be provided during the periods that the room or space is occupied.

SECTION 403
MECHANICAL VENTILATION

403.2 Outdoor air required.

The minimum outdoor airflow rate shall be determined in accordance with Section 403.3. Ventilation supply systems shall be designed to deliver the required rate of outdoor airflow to the breathing zone within each occupiable space.

Section 423.15.6, Florida Building Code, allows ventilation to be based upon average occupancy for school buildings for the duration of operation of the air conditioning system.

SECTION 405
SYSTEMS CONTROL

405.1 General.

Mechanical ventilation systems shall be provided with manual or automatic controls that will operate such systems whenever the spaces are occupied. Air-conditioning systems that supply required ventilation air shall be provided with controls designed to automatically maintain the required outdoor air supply rate during occupancy.

Chapter 5
EXHAUSTSYSTEMS
Florida Building Code, Mechanical

SECTION 501
GENERAL

501.1 Scope.

This chapter shall govern the design, construction and installation of mechanical exhaust systems, including exhaust systems serving clothes dryers and cooking appliances; hazardous exhaust systems; dust, stock and refuse conveyor systems; subslab soil exhaust systems; smoke control systems; energy recovery ventilation systems and other systems specified in Section 502.

501.2 Exhaust discharge.

The air removed by every mechanical exhaust system shall be discharged outdoors at a point where it will not cause a nuisance and not less than the distance specified In Section 501.2.1. The air shall be discharged to a location from which it cannot again be readily drawn in by a ventilating system. Air shall not be exhausted into an attic or crawl space.

Exceptions:
1. NA
2. Commercial cooking recirculating systems.

501.3 Pressure equalization.

See Section 601.4 of this code, and Section 503.2.10.6 of the Florida Building Code, Energy Conservation.

SECTION 505
DOMESTIC KITCHEN EXHAUST EQUIPMENT

505.1 Domestic systems.

Where domestic range hoods and domestic appliances equipped with downdraft exhaust are located within dwelling units, such hoods and appliances shall discharge to the outdoors through sheet metal ducts constructed of galvanized steel, stainless steel, aluminum or copper. Such ducts shall have smooth inner walls and shall be air tight and equipped with a backdraft damper.

Exceptions: Where installed in accordance with the manufacturer's installation instructions and where mechanical or natural ventilation is otherwise provided in accordance with Chapter 4, listed and labeled ductless range hoods shall not be required to discharge to the outdoors.

The exception for ductless hoods does not apply to educational facilities. Section 423 of the Florida Building Code, Building, specifies that when small residential-type hoods are used in schools, residential-type hoods must be mechanically exhausted to the outside. See Section 423.15.3, Florida Building Code, Building, for more information.

SECTION 507
COMMERCIAL KITCHEN HOODS

507.2.3 Domestic cooking appliances used for commercial purposes.

Domestic cooking appliances utilized for commercial purposes shall be provided with Type I or Type II hoods as required for the type of appliances and processes in accordance with Sections 507.2, 507.2.1 and 507.2.2.

Domestic cooking appliances used in home economics instructional spaces are not intended to be used for commercial purposes and are not required to meet this section or Section 509 requiring a fire suppression system.

SECTION 509
FIRE SUPPRESSION SYSTEMS

509.1 Where required.

Commercial cooking appliances required by Section 507.2.1 to have a Type I hood shall be provided with an approved automatic fire suppression system complying with the Florida Building Code, Building and the Florida Fire Prevention Code.

Chapter 6
DUCT SYSTEMS
Florida Building Code, Mechanical

SECTION 601
GENERAL

601.1 Scope.

Duct systems used for the movement of air in air-conditioning, heating, ventilating and exhaust systems shall conform to the provisions of this chapter except as otherwise specified in Chapters 5 and 7.

Exception: Ducts discharging combustible material directly into any combustion chamber shall conform to the requirements of NFPA 82.

601.2 Air movement in egress elements.

Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

1. Use of a corridor as a source of makeup air for exhaust systems in rooms that open directly onto such corridors, including toilet rooms, bathrooms, dressing rooms, smoking lounges and janitor closets, shall be permitted, provided that each such corridor is directly supplied with outdoor air at a rate greater than the rate of makeup air taken from the corridor.

Section 423, Florida Building Code, Building, specifies that corridors shall not be used as return air plenums. This also applies to corridors used as supply, exhaust, relief, or ventilation plenums. See Section 423.15.2 of the Florida Building Code, Building, for more information.

601.2.1 Corridor ceiling.

Use of the space between the corridor ceiling and the floor or roof structure above as a return air plenum is permitted for one or more of the following conditions:

1. The corridor is not required to be of fire-resistance-rated construction;
2. The corridor is separated from the plenum by fire-resistance-rated construction;
3. The air-handling system serving the corridor is shut down upon activation of the air-handling unit smoke detectors required by this code;
4. The air-handling system serving the corridor is shut down upon detection of sprinkler waterflow where the building is equipped throughout with an automatic sprinkler system; or
5. The space between the corridor ceiling and the floor or roof structure above the corridor is used as a component of an approved engineered smoke control system.

The space between the corridor ceiling and the floor or roof structure above may only be used as a plenum when the ceiling is constructed as a minimum 1-hour rated horizontal wall supported by the corridor walls. See Section 423.15.2, Florida Building Code, Building, for more information.

601.4 Balanced return air.

Restricted return air occurs in buildings when returns are located in central zones and closed interior doors impede air flow to the return grill or when ceiling spaces are used as return plenums and fire walls restrict air movement from one portion of the return plenum to another. Provisions shall be made in both residential and commercial buildings to avoid unbalanced air flows and pressure differentials caused by restricted return air. Pressure differentials across closed doors where returns are centrally located shall be limited to 0.01 inch WC (2.5 pascals) or less. Pressure differentials across fire walls in ceiling space plenums shall be limited to 0.01 inch WC (2.5 pascals) by providing air duct pathways or air transfer pathways from the high pressure zone to the low zone.

Exceptions:

1. Transfer ducts may achieve this by increasing the return transfer 1$^{1}/_{2}$ times the cross sectional area (square inches) of the supply duct entering the room or space it is serving and the door having at least an unrestricted 1 inch undercut to achieve proper return air balance.
2. Transfer grilles shall use 50 square inches (of grille area) to 100 cfm (of supply air) for sizing through-the-wall transfer grilles and using an unrestricted 1 inch undercutting of doors to achieve proper return air balance.

SECTION 602
PLENUMS

602.2.1 Materials within plenums.

Except as required by Sections 602.2.1.1 through 602.2.1.6, materials within plenums shall be noncombustible or shall have a flame spread index of not more than 25 and a smoke-developed index of not

more than 50 when tested in accordance with ASTM E 84 or UL 723.

Exceptions:

1. Rigid and flexible ducts and connectors shall conform to Section 603.
2. Duct coverings, linings, tape and connectors shall conform to Sections 603 and 604.
3. NA
4. This section shall not apply to smoke detectors.
5. Combustible materials fully enclosed within continuous noncombustiable raceways or enclosures, approved gypsum board assemblies or within materials listed and labeled for such application.
6. Condensate pump units with a total volume not exceeding 2 cubic feet.
7. Loudspeakers, loudspeaker assemblies, and their accessories exposed within a plenum shall have a peak optical density not greater than 0.50, an average optical density not greater than 0.15, and a peak heat release rate not greater than 100 kW when tested in accordance with UL 2043.

PVC and CPVC piping may be installed in return air plenums only if the materials in which they are enclosed are listed and labeled for such installations. Wrapping PVC and CPVC piping in insulation having a flame spread/smoke developed index of 25/50 is not automatically acceptable.

SECTION 606
SMOKE DETECTION SYSTEMS CONTROL

606.2 Where required.

Smoke detectors shall be installed where indicated in Sections 606.2.1 through 606.2.3 and NFPA 90A.

606.2.1 Supply air systems.

Smoke detectors shall be installed in supply air systems with a design capacity greater than 2,000 cfm (0.9 m^3/s) in the supply air duct.

Exception: Smoke detectors are not required in the supply air system where the space served by the air distribution system is protected by a system of area smoke detectors in accordance with the Florida Fire Prevention Code. The area smoke detector system shall comply with Section 606.4.

606.2.2 Common supply, return air and supply air systems.

Where multiple air-handling systems share common supply or return air ducts or plenums with a combined design capacity greater than 2,000 cfm (0.9 m^3 /s), the return air and supply air system shall be provided with smoke detectors in accordance with Section 606.2.1.

606.2.3 Return and supply risers.

Where return air and supply air risers serve two or more stories and are part of a return air and supply air system having a design capacity greater than 15,000 cfm (7.1 m^3 /s), smoke detectors shall be installed at each story. Such smoke detectors shall be located upstream of the connection between the return air riser and any air ducts or plenums and between the air supply source and the first branch or take-off to the areas served.

SECTION 607
DUCTS AND AIR TRANSFER OPENINGS

607.5 Where required.

Fire dampers, smoke dampers, combination fire/smoke dampers and ceiling radiation dampers shall be provided at the locations prescribed in Section 607.5.1 through 607.5.7. Where an assembly is required to have both fire dampers and smoke dampers, combination fire/smoke dampers or a fire damper and a smoke damper shall be required.

Chapter 3
GENERAL REGULATIONS
Florida Building Code, Plumbing

SECTION 301
GENERAL

301.1 Scope.

The provisions of this chapter shall govern the general regulations regarding the installation of plumbing not specific to other chapters.

SECTION 310
WASHROOM AND TOILET ROOM REQUIREMENTS

310.4 Water closet compartment.

Each water closet utilized by the public or employees shall occupy a separate compartment with walls or partitions and a door enclosing the fixtures to ensure privacy.

Exceptions:

1. Water closet compartments shall not be required in a single-occupant toilet room with a lockable door.
2. Toilet rooms located in day care and child-care facilities and containing two or more water closets shall be permitted to have one water closet without an enclosing compartment.

SECTION 315
PUBLIC FOOD SERVICE ESTABLISHMENTS AND FOOD ESTABLISHMENTS

315.1 Requirements.

Public food service establishments and food establishments, as defined in Chapter 381, Florida Statutes, Chapter 500, Florida Statutes and Chapter 509, Florida Statutes, shall comply with the applicable code requirements found in the Florida Building Code, Building Chapter 4, Special Occupancy.

Chapter 4
FIXTURES, FAUCET AND FIXTURE FITTINGS
Florida Building Code, Plumbing

SECTION 401
GENERAL

401.1 Scope.

This chapter shall govern the materials, design and installation of plumbing fixtures, faucets and fixture fittings in accordance with the type of occupancy, and shall provide for the minimum number of fixtures for various types of occupancies.

SECTION 403
MINIMUM PLUMBING FACILITIES

403.1 Minimum number of fixtures.

Plumbing fixtures shall be provided for the type of occupancy and in the minimum number shown in Table 403.1. Types of occupancies not shown in Table 403.1 shall be considered individually by the code official. The number of occupants shall be determined by the Florida Building Code, Building. Occupancy classification shall be determined in accordance with the Florida Building Code, Building.

The total required number of fixtures may be distributed throughout the facility. Student toilets should be strategically located for convenient access and continuous supervision. The path of travel to the nearest toilet facility should not exceed a distance of 200 feet.
Toilet facilities for cafetoriums, gynmasiums, and auditoriums are not required to be in addition to the overall required plumbing fixture count. However, toilet fixtures shall be open for public events.

403.1.3 Potty parity.

In assembly occupancies, restrooms which are open to the public must have a ratio of 3:2 water closets provided for women as the combined total of water closets and urinals provided for men, unless these are two or fewer such fixtures for men, in accordance with §553.86, Florida Statutes.

In educational facilities, potty parity requirements are applied only to restrooms that are open to the public, such as auditoriums and gymnasiums. Restrooms for such Assembly occupancies do not need to be in the same building, but should be in close proximity and must remain open to the public whenever the assembly spaces accommodated by the restroom facilities are also open to the public.

403.2 Separate facilities.

Where plumbing fixtures are required, separate facilities shall be provided for each sex.

Exceptions:
1. NA
2. Separate facilities shall not be required for food service establishments which seat 10 persons or less.
3. Separate facilities shall not be required in business and mercantile occupancies with a total floor area of 3,000 square feet (279 m²) or less.

Section 423, Florida Building Code, Building, specifically allows single-use toilets in Pre-K through grade three. Single-use toilets may also be provided for all ESE Classrooms. See Section 423.16.1, Florida Building Code, Building, for more information.

403.5 Unisex toilet and bathing rooms.

In assembly and mercantile occupancies, an accessible unisex toilet room shall be provided where an aggregate of six or more male and female water closets is required. In buildings of mixed occupancy, only those water closets required for the assembly or mercantile occupancy shall be used to determine the unisex toilet room requirement. In recreational facilities where separate-sex bathing rooms are provided, an accessible unisex bathing room shall be provided. Fixtures located within unisex toilet and bathing rooms shall be included in determining the number of fixtures provided in an occupancy.

Unisex toilets should not be provided for Assembly occupancies in educational facilities. Section 423, Florida Building Code, Building, only allows unisex toilet rooms for Pre-K through grade three. See Section 423.16.1, Florida Building Code, Building, for more information.

SECTION 411
EMERGENCY SHOWERS AND EYEWASH STATIONS

411.2 Waste connections.

Waste connections shall not be required for emergency showers and eyewash stations.

In public educational facilities, floor drains are required for emergency showers/eyewash stations. See Section 423.16.12, Florida Building Code, Building, for more information.

TABLE 403.1
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		DRINKING FOUNTAIN (SEE SECTION 410.0)	OTHER
			MALE	FEMALE	MALE	FEMALE		
1	Assembly	A-1	1 per 125	1 per 65	1 per 200		1 per 500	1 service sink
		A-2	1 per 75	1 per 75	1 per 200		1 per 500	1 service sink
		A-3	1 per 125	1 per 65	1 per 200		1 per 500	1 service sink
		A-4	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	1 per 1,000	1 service sink
		A-5	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	1 per 1,000	1 service sink
2	Business	B	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		1 per 100	
3	Educational	E/D	1 per 50		1 per 50		1 per 100	1 service sink

Public educational facilities, including those classified as Business occupancy, shall require service sinks in accordance with Section 423.20.3.

Chapter 6
WATER SUPPLY AND DISTRIBUTION
Florida Building Code, Plumbing

SECTION 601
GENERAL

601.1 Scope.

This chapter shall govern the materials, design and installation of water supply systems, both hot and cold, for utilization in connection with human occupancy and habitation and shall govern the installation of individual water supply systems.

SECTION 610
DISINFECTION OF POTABLE WATER SYSTEM

610.1 General.

New or repaired potable water systems shall be purged of deleterious matter and, where required by the Administrative Authority, disinfected prior to utilization. The method to be followed shall be that prescribed by the health authority or water purveyor having jurisdiction or, in the absence of a prescribed method, the procedure described in either AWWA C651 or AWWA C652, or as described in this section. This requirement shall apply to “on-site” or “in-plant” fabrication of a system or to a modular portion of a system.

1. The pipe system shall be flushed with clean, potable water until dirty water does not appear at the points of outlet.
2. The system or part thereof shall be filled with a water/chlorine solution containing at least 50 parts per million (50 mg/L) of chlorine, and the system or part thereof shall be valved off and allowed to stand for 24 hours; or the system or part thereof shall be filled with a water/chlorine solution containing at least 200 parts per million (200 mg/L) of chlorine and allowed to stand for 3 hours.
3. Following the required standing time, the system shall be flushed with clean potable water until the chlorine is purged from the system.
4. The procedure shall be repeated where shown by a bacteriological examination that contamination remains present in the system.

Chapter 7
SANITARY DRAINAGE
Florida Building Code, Plumbing

SECTION 701
GENERAL

701.1 Scope.

The provisions of this chapter shall govern the materials, design, construction and installation of sanitary drainage systems.

SECTION 702
MATERIALS

702.5 Chemical waste system.

A chemical waste system shall be completely separated from the sanitary drainage system. The chemical waste shall be treated in accordance with Section 803.2 before discharging to the sanitary drainage system. Separate drainage systems for chemical wastes and vent pipes shall be of an approved material that is resistant to corrosion and degradation for the concentrations of chemicals involved.

Chemical waste systems must be separated from sanitary waste systems. Chemical-resistant piping is required for drainage systems and vent pipes used in association with chemical systems.

Chapter 8
INDIRECT/SPECIAL WASTE
Florida Building Code, Plumbing

SECTION 801
GENERAL

801.1 Scope.

This chapter shall govern matters concerning indirect waste piping and special wastes. This chapter shall further control matters concerning food-handling establishments, sterilizers, clear-water wastes, swimming pools, methods of providing air breaks or air gaps, and neutralizing devices for corrosive wastes.

SECTION 803
SPECIAL WASTES

803.2 Neutralizing device required for corrosivewastes.

Corrosive liquids, spent acids or other harmful chemicals that destroy or injure a drain, sewer, soil or waste pipe, or create noxious or toxic fumes or interfere with sewage treatment processes shall not be discharged into the plumbing system without being thoroughly diluted, neutralized or treated by passing through an approved dilution or neutralizing device. Such devices shall be automatically provided with a sufficient supply of diluting water or neutralizing medium so as to make the contents noninjurious before discharge into the drainage system. The nature of the corrosive or harmful waste and the method of its treatment or dilution shall be approved prior to installation.

All chemical waste shall be diluted or neutralized prior to discharge into the sanitary drainage system.

Chapter 10
TRAPS, INTERCEPTORS AND SEPARATORS
Florida Building Code, Plumbing

SECTION 1001
GENERAL

1001.1 Scope.

This chapter shall govern the material and installation of traps, interceptors and separators.

SECTION 1003
INTERCEPTORS AND SEPARATORS

1003.3 Grease traps and grease interceptors for publicly owned sewerage systems.

Grease interceptors shall comply with requirements of Section 1003.3.1 through 1003.3.5.

Grease interceptors for educational facilities should be sized in accordance with the formula for “OTHER ESTABLISHMENTS WITH COMMERCIAL KITCHENS” provided in Table 1003.5.1 of the Florida Building Code, Plumbing.

When the meals prepared per day are significantly fewer than the number of planned student stations, written confirmation from the district program administrator should be submitted with the documents.

Chapter 3
GENERAL REGULATIONS
Florida Building Code, Fuel Gas

SECTION 301
GENERAL

301.1 Scope.

This chapter shall govern the approval and installation of all equipment and appliances that comprise parts of the installations regulated by this code in accordance with Section 101.2

SECTION 304(IFGS)
COMBUSTION, VENTILATION AND DILUTION AIR

304.1 General.

Air for combustion, ventilation and dilution of flue gases for appliances installed in buildings shall be provided by application of one of the methods prescribed in Sections 304.5 through 304.9. Where the requirements of Section 304.5 are not met, outdoor air shall be introduced in accordance with one of the methods prescribed in Sections 304.6 through 304.9. Direct-vent appliances, gas appliances of other than natural draft design and vented gas appliances other than Category I shall be provided with combustion, ventilation and dilution air in accordance with the appliance manufacturer's instructions.

> **Exception:** Type 1 clothes dryers that are provided with makeup air in accordance with Section 614.5.

304.5 Indoor combustion air.

The required volume of indoor air shall be determined in accordance with Section 304.5.1 or 304.5.2, except that where the air infiltration rate is known to be less than 0.40 air changes per hour (ACH), Section 304.5.2 shall be used. The total required volume shall be the sum of the required volume calculated for all appliances located within the space. Rooms communicating directly with the space in which the appliances are installed through openings not furnished with doors, and through combustion air openings sized and located in accordance with Section 304.5.3, are considered to be part of the required volume.

304.6 Outdoor combustion air.

Outdoor combustion air shall be provided through opening(s) to the outdoors in accordance with Section 304.6.1 or 304.6.2. The minimum dimension of air openings shall be not less than 3 inches (76 mm).

304.7 Combination indoor and outdoor combustion air.

The use of a combination of indoor and outdoor combustion air shall be in accordance with Sections 304.7.1 through 304.7.3.

304.8 Engineered installations.

Engineered combustion air installations shall provide an adequate supply of combustion, ventilation and dilution air and shall be approved.

304.9 Mechanical combustion air supply.

Where all combustion air is provided by a mechanical air supply system, the combustion air shall be supplied from the outdoors at a rate not less than 0.35 cubic feet per minute per 1,000 Btu/h (0.034 m^3 /min per kW) of total input rating of all appliances located within the space.

Chapter 4
GAS PIPING INSTALLATIONS
Florida Building Code, Fuel Gas

SECTION 401
GENERAL

401.1 Scope.

This chapter shall govern the design, installation, modification and maintenance of piping systems. The applicability of this code to piping systems extends from the point of delivery to the connections with the appliances and includes the design, materials, components, fabrication, assembly, installation, testing, inspection, operation and maintenance of such piping systems.

401.2 Liquefied petroleum gas storage.

The storage system for liquefied petroleum gas shall be designed and installed in accordance with the Florida Fire Prevention Code and NFPA 58.

SECTION 404
PIPING SYSTEM INSTALLATION

404.6 Piping in solid floors.

Piping in solid floors shall be laid in channels in the floor and covered in a manner that will allow access to the piping with a minimum amount of damage to the building. Where such piping is subject to exposure to excessive moisture or corrosive substances, the piping shall be protected in an approved manner. As an alternative to installation in channels, the piping shall be installed in a casing of Schedule 40 steel, wrought iron, PVC or ABS pipe in accordance with Section 404.6.1 or 404.6.2.

404.6.1 Conduit with one end terminating outdoors.

The conduit shall extend into an occupiable portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of any gas leakage. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor. If the end sealing is capable of withstanding the full pressure of the gas pipe, such conduit shall be designed for the same pressure as the pipe, such conduit shall extend not less than 4 Inches (102 mm) outside the building, shall be vented above grade to the outdoors and shall be installed so as to prevent the entrance of water and insects.

404.6.2 Conduit with both ends terminating indoors.

Where the conduit originates and terminates within the same building, the conduit shall originate and terminate in an accessible portion of the building and shall not be sealed. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor.

404.12 Piping underground beneath buildings.

Piping installed underground beneath buildings is prohibited except where the piping is encased in a conduit of wrought iron, plastic pipe or steel pipe or other approved conduit material designed to withstand the superimposed loads. The conduit shall be protected from corrosion in accordance with Section 404.9 and shall be installed in accordance with Section 404.12.1 or 404.12.2.

404.12.1 Conduit with one end terminating outdoors.

The conduit shall extend into an occupiable portion of the building and, at the point where the conduit terminates in the building, the space between the conduit and the gas piping shall be sealed to prevent the possible entrance of any gas leakage. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor. Where the end sealing is capable of withstanding the full pressure of the gas pipe, the conduit shall be designed for the same pressure as the pipe. Such conduit shall extend not less than 4 inches (102 mm) outside of the building shall be vented above grade to the outdoors and shall be installed so as to prevent the entrance of water and insects.

404.12.2 Conduit with both ends terminating indoors.

Where the conduit originates and terminates within the same building, the conduit shall originate and terminate in an accessible portion of the building and shall not be sealed. The conduit shall extend not less than 2 inches (51 mm) beyond the point where the pipe emerges from the floor.

SECTION 409
SHUTOFF VALVES

409.1.2 Prohibited locations.
Shutoff valves shall be prohibited in concealed locations and furnace plenums.

409.3.2 Individual buildings.

In a common system serving more than one building, shutoff valves shall be installed outdoors at each building.

Appendix

This appendix is formatted as a quick reference guide summarizing code-related issues through the use of tables and example diagram drawings and Illustrations. The handbook is intended to be a general guideline and should be used for reference purposes only.

TABLE OF CONTENTS

Legend A-2

Minimum Occupant Load A-3

Exit and Means of Egress Width A-4

Number of Required Means of Egress A-6

Separation of Means of Egress A-8

Travel Distance A-10

Dead-End Corridors A-12

Emergency Rescue Openings A-14

Doors A-16

Door Fire-Rating Labels A-18

Door Panic Hardware A-20

Safety and Fire-Rated Glazing A-22

Classrooms with All Primary Egress to the Exterior A-24

Classrooms with Convenience Interior Corridor and Exits Directly to the Exterior A-26

One or more Classrooms Exiting through an Interior Corridor and Remaining Classrooms Exiting Directly to the Exterior A-28

Classrooms with all Egress Through an Exit Access Corridor A-30

Egress from Rooms Divided with a Folding Partition A-32

Egress from Classrooms through an Intervening Space A-34

Corridor Protection A-36

Stairs A-38

Handrails at Stairs A-40

Separation and Protection of Exterior Stairs A-42

Exceptions to Separation and Protection of Exterior Stairs A-44

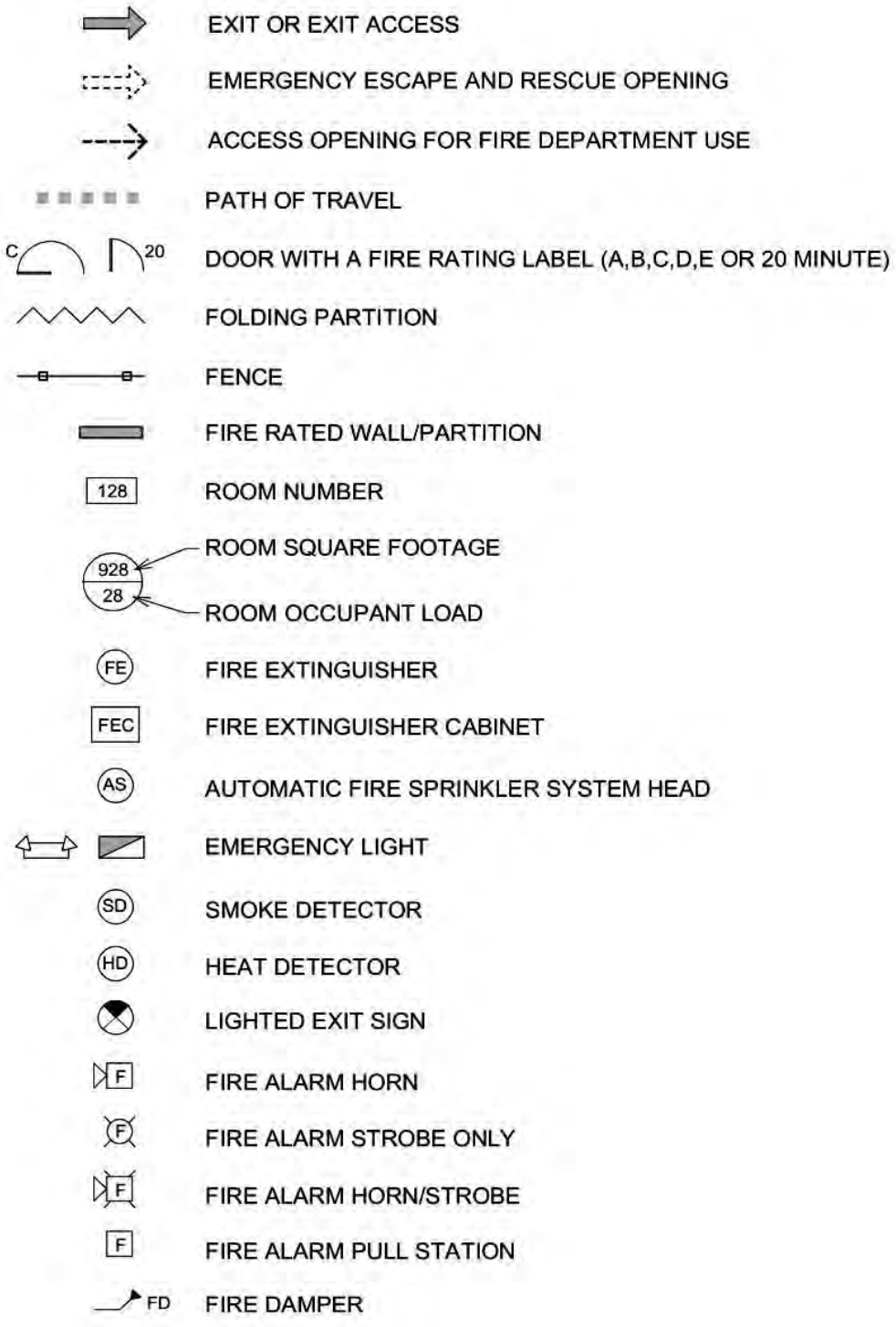
Interior Stairs A-46

Shaft Enclosure Protection A-48

Auditorium Aisle Width A-50

Auditorium Seating A-52
Grandstands and Bleachers A-54
Aisle Ramps and Stairs A-56
Aisles Serving Seating at Tables A-58
Platforms and Stages A-60
Legitimate Stage (Stages 1,000 Sq Ft in Area and with a Stage Height greater than 50 Ft maximum) A-62
Regular Stage (Stages 1,000 Sq Ft in Area and with a Stage Height greater than 50 Ft maximum) A-64
Site Requirements A-66
Minimum Parking Requirements A-70
Site Lighting Requirements A-72
Roofing Membrane and Drainage A-74
Open Plan Classrooms A-76
Relocatables for Classroom Use A-78
Shade and Green House A-80
Kitchen and Food Services A-82
Toilet Rooms A-84
Fire Alarm A-86
Example EHPA Design Square Footage and Capacity Calculations A-88
EHPA Electoral and Emergency Power Systems Standby Circuits A-90
Recommended Acreage A-91
FBC Chapter 16 - Structural Loads A-92
FBC Chapter 18 - Soils and Foundations A-94
FBC Chapter 19 - Concrete A-96
FBC Chapter 21 - Reinforced Masonry A-98
FBC Chapter 22 - Steel A-99
FBC Chapter 23 - Wood A-100
Roof Shingles A-101
Section 423 Application Matrix A-103

SYMBOL LEGEND



Minimum Occupant Load				
Use	**Example**		**Sq Ft per Occupant**	**Code Reference**
Assembly without fixed seats **Unconcentrated use**	**Dining Rooms/Cafétorium with Stage Multipurpose Rooms**			FBC Table 1004.1.1 FBC 423.18.1.1
		Main floor area	15 gross	
		Stage	15 net	
		Dressing rooms	20 net	
		Kitchen	100 gross	
	Media Centers			FBC Table 1004.1.1 FBC 423.18.1.4
		Reading room and stacks	50 net	
		Small group area or room	5 net	
Assembly with fixed seats *Number of fixed seats includes accessible seating.*	**Auditoriums**			FBC Table 1004.1.1 FBC 423.18.1.1
		In main seating area	number of fixed seats	
		Stage	15 net	
		Dressing rooms	20 net	
Fixed or telescopic bench-type bleacher seating at 18 linear inches per person, including accessible seating.	**Gymnasiums** **Gymnatorium with Stage**			FBC TABLE 1004.1.1 FBC 423.18.1.1 FBC 423.18.1.2
		In main seating area	number of fixed seats	
		Main court area	15 gross	
		Locker rooms	5 net	
		Stage	15 net	
		Dressing rooms	20 net	
Bench-type bleacher seating at 18 linear inches per person, including accessible seating.	**Stadiums**		number of fixed seats	FBC 1004.7
Educational	Classrooms		20 net	FBC Table 1004.1.1
	Shops, labs and other vocational areas		50 net	
	CCTV		15 net	FBC Table 423.18.1.5
Day-care	Day-car spaces		20 net	FBC Table 1004.1.1
Business Areas	Administrative offices		100 gross	
Dormitories	Dormitory spaces		50 gross	
Courtyards *Raised, dedicated landscape areas may be deducted.*	Interior courtyards		15 gross	FBC Table 1004.1.1

Exit and Means of Egress Width						
Occupancy Classification	**Egress Width per Person (in.)**		**Minimum Corridor/Aisle Width**	**Minimum Clear Opening of Exit Doors**	**Minimum Stair Width**	**Code Reference**
	Ramps, Doors and Corridors	**Stairs**	FBC 1016.2	FBC 1008.1.1	FBC 1009.	
Group A Assembly	0.2	0.3	44"	32"	44" *	FBC 1005 FBC 1009 FBC 1018
Group B Assembly	0.2	0.3	44" **	32"	44" **	
Group D Day-care	0.2	0.3	44" **	32"	44" **	
Group E Educational	0.2	0.3	72"	32"	44"	

* See FBC Section 1028 for detailed required requirements in Assembly Occupancies.
** 36 inches acceptable if stair or corridor serves occupant load of less than 50.

The minimum width of egress shall be based on the number of occupants to be served. Minimum width may be no less than:

Passage Width: 32 inches minimum clear opening width (36 inches recommended). Florida Accessibility Code required 32 inches minimum at a point and 36 inches continuously. Refer to Figures 1 and 24(e) Florida Accessibility Code. FBC Section 11-4.2.1.

Door: 32 inches minimum clear opening (36 inch wide doors are recommended). The clear opening at swinging doors shall be measured between the face of the doors and the stop, with the door open 90 degrees. FBC Section 1008.1.1. Serves a total capacity of 160.

Stairs: 44 inches minimum width, except as noted above. Serve a total capacity of 147. Handrails may project 3½ inches into the required stair width. FBC Section 1009.1.

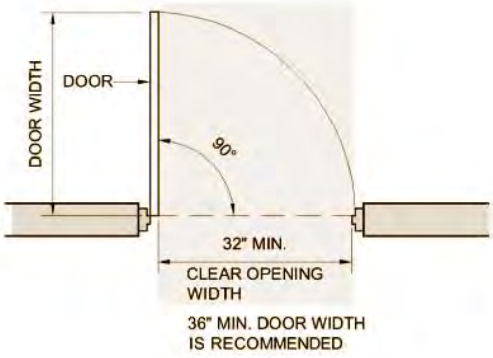
Ramps: 44 inches minimum width. Serves a total capacity of 220. Handrails may project 3½ inches into the required stair width. FBC Section 1010.5.

Exit Access Corridors: Group E occupancy, 72 inches minimum width, serving a capacity of 100 or more.

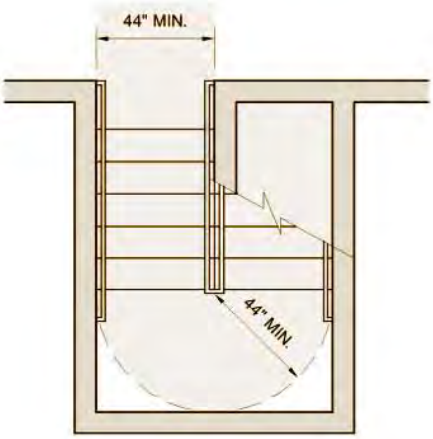
Groups A, B, and D Occupancies: 44 inches minimum width. Serves a total capacity of 220.

Exterior Corridors: The minimum width of exterior corridors or balconies in Group E occupancy shall be sufficient to accommodate the occupant load, but shall not be less than 72 inches. FBC Section 1018.2.

(a)
Opening in Wall

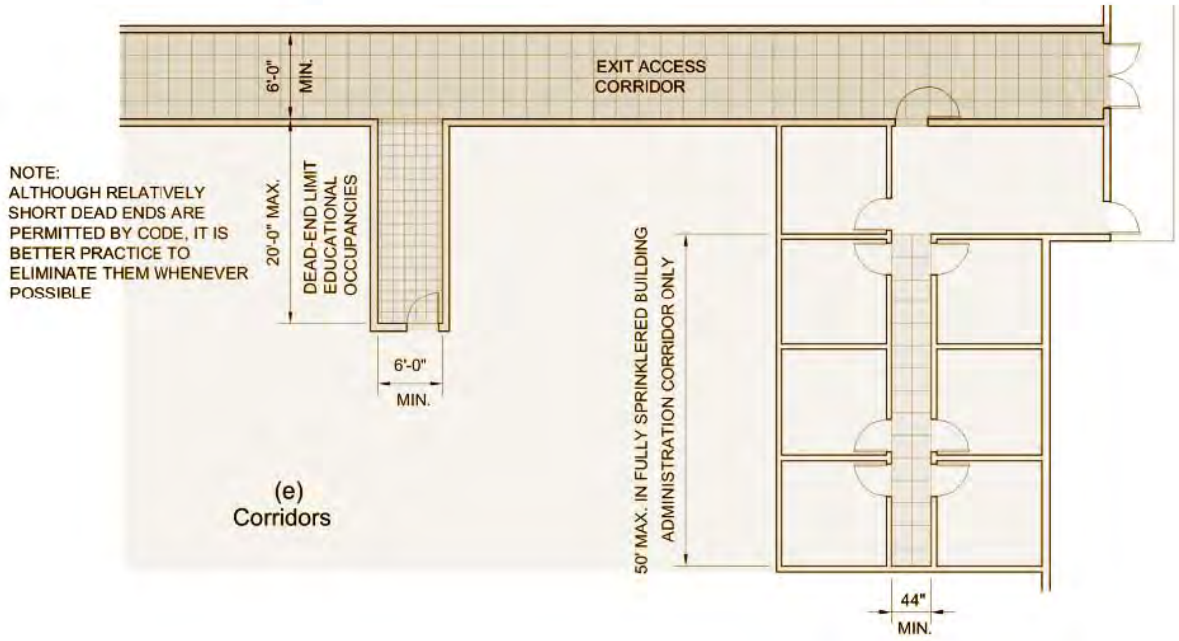


(b)
Door



(c)
Stair

(d)
Ramp



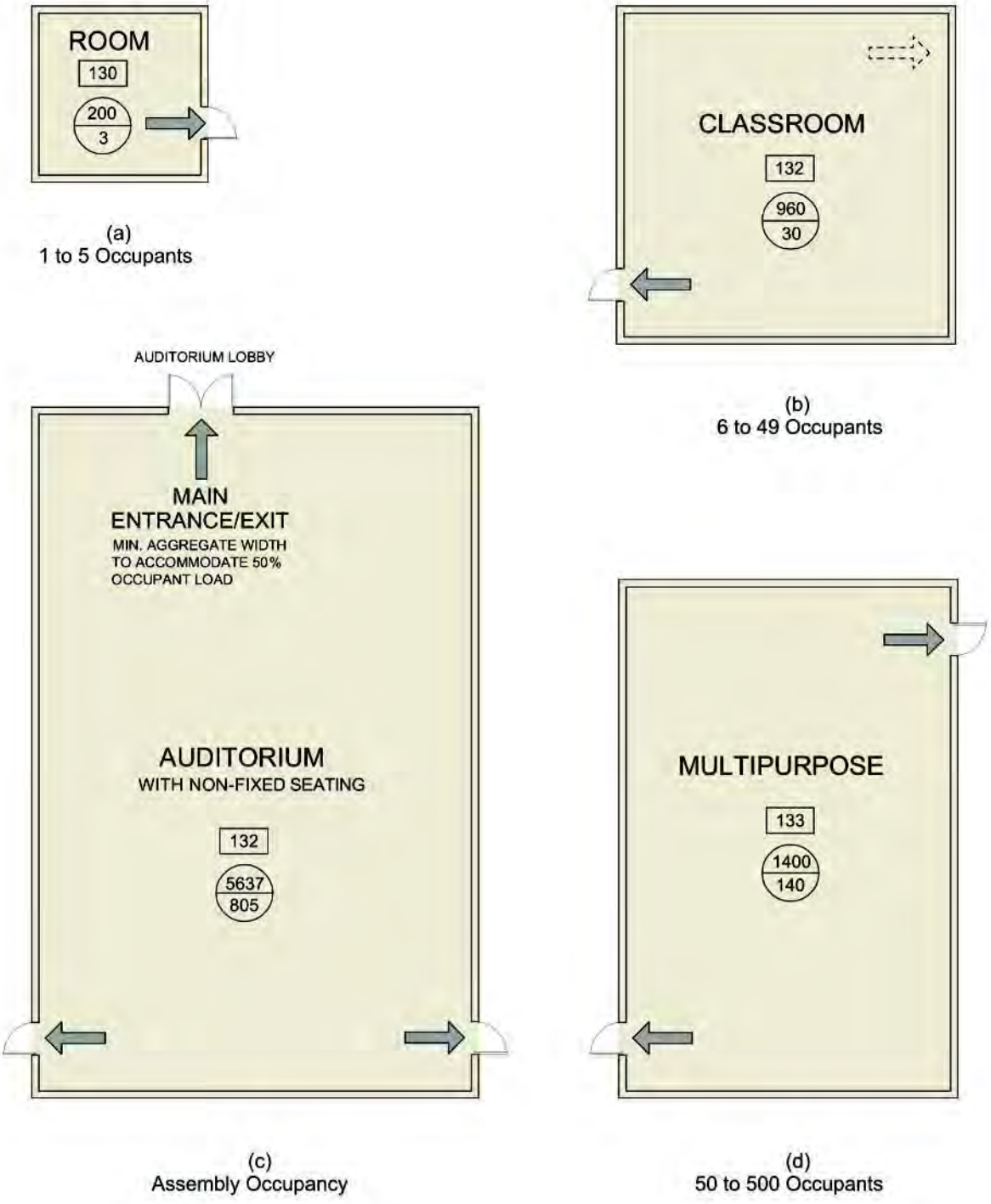
(e)
Corridors

MINIMUM MEANS OF EGRESS WIDTH

<table>
<tr><th colspan="4">Number of Required Means of Egress</th></tr>
<tr><td colspan="4">The number of means of egress shall be determined to meet the requirements for egress capacities and travel distances, but shall not be less than the minimum number of means of egress listed below.</td></tr>
<tr><th>Occupant Load</th><th colspan="2">Minimum Requirements</th><th>Code References</th></tr>
<tr><td>1 to 5</td><td colspan="2">One means of egress</td><td>FBC 423.13.1</td></tr>
<tr><td rowspan="2">6 to 49</td><td>Unsprinklered Building</td><td>Sprinklered Building</td><td rowspan="2">FBC 423.13.1</td></tr>
<tr><td>One means of egress leading directly to exterior,

<u>or</u>

One means of egress and one emergency rescue window that opens directly to the exterior (in buildings three stories or less).</td><td>One means of egress</td></tr>
<tr><td>50 to 500</td><td colspan="2">Two means of egress where one of the two opens directly to the exterior,
<u>or</u>
Two means of egress to two separate atmospheres.</td><td>FBC Table 1021.1
FBC 423.7.1</td></tr>
<tr><th colspan="4">Special Egress Requirements</th></tr>
<tr><td>Assembly Occupancy</td><td colspan="2">Main entrance/exit with a minimum aggregate width to accommodate 50% of the occupant load.
See FBC Section 1025 for additional requirements.</td><td>FBC 1028.2</td></tr>
<tr><td>Educational Occupancy</td><td colspan="2">Rooms used for first grade children and younger shall be located on the floor of exit discharge.
Rooms used for second grade children shall not be located more than one story above the floor of the exit discharge.</td><td>FFPC 14.2</td></tr>
<tr><th>Occupancy Load</th><th colspan="2">Minimum Number of Exits per Story</th><th></th></tr>
<tr><td>1 to 500</td><td colspan="2">2</td><td rowspan="3">FBC 1021</td></tr>
<tr><td>501 to 1000</td><td colspan="2">3</td></tr>
<tr><td>More than 1000</td><td colspan="2">4</td></tr>
</table>



NUMBER OF REQUIRED MEANS OF EGRESS

Separation of Means of Egress			
Occupancy Classification	**Minimum Separation**		**Code Reference**
	Unsprinklered Building	Sprinklered Building	
All Occupancies	½ Diagonal Rule	⅓ Diagonal rule	FBC 1015.2.1

½ Diagonal Rule:

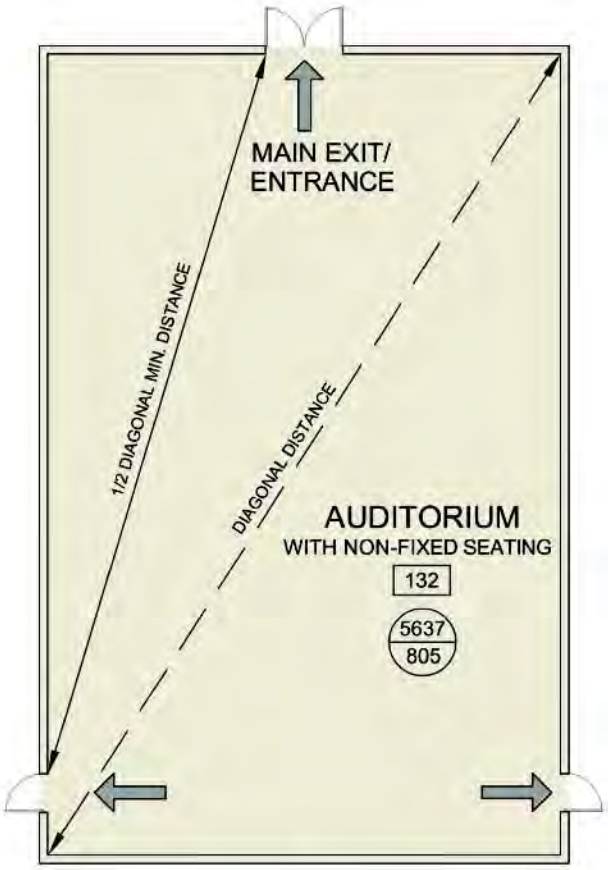
Where two or more exits or exit access doors are required in an unsprinklered building, at least two of the exits or exit access doors shall be placed a distance apart equal to at least ½ of the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exit doors or exit access doors. FBC Section 1015.2.1.

⅓ Diagonal Rule:

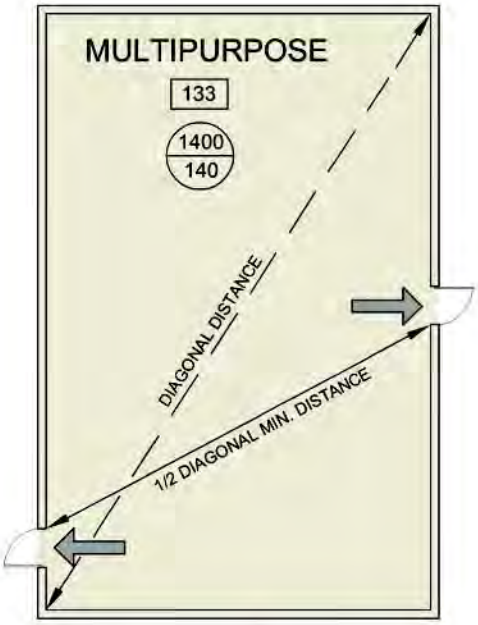
Where two or more exits or exit access doors are required in a sprinklered building, at least two of the exits or exit access doors shall be placed a distance apart equal to at least ⅓ of the length of the maximum overall diagonal dimension of the building or area to be served, measured in a straight line between the nearest edge of the exit doors or exit access doors. FBC Section 1015.2.1.

More than 2 Required Exits:

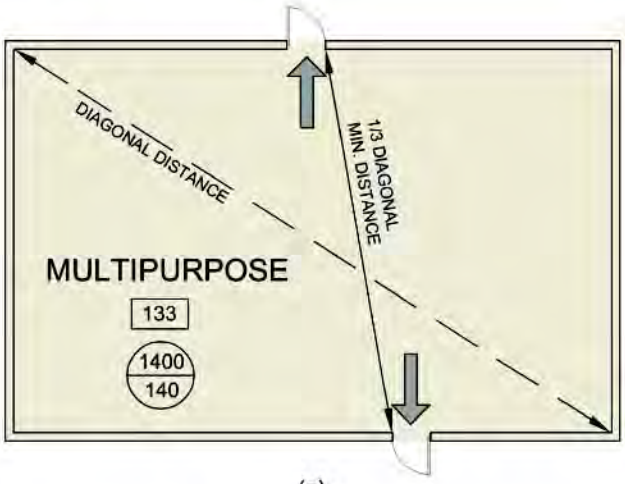
Where more than two exits or exit access doors are required, at least two of the required exits or exit access doors shall be arranged to comply with the above. The other exits or exit access doors shall be located so that if one becomes blocked, the others shall be available. FBC Section 1015.2.1.



(a)
More than 2 Exits
Unsprinklered Building



(b)
2 Exits
Unsprinklered Building



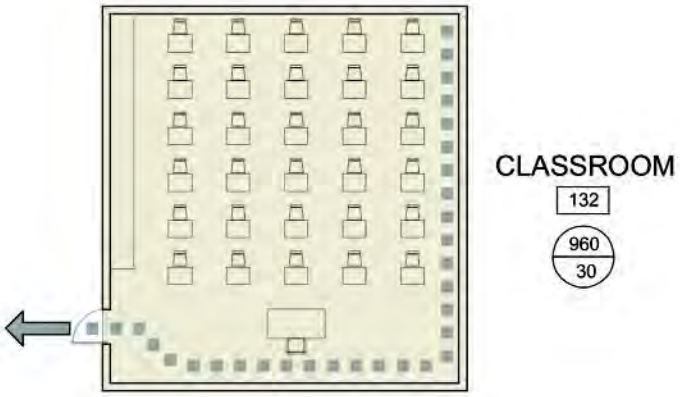
(c)
2 Exits
Sprinklered Building

SEPARATION OF MEANS OF EGRESS

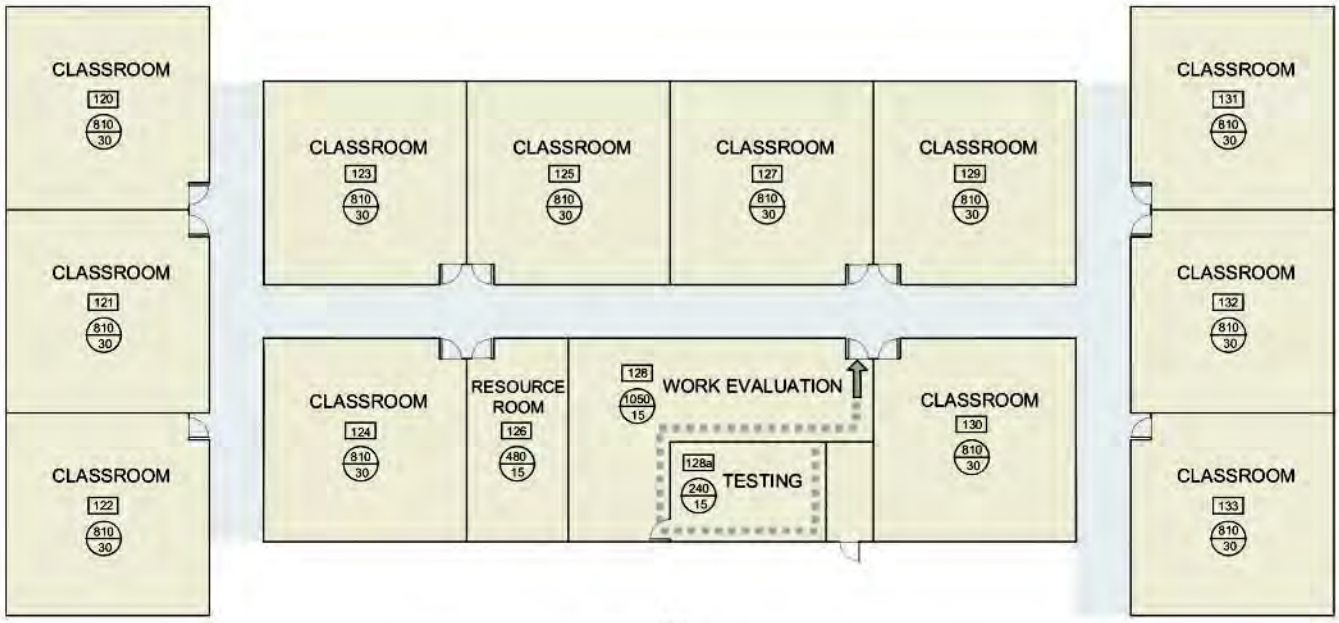
Travel Distance			
Occupancy Classification	**Maximum Travel Distance to Exit (Ft)**		**Code Reference**
	Unsprinklered Building	**Sprinklered Building**	
Group A Assembly	200	250	FBC Table 1016.1
Group B Business	200	300	
Group D Day-care	150	200	
Group E Educational	150	200	

Measurement of Travel Distance		
		Code Reference
Travel Distance in a Room	Travel distance is measured from the most remote point in the room along the natural path of travel, with a 1-foot clearance around any corners or obstructions, to the centerline of the doorway. Travel distance is not measured across the diagonal of the room to the door. This space may be blocked by furniture or equipment.	FFPC 7.6.1
Travel Distance in a Building	Travel distance to an exit is measured along the centerline of the natural path of travel, starting from the most remote point subject to occupancy, with 1-foot clearance around any corners or obstructions, to the centerline of the doorway or other point at which the exit begins.	FFPC 7.5.4.2

Common Path of Travel		
		Code Reference
General	The common path of travel is measured along the centerline of the natural path of travel, starting from the most remote point of the room or space, with a 1-foot clearance around any corners or obstructions, and terminates at that point where two separate and distinct routes become available. The common path of travel shall not exceed 75 feet.	FFPC 7.6.1
Assembly Occupancies	A common path of travel shall be permitted for the 20 feet from any point where serving any number of occupants and for the first 75 feet from any point where serving not more than 50 occupants.	FBC 1014.3



(a)
Measurement of Travel Distance in a Room
The Common Path of Travel Shall Not
Exceed 75 FT



(b)
Measurement of Travel Distance in a Building
The Common Path of Travel Shall Not
Exceed 75 FT

TRAVEL DISTANCE

Dead-End Corridors			
Occupancy Classification	Maximum Dead-End Length (Ft)		Code Reference
	Unsprinklered Building	Sprinklered Building	
Group A Assembly	20	20	FBC 1018.4 FFPC 14.2.5.2 FFPC 16.2.5.2
Group B Business	20	20	
Group D Day-care	20	20	
Group E Educational	20	20	

Measurement of Dead-End Corridors

General: Dead-end exists where an occupant enters a corridor, thinking there is an exit at the end, and finding none, is forced to retrace the path traveled to reach a choice of egress travel paths. Although relatively short dead ends are permitted by Code, it is better practice to eliminate them whenever possible, as they increase the danger of persons being trapped in case of fire. FFPC Section A.7.5.1.5 and FBC Section 1018.4.

Dead-End Limit: The distance of a dead end is measured from the most remote point of a dead end to where an occupant has a choice of direction of travel or to the centerline of an exit door.

Plan Schematic 1
Example: Dead-End Corridors

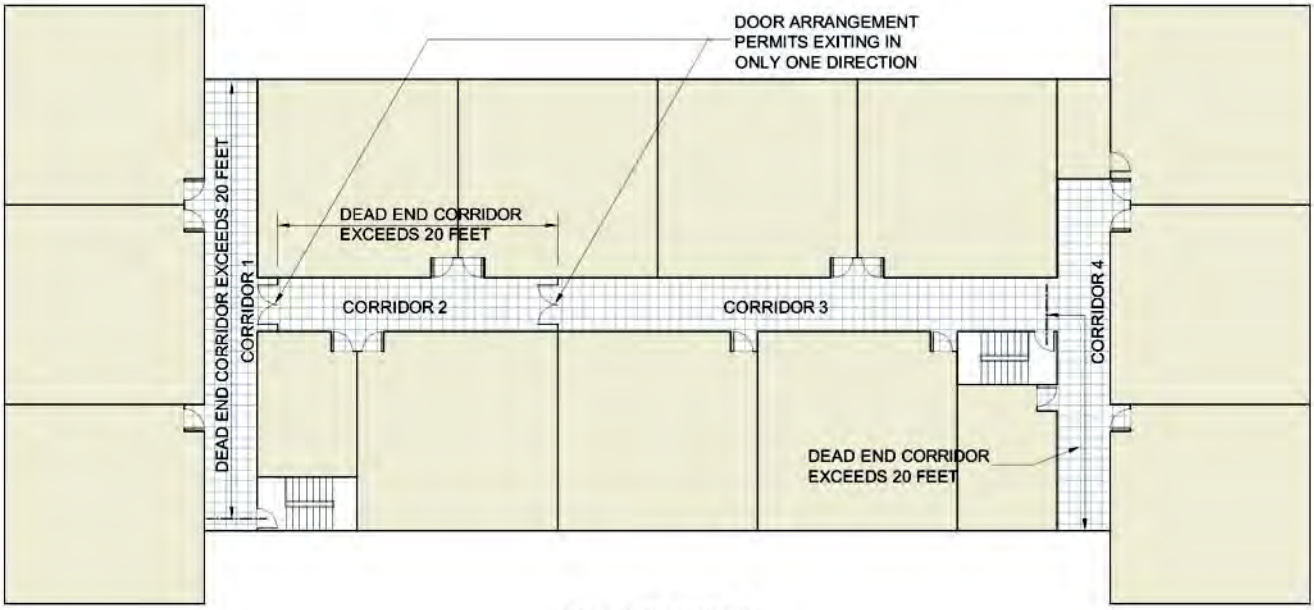
Corridor 1: The dead-end corridor from the uppermost portion of the corridor to the centerline of the stair door. The doors from Corridor 2 swing in to Corridor 1 eliminating Corridor 2 as a possible second mean of egress.

Corridor 2: Corridor 2 is classified as a dead-end corridor because the doors between Corridor 2 and Corridor 3 swing into Corridor 2. The occupants in Corridor 2 have a choice of only one direction to egress.

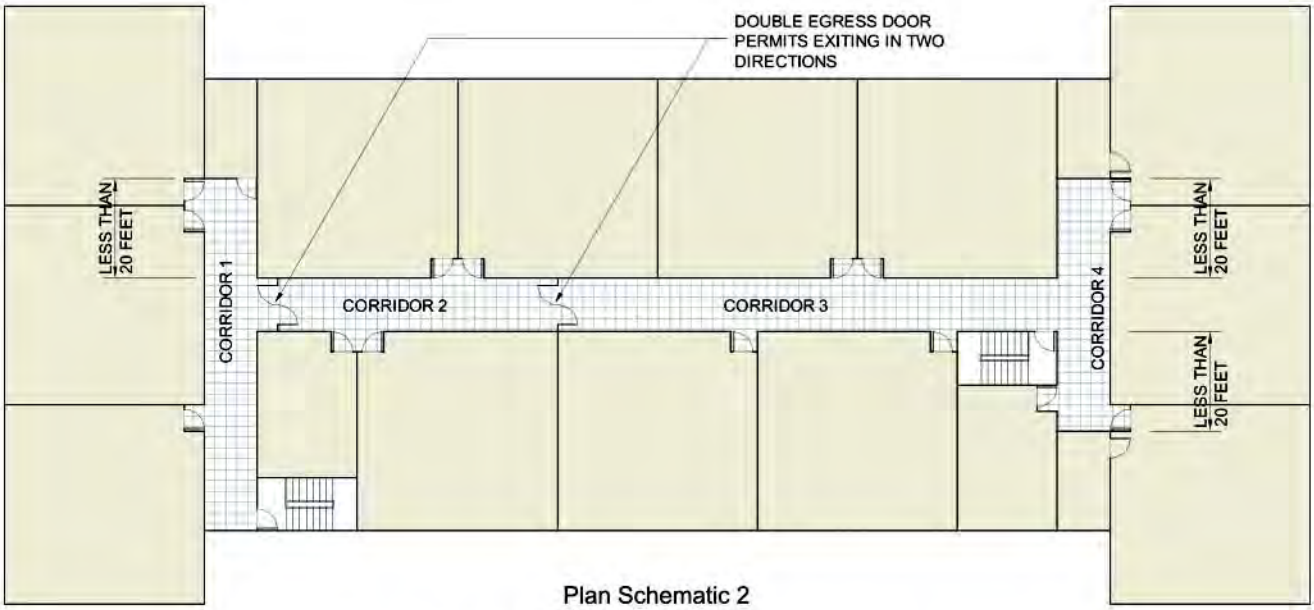
Corridor 4: The dead-end corridors exist from the lowermost portion of the corridor to the centerline of the exit stair.

Plan Schematic 2
Example: Corrected Dead-End Corridors

In this example, the dead-end corridors have been corrected to be less than 20 feet in length. The doors separating Corridors 2 from Corridors 1 and 3 have been made to swing in both directions, allowing the occupants of the corridors to have a choice of directions to reach an exit.



Plan Schematic 1
Upper Floor Level
Example Dead End Corridors
That Exceed Maximum 20 Foot Length
Requirements



Plan Schematic 2
Upper Floor Level
Example Corrected Dead End Corridors
That Comply with Maximum 20 Foot Length
Requirements

DEAD END CORRIDORS

Emergency-Rescue Openings					
Occupancy Classification and Location	**Unsprinklered building**			**Sprinklered Building**	**Code Reference**
	Minimum Net Clear Opening	**Minimum Net Clear Area of Opening**	**Maximum Sill Height**		
Group D Day-care					
Every room or space greater than 250 sq.ft. used for classroom or other Educational occupancies or normally subject to client occupancy, other than bathrooms, shall have not less than one outside window for emergency rescue when a door opening directly to the exterior is not provided.	20 inches wide 24 inches high	5.7 sq. ft.	44 inches	Not required	FBC 1029
Group E Educational					
In buildings of three stories or less: All spaces with an occupant load of six or more students where a door opening directly to the exterior is not provided.	20 inches wide 24 inches high	5.7 sq. ft.	44 inches	Not required	FBC 1029

Window and Panel Assemblies Serving as Emergency-rescue Openings

Latching Device: Operated from not more than 54 inches above the floor and operable by a single motion in the direction of exit, without the use of tools. If a security/storm screen or grille is installed on the outside of the assembly, a single release device for both the emergency rescue opening and security/storm screen grills shall be operable from the inside by a single motion without the use of tools. FBC Sections 423.13.8 and 1029.

Signage: Emergency-rescue windows shall be identified by signage and the release device shall be readily Identifiable.

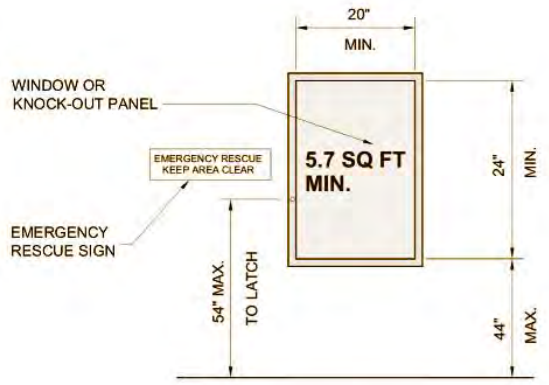
Permanent identification at each emergency rescue opening stating:

"EMERGENCY RESCUE - KEEP AREA CLEAR" FBC Section 423.14.2.3.

Door Serving as Emergency-Rescue Opening

On Ground Level: Door opens directly to an exterior corridor or public way.

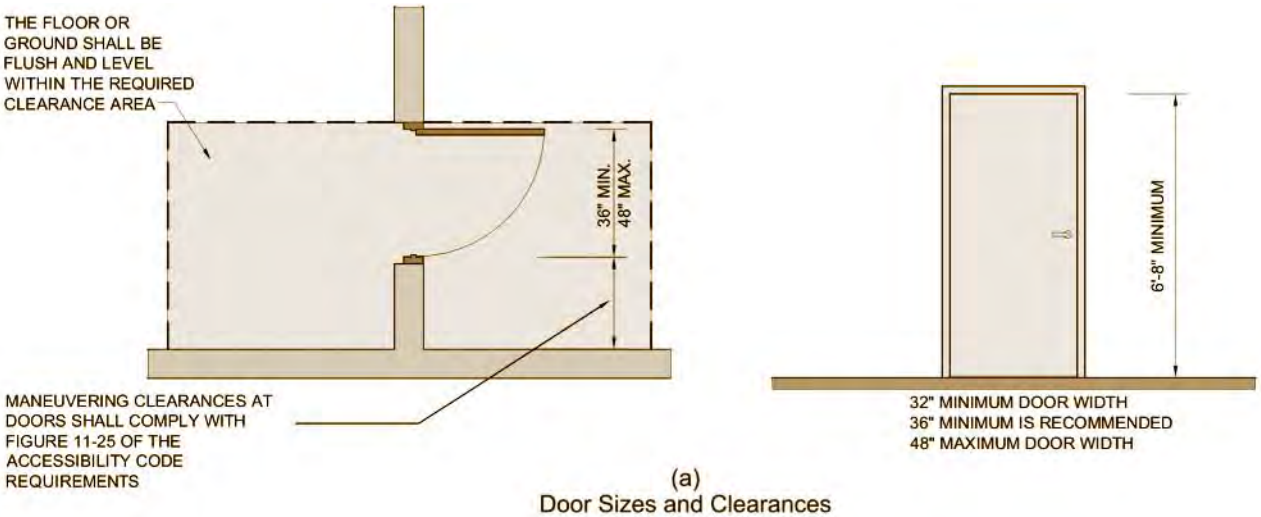
Above ground level: Door opens directly to an exterior corridor or balcony leading directly to a stairway. Exterior corridor or balcony shall have open rails and shall be open to the exterior air.



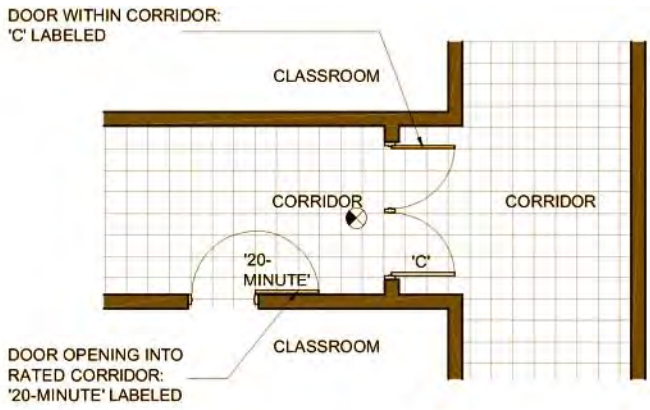
(a)
Window or Knock-out panel serving as an emergency rescue opening

EMERGENCY RESCUE OPENINGS

Doors		
		Code Reference
Size	Minimum width 32 inches (36 inch doors recommended). Maximum width 48 inches. Minimum height 6 feet 8 inches.	FBC 1008.1.1
Operation	Side hinged. Swing in the direction of egress if occupant load of area being served is 6 or greater. Operable from inside by a single operation without the use of tools. Doors for steam rooms, locker rooms, shower rooms, and group toilet rooms shall swing in the direction of exit travel, and shall always be operable for exit from the inside.	FBC 423.13.1
Clearances	Maneuvering clearances at doors shall comply with Figure 11-25, Accessibility Code requirements. The floor or ground area within the required maneuvering clearance area shall be flush and level. A minimum 5 feet by 5 feet level platform on each side of a single door is recommended.	FBC 11-4.13.6
Threshold	Maximum height ½ inches. Interior doors shall have a flat threshold. Flat threshold at class 'A' fire-rated doors with carpet.	FBC 1008.1.7
Required Fire Rating	Doors opening into corridors shall be '20-minute' labeled assemblies. Doors within corridors shall be 'C' labeled assemblies.	FBC 715.4
Fire-Rated Doors	Comply with NFPA 80 and NFPA 252 or NFPA 257. Self-closing. Positive latching.	FBC 715.4.1
	Class 'C' fire-rated assembly View panels: Clear fire-rated glazing in steel frames. Maximum area of 1296 square inches. Bottom of view panel 30 inches above finished floor. Top of view panel 72 inches above finished floor.	FBC 715.4
Smokestop Doors	Each leaf of pair of doors swings in opposite direction. ⅛ inch clearance at frame. Grilles or louvers prohibited. Center mullions prohibited. No locking devices. Smoke detector and illuminated exit signs on each side. Smokestop barrier: 1-hour fire-rated except in sprinklered buildings. Continuous from floor to deck above.	

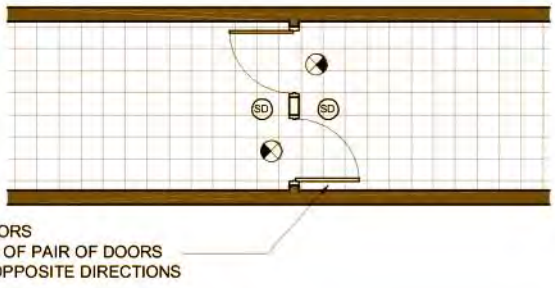


(a)
Door Sizes and Clearances

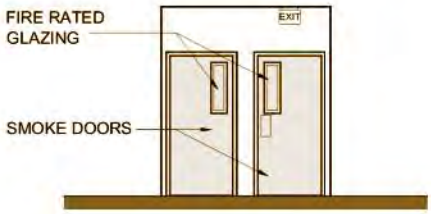


(b)
Door Ratings at Corridors

(c)
Threshold Height



(d.1)
Smoke Door Plan Schematic



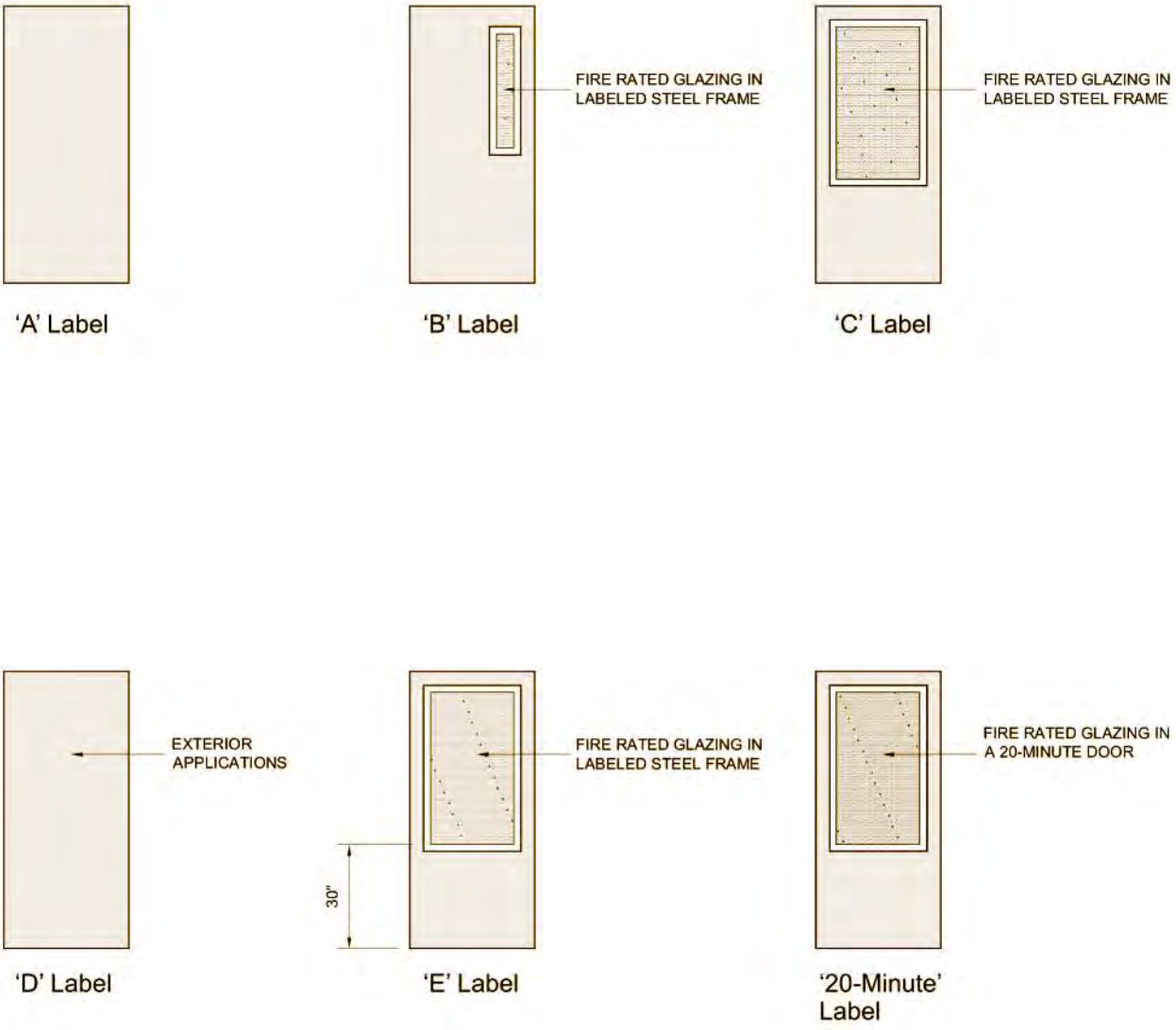
(d.2)
Smoke Door Elevation Schematic

DOORS

Door Fire-Rating Labels				
Label	**Fire Resistance**	**Limited Size of Fire-Rated Glazing**	**Example Use/Location**	**Code Reference**
'A' Label	3-Hour	No glazing allowed.	Doors or openings in walls separating buildings or dividing a single building into fire areas.	FBC Table 715.4 FFPC 8.3.3
'B' Label	1-Hour and 1½ - Hour	Limited size of fire-rated glazing shall be installed in accordance with and complying with NFPA 80.	Doors or openings in enclosures of vertical communication through buildings (stairs, elevators, etc.). Doors in fire-rated corridors.	
'C' Label	¾ - Hour		Doors that open into fire-rated corridors.	
'D' Label	1 ½ - Hour		Doors or openings in exterior walls that are subject to severe fire exposure from outside the building.	
"E' Label	¾ - Hour		Doors or openings in exterior walls that are subject to moderate or light fire exposure from outside the building.	
20-minute	20 minute	Limited to the amount of glass tested in a door.	Doors or openings in walls that require a fire-resistance rating for smoke barriers and exit access corridors.	

Fire protection ratings for products intended to comply with the above shall be as determined and reported by a nationally recognized testing agency in accordance with NFPA 252 or NFPA 257. Fire door assemblies shall be installed in accordance with NFPA 80.

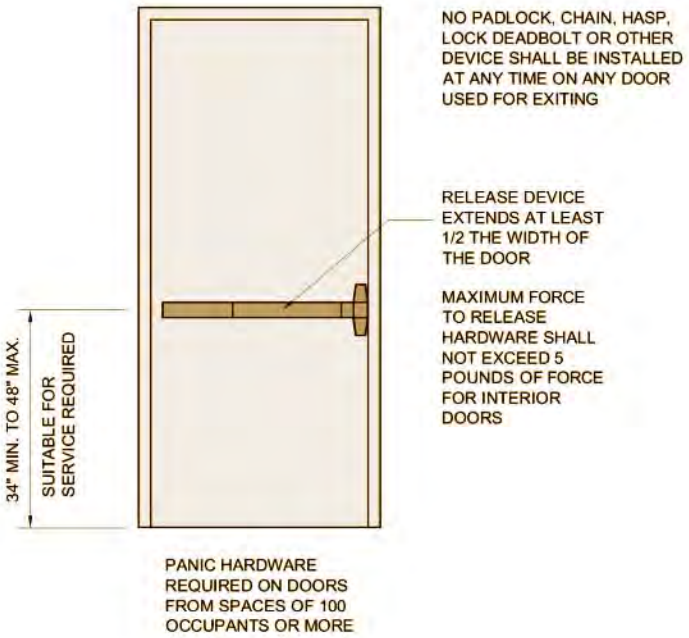
All such products shall have an approved label. FBC Section 715.5.9.



Note:
Fire resistance glazing shall be installed in accordance with and complying with NFPA 80.

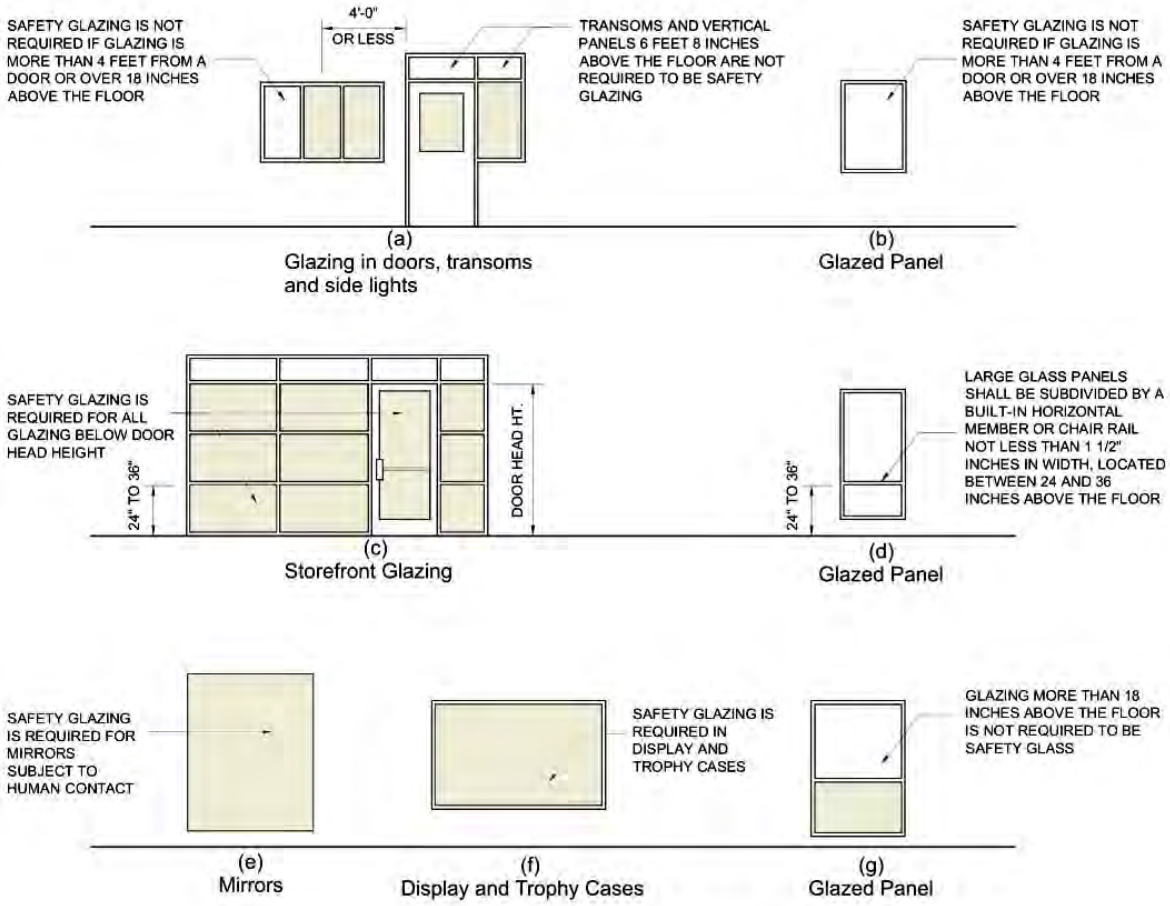
Door Fire Rating Labels

Door Panic Hardware			
Acceptable Lockset Functions			
Location	**Function**	**Operation**	**Code Reference**
Occupancy of 50 or More	Panic Release	For Accessibility Code requirements, 5 pounds of pressure maximum for interior and 8.5 pounds of pressure for exterior doors.	FBC 1008.1.10
Fire Doors		Positive latching device.	
Smoke Doors	No Latching Device	None.	
Classrooms	Classroom Security	Latch locked or unlocked by key from inside or outside room; inside always free for exiting.	
Offices	Classroom Security	Latch locked or unlocked by key from inside or outside; inside always free for exiting.	
Single-Use Toilet Rooms Pre-K Through Grade 3	Bath Privacy	Push-button locking from inside. Can be opened from the outside without the use of special tools or key. Turning inside knob or shutting door releases locking button, preventing lockout.	
Other Single-Use Toilet Rooms	Bath Privacy	Push-button locking from inside. Readily opened from the inside. Turning inside knob or shutting door releases locking button, preventing lockout.	
Group Toilet Rooms	Classroom Security or Classroom Deadbolt Lock	Latch locked or unlocked by key from inside or outside room; inside always free for exiting.	
Storerooms Mechanical Rooms Electrical Rooms	Storeroom	Outside knob fixed. Entrance by key only. Inside always free for exiting.	
Time-Out Rooms	Electromagnetic Locking Device May Be Used	Push-button engagement mounted outside time-out room door adjacent to the door frame.	FBC 423.26.2
Hardware			
General	Doors and gates shall be equipped with hardware that will allow egress at all times without assistance. Projecting hardware on doors swinging into a means of egress is not considered an obstruction if the door opens flat against the wall. No padlock, chain, hasp, lock, deadbolt or other device shall be installed at any time on any door used for exiting. Doors that by code require closers, and other doors subject to wind exposure, shall be equipped with closers to prevent slamming and uncontrolled opening.		FBC 423.13.6

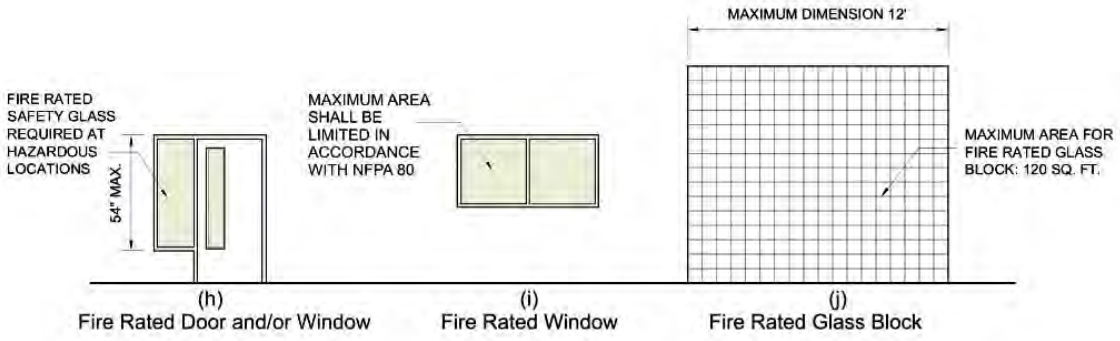


Door Panic Hardware

Safety and Fire-Rated Glazing		
		Code Reference
Hazardous Locations	Individual glazed areas, including glass mirrors, in hazardous locations shall pass the test requirements of CPSC 16-CRF, part 1201. Glazing in hazardous locations shall be tempered glass, safety glass, safety plastic, or in fire-rated assemblies, impact-resistant fire-rated glass. Specific hazardous locations include: Glazing in swinging doors. Enclosures of whirlpools, saunas, steam rooms, locker rooms and showers. Display and trophy cases, casework. Full-length mirrors subject to human contact. Glazed panels in fire extinguisher, fire hose, and fire blanket cabinets.	FBC 423.13.7 FBC 423.13.7.1 FBC 423.13.7.2
All Panels and Storefront	Glazed panels within 48 inches of a door shall be tempered glass, safety glass, or in fire-rated assemblies, impact-resistant fire-rated glass, excluding transoms or vertical panels above 6 feet 8 inches. Large glass panels shall be subdivided by a built-in horizontal member or a permanent chair rail, not less than 1 ½ inches in width, located between 24 and 36 inches above the floor. All glazed panels beginning 18 Inches or less from the floor, greater than 9 sq ft in area, with a walking surface within 36 inches of the panel, shall be tempered or safety glass. All storefronts shall use tempered or safety glass for all glazing below door head height.	FBC 423.13.7 FBC 423.13.7.1 FBC 423.13.7.2
Fire-Rated Glazing	Fire-rated assemblies shall display a permanent stamp, label, or mark identifying the product and fire rating. Fire-protection-rated glazing shall be installed in accordance with and complying with the size limitations set forth in NFPA 80. ¾-hour glass block assemblies shall be labeled to conform to NFPA 257 or UL 9. 1-hour and ½ hour walls/partitions, 120 sq ft maximum. Maximum dimension, 12 feet. The aggregate area of glazing in fire doors, fire windows, side lights, and transoms in 1-hour fire-resistant partitions shall not exceed 25 percent of the area of a wall separating a room or space from a corridor.	FBC Table 715.4 FBC 2110.1.1 FBC 715.5 FFPC 8.3.3.9

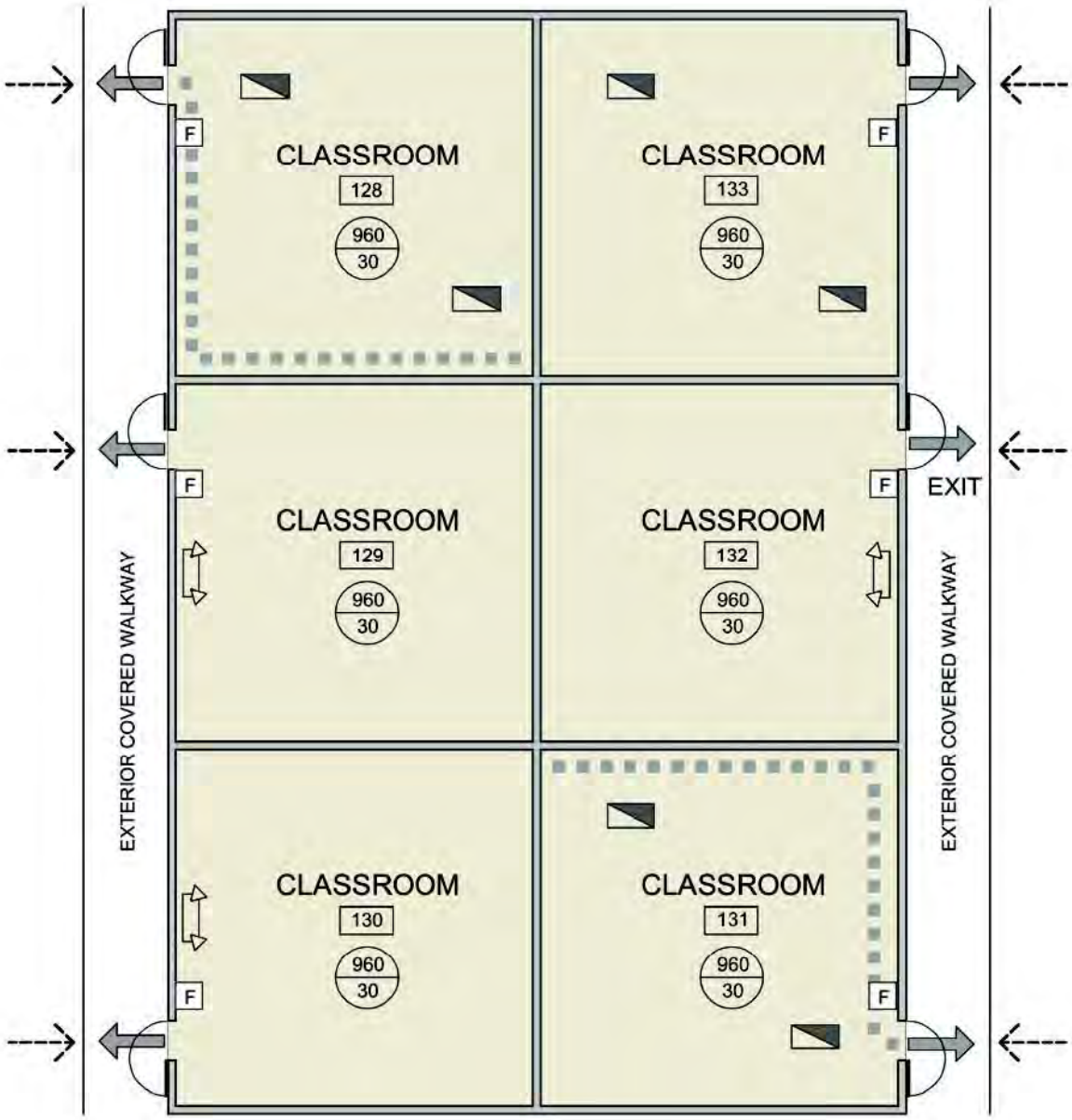


HAZARDOUS LOCATIONS



SAFETY AND FIRE RATED GLAZING

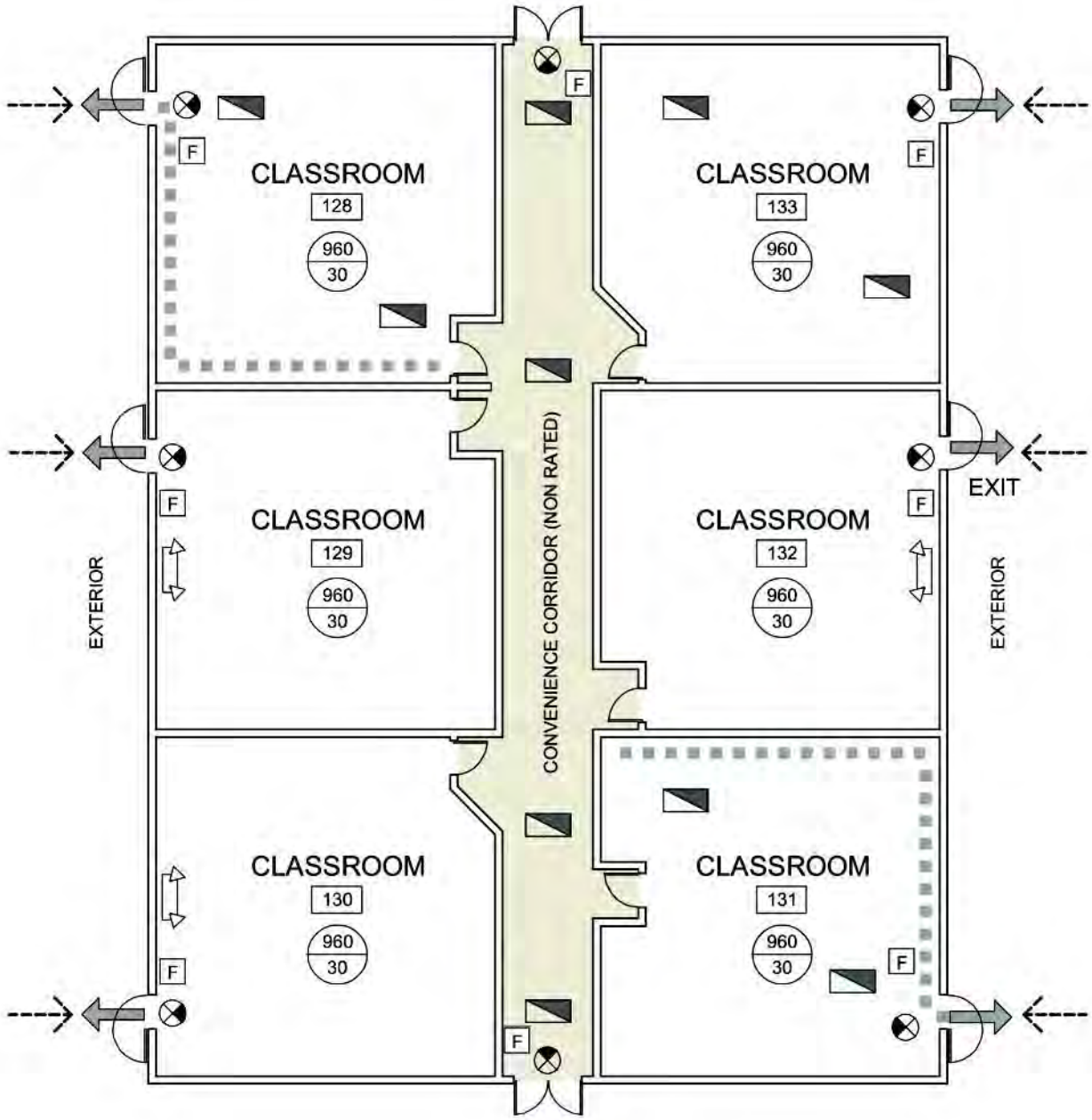
Classrooms with all Primary Egress to the Exterior Group E Educational Occupancy Unsprinklered Building		
		Code Reference
Occupant Load	49 or less per student-occupied space.	FBC Table 1004.1
Egress	One means of egress leading directly to the exterior.	FBC 423.13.1
Egress Doors	Exit doors are sized to meet requirements of egress width: 32 inches minimum clear opening width (36-inch wide door recommended). 6 feet 8 inches minimum height. Swing in the direction of exit travel. Side-hinged type. Always operable from the inside by a single operation and without a key.	FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue and Access Opening	Not required; egress is directly to the exterior of the building for all student-occupied spaces.	FBC 1029
Access opening for Fire Department Use	Provided by exit doors.	
Fire-Rated Walls	None.	Not Applicable
Emergency Lighting	Required in each classroom. Illumination level.	FBC 423.17.1 FFPA 7.9.2
Illuminated Exit Signs	Not required, unless exiting is not clear.	FBC Table 1006.1 FFPC 7.10



(a)
Example Schematic Floor Plan
Unsprinklered Building

CLASSROOMS WITH ALL PRIMARY EGRESS DIRECTLY TO EXTERIOR

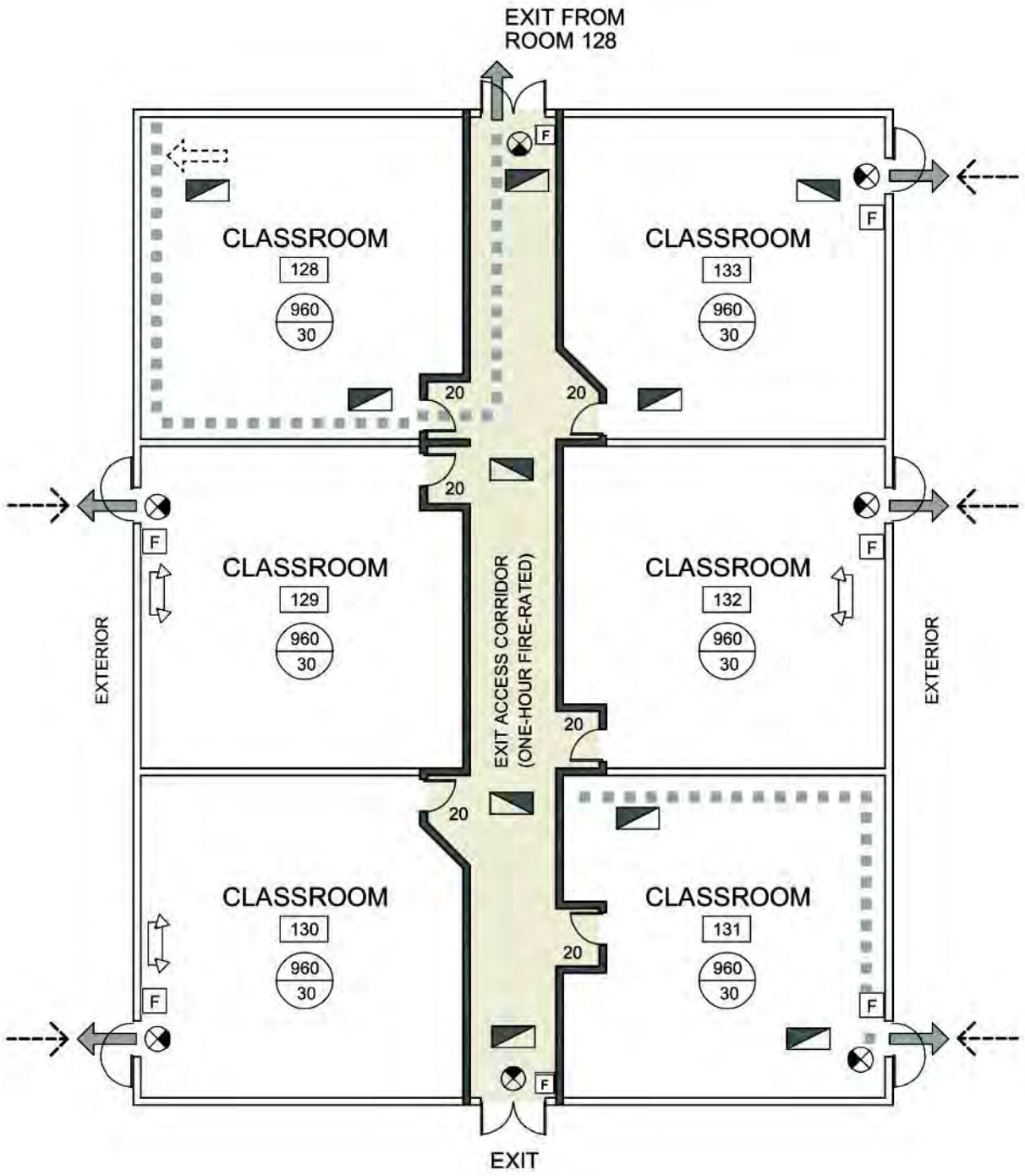
Classrooms with Convenience Interior Corridor And Exits Directly to the Exterior Group E Educational Occupancy Unsprinklered Building		
		Code Reference
Occupant Load	49 or less per student-occupied space.	FBC Table 1004.1
Egress	One means of egress leading directly to the exterior.	FBC 423.13.1
Egress Doors	Exit doors are sized to meet requirements of egress width: 32 inches minimum clear opening width (36-inch wide door recommended). 6 feet 8 inches minimum height. Swing in the direction of exit travel. Side-hinged type. Always operable from the inside by a single operation and without a key.	FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue and Access Opening	Not required; egress is directly to the exterior of the building.	FBC 1029
Access opening for Fire Department Use	Provided by exit doors.	
Fire-Rated Walls	Not required; at least one exit door from each classroom opens directly to the exterior at the ground level.	FBC 1018.1 Exception 1
Emergency Lighting	Required in each classroom and in the convenience corridor.	FBC 423.17.1 FFPC 7.9.2
Illuminated Exit Signs	Over each door exiting directly to the exterior.	FBC 1006.3 FFPC 7.10
Signage	A graphic diagram of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space.	FBC 423.14.2.4



(a)
Example Schematic Floor Plan
Unsprinklered Building

CLASSROOMS WITH CONVENIENCE INTERIOR CORRIDOR
ALL PRIMARY EXITS DIRECTLY TO EXTERIOR

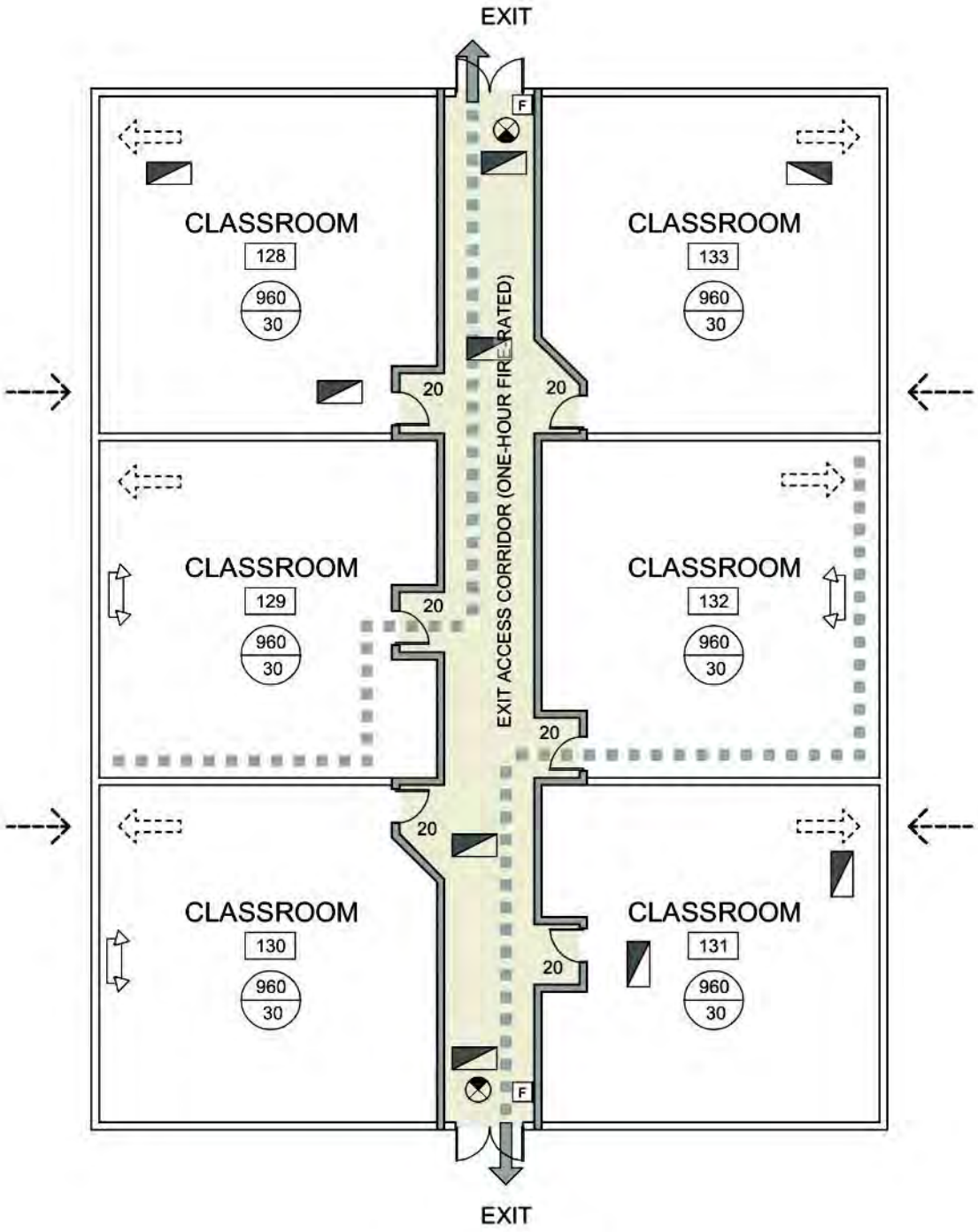
One or More Classrooms Exiting Through an Interior Corridor and Remaining Classrooms Exiting Directly to the Exterior Group E Educational Occupancy Unsprinklered Building		
		Code Reference
Occupant Load	49 or less per student-occupied space.	FBC Table 1004.1
Egress	Room 128 exits through the exit access corridor. All other classrooms exit directly to the exterior.	FBC 423.13.1
Egress Doors	Exit doors are sized to meet requirements of egress width: 32 inches minimum clear opening width (36-inch wide door recommended). 6 feet 8 inches minimum height. Swing in the direction of exit travel. Side-hinged type. Always operable from the inside by a single operation and without a key. Doors opening into the exit access corridor from non-rated spaces shall be 20-minute labeled.	 FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue and Access Opening	Required for student-occupied Classroom 128, which exits through the exit access corridor. Not required for student-occupied classrooms that exit directly to the exterior of the building.	FBC 423.13.1 FBC 1029
Access opening for Fire Department Use	Exit doors provide the required access opening in each 50 feet of exterior wall on an accessible side of the building. The distance around the perimeter of the building, measured from the exit door of Classroom 129 to the exit door of the upper portion of the exit access corridor, does not exceed 50 feet.	
Fire-Rated Walls	Fire-resistance rating of exit access corridors shall be 1-hour fire-rated assemblies. Walls shall extend from the floor slab to the underside of the structural deck above.	FBC 1018.1
Emergency Lighting	Required in each classroom and in the convenience corridor. Illumination level.	FBC 423.17.1 FFPC 7.9.2
Illuminated Exit Signs	Shall be provided in the exit access corridor and at each exit door exiting to the exterior from the corridor.	FBC 1006.3 FFPC 7.10
Signage	A graphic diagram of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space.	FBC 423.14.2.4



(a)
Example Schematic Floor Plan
Unsprinklered Building

ONE OR MORE CLASSROOMS EXITING THROUGH AN INTERIOR CORRIDOR AND REMAINING CLASSROOMS EXIT DIRECTLY TO EXTERIOR

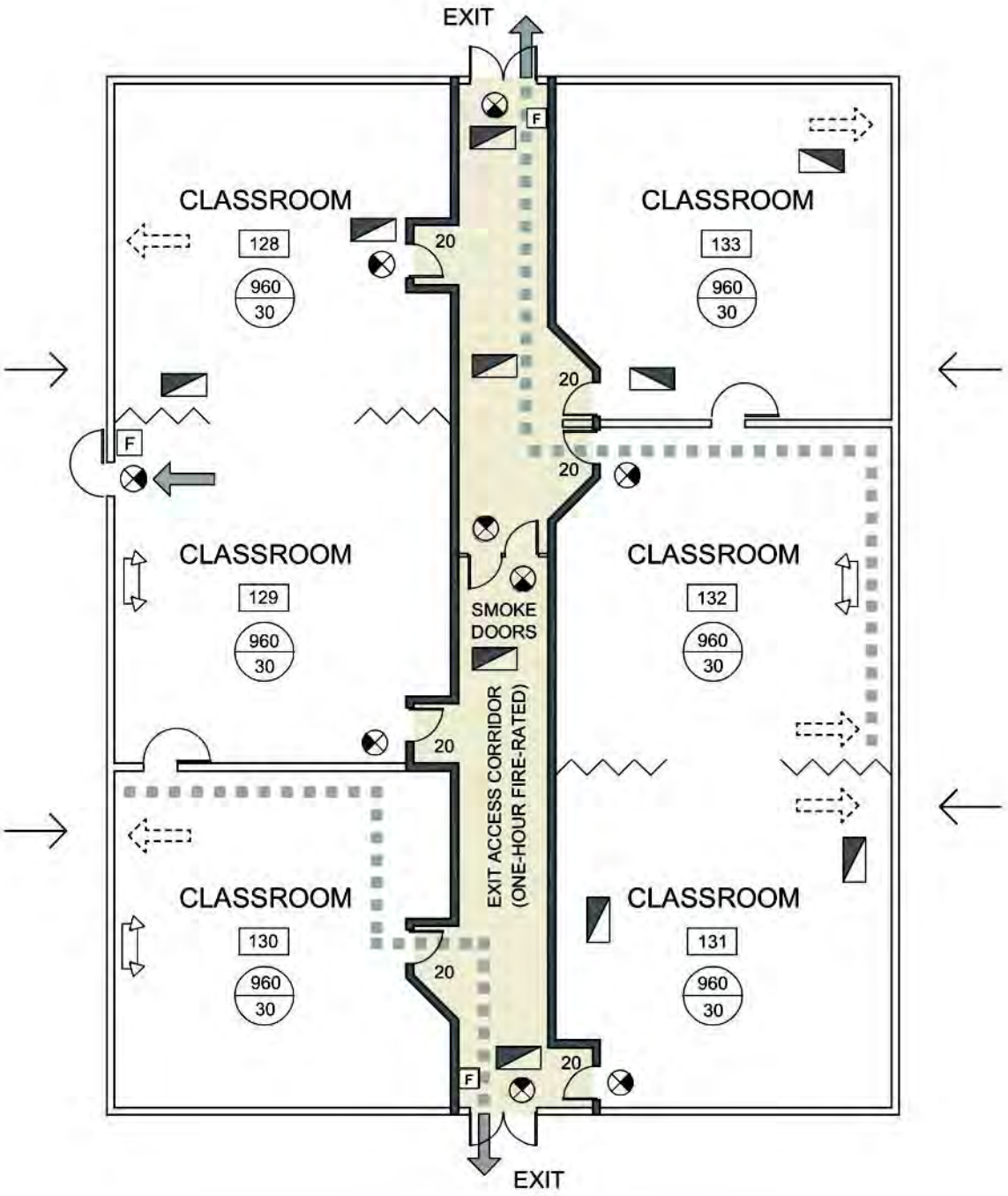
Classrooms with all Egress through an Exit Access Corridor Group E Educational Occupancy Unsprinklered Building		
		Code Reference
Occupant Load	49 or less per student-occupied space.	FBC Table 1004.1
Egress	All classrooms exit through the exit access corridor.	FBC 423.13.1 FBC 1018.1
Egress Doors	Exit doors are sized to meet requirements of egress width: 32 inches minimum clear opening width (36-inch wide door recommended). 6 feet 8 inches minimum height. Swing in the direction of exit travel. Side-hinged type. Always operable from the inside by a single operation and without a key. Doors opening into the exit access corridor from non-rated spaces shall be 20-minute labeled.	FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue and Access Opening	Required for student-occupied classroom where a door opening directly to the exterior is not provided.	FBC 423.13.1
Access opening for Fire Department Use	Access openings for fire department use are required in each 50 feet of exterior wall on an accessible side of the building.	
Fire-Rated Walls	Fire-resistance rating of exit access corridors shall be 1-hour fire-rated assemblies. Walls shall extend from the floor slab to the underside of the structural deck above.	FBC 1018.1
Emergency Lighting	Required in each classroom and in the convenience corridor. Illumination level.	FBC 423.17.1 FFPC 7.9.2
Illuminated Exit Signs	Shall be provided in the exit access corridor and at each exit door exiting to the exterior from the corridor.	FBC 1006.3 FFPC 7.10
Signage	A graphic diagram of primary and emergency evacuation routes shall be posted adjacent to the primary exit door from each space.	FBC 423.14.2.4



(a)
Example Schematic Floor Plan
Unsprinklered Building

CLASSROOMS WITH EXITING THROUGH AN INTERIOR CORRIDOR

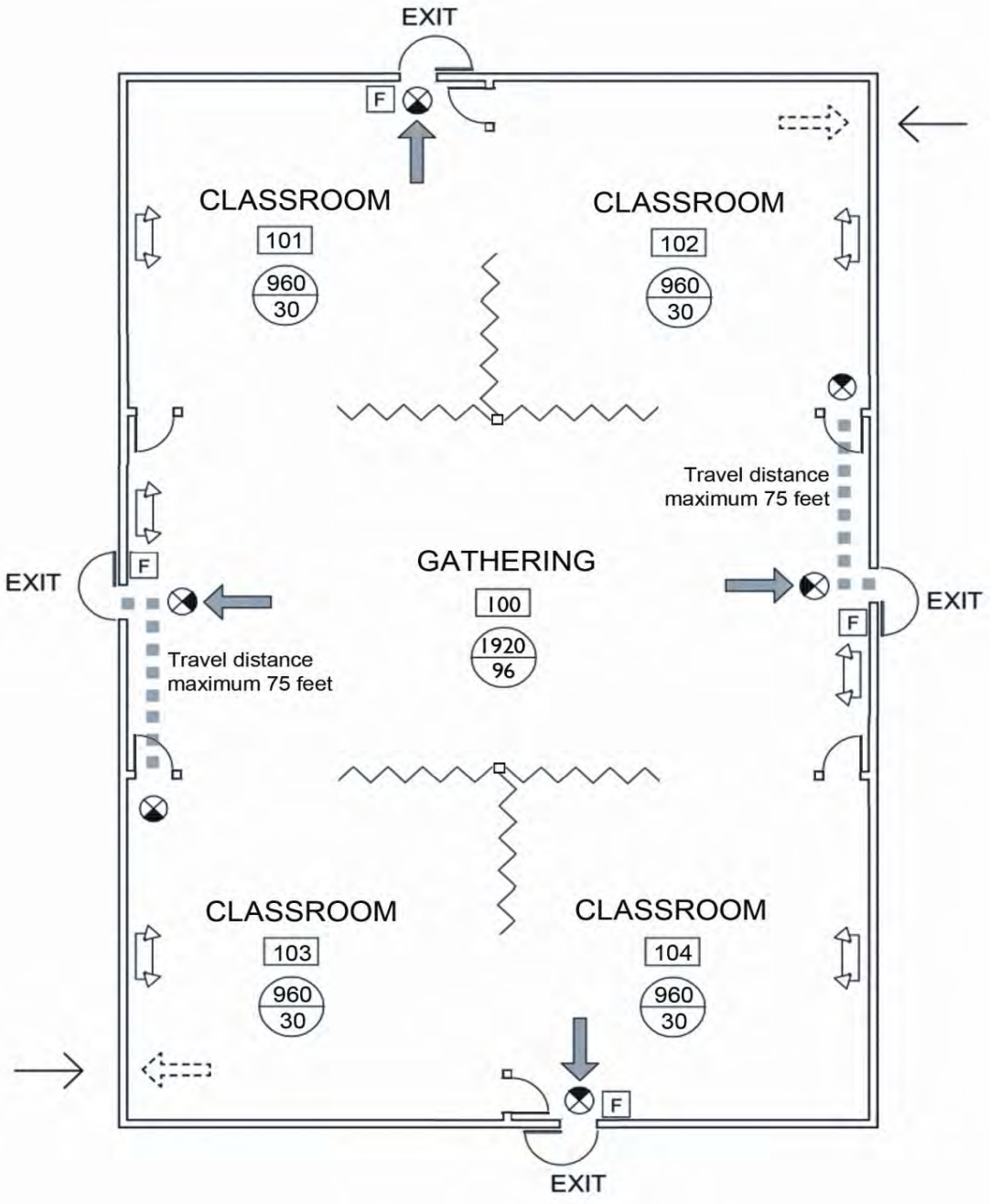
Egress from Rooms Divided with a Folding Partition Group E Educational Occupancy, Unsprinklered Building.		
Rooms 128/129 and 131/132 shall be evaluated with the folding partition in both the open position and the closed position.		
Folding Partition in Open Position		**Code Reference**
Occupant Load	Combining two classrooms generates an occupant load of 50 or more.	FBC Table 1004.1
Egress	Combined Classrooms 131/132 must have two means of egress. The first is a door leading in to the lower exit access corridors system. The second is a door leading in to the upper exit access corridor system. The lower and upper corridors are divided into two separate atmospheres by the smoke doors and partition. Emergency rescue and access opening are provided to the exterior. Combined Classrooms 128/129 have two means of egress where one opens directly to the exterior. Using either of the two doors that open into the exit access corridor, ½ diagonal rule is met.	FBC 423.13.1 FBC 1018.1
Folding Partition in Closed Position		
Occupant Load	Each classroom is 49 or less per student-occupied space.	FBC Table 1004.1.1
Emergency Rescue Opening	Each classroom has one means of egress and one emergency rescue opening directly to the exterior. Classroom 129 has one means of egress opening directly to the exterior.	FBC 423.13.1 FBC 1018.1 FBC 1029
Folding Partition in Open and Closed Position		
Egress Doors	Exit doors are sized to meet requirements of egress width: 32 inches minimum clear opening width (36-inch wide door recommended). 6 feet 8 inches minimum height. Swing in the direction of exit travel. Side-hinged type. Always operable from the inside by a single operation and without a key. Doors opening into the exit access corridor from non-rated spaces shall be 20-minute labeled.	FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue Opening	Required for student-occupied classroom where a door opening directly to the exterior is not provided.	FBC 423.13.1
Access Openings for Fire Department Use	Access openings for fire department use are required in each 50 feet of exterior wall on an accessible side of the building.	
Fire-Rated Walls	Fire-resistance rating of exit access corridors shall be 1-hour fire-rated assemblies. Walls shall extend from the floor slab to the underside of the structural deck above.	FBC Table 1018.1
Emergency Lighting	Required in each classroom and in the exit access corridor. Illumination level.	FBC 423.17.1 FFPC 7.9.2
Illuminated Exit Signs	Shall be provided in the exit access corridor.	FBC 1006.3 FFPC 7.10



(a)
Example Schematic Floor Plan
Unsprinklered Building

EGRESS FROM ROOMS DIVIDED WITH A FOLDING PARTITION

Egress from Classrooms through an Intervening space.		
Rooms 100,101,102,103 and, 104 shall be evaluated with the folding partitions both in the open position and the closed position.		
Folding Partition in Open Position		**Code Reference**
Occupant Load	Combining Classrooms and gathering spaces generates an occupant load of 50 or more. Combined Classrooms 101/102 and 103/104 generate an occupant load of 50 or more.	FBC Table 1004.1
Egress	Exiting from gathering 100 is including Classrooms 101, 102, 103 and 104 two exits directly to the exterior.	FBC 1020
Folding Partition in Closed Position		
Occupant Load	Gathering 100 generates an occupant load of 50 or more.	FBC Table 1004.1.1
Egress	Exiting Gathering 100 has two means of egress directly to the exterior. Classrooms 101 and 104 have exit doors directly to the exterior. Classrooms 102 and 103 have exit doors to Gathering 100. The travel distance in Gathering 100 to exit doors from each classroom does not exceed 75 feet.	FBC 104.2 FBC 1020
Emergency Rescue Opening	Classrooms 102 and 103 have one means of egress and one emergency rescue opening directly to the exterior.	FBC 1029
Folding Partition in Open and Closed Position		
Occupant Load	Gathering 100 generates an occupant of 50 or more. Combined Classrooms 101/102 and 103/104 generate an occupant load of 50 or more.	FBC Table 1004.1.1
Egress Doors	Exiting from Gathering 100 is two exits directly to the exterior. Exiting combined Classrooms 101/102 and 103/104 is directly to the exterior and through Gathering 100. Exiting meets requirement for two separated atmospheres.	FBC 1014.2 FBC 1020
Egress Docks	Exit doors are sized to meet requirements of egress width. 32 inches minimum door opening width (36-inch wide door) recommended. 6 feet 8 inches minimum height.	FBC 1008.1.1 FBC 423.13.1
Travel Distance	150 feet unsprinklered building.	FBC Table 1016.1
Emergency Rescue Opening	Classrooms 102 and 103 have emergency rescue openings directly to the exterior.	FBC 1029
Access Openings for Fire Department Use	Access openings for fire department use are required in each 50 feet of exterior wall on an accessible side of the building.	
Fire-Rated Walls	Partitions between Classrooms 101, 102, 103 and 104 are not required to be fire-rated.	FBC 1014.2
Emergency Lighting	Required in each classroom and related student occupied space.	FBC 423.17.1 FFPC 7.9.2
Illuminated Exit Signs	Require in assembly occupied spaces.	FFBC 1006.3 FPC 7.10



(a)
Example Schematic Floor Plan
Unsprinklered Building

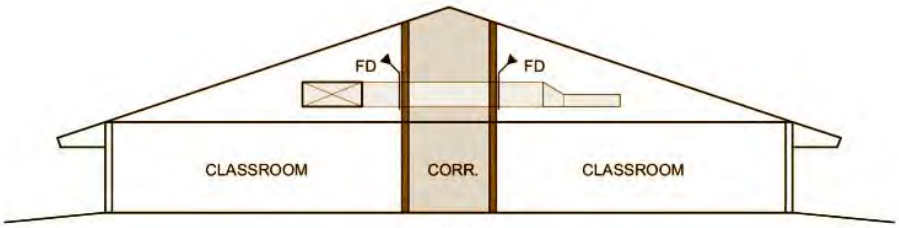
EGRESS THROUGH AN INTERVENING SPACE

Corridor Protection Group E Educational Occupancy Unsprinklered Building		
		Code Reference
Example 1	Fire-resistance rating 1-hour: Corridor walls in exit access corridors shall be 1-hour fire-rated assemblies. Partitions shall extend from the ground floor slab to the underside of the structural deck above.	FBC Table 1018.1 FBC 709.4
Example 2	Fire-resistance rating 1-hour: Corridor walls in exit access corridors shall be 1-hour fire-rated assemblies and may terminate at a corridor ceiling assembly where the assembly has a 1-hour fire-resistance rating when tested as a wall.	FBC Table 1018.1 FFPC 14.3.6(3)
Example 3	Fire-resistance rating 1-hour: Corridor walls in exit access corridors shall be 1-hour fire-rated assemblies and shall extend from the ground floor slab to the second floor slab and from the second floor slab to the underside of the structural deck above. The second floor slab shall be 1-hour fire-rated construction and shall be supported by a 1-hour fire-rated assembly.	FBC Table 1018.1 FBC 709.4
Example 4	Fire-resistance rating 1-hour: Corridor walls in exit access corridors shall be 1-hour fire-rated assemblies and shall extend from the ground floor slab to the second floor slab and from the second floor slab to the underside of the corridor ceiling assembly where the assembly has a 1-hour fire-resistance rating when tested as a wall.	FBC Table 1018.1 FBC 709.4 FFPC 14.3.6(3)

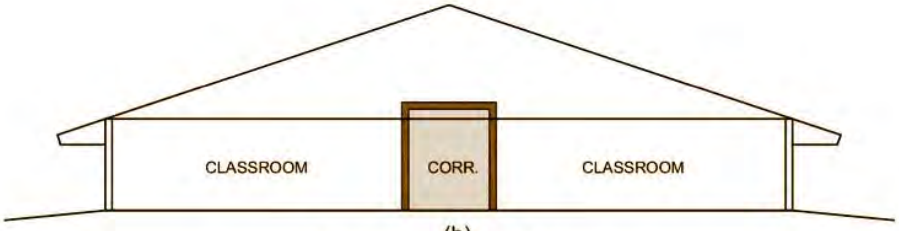
Administration corridors in Group B occupancies, with an occupant load of less than 30 are not required to be fire-rated. FBC Table 1018.1.

Administration corridors in Group B occupancies, with an occupant load of 30 or more in a sprinklered building are not required to be fire rated. FBC Table 1018.1.

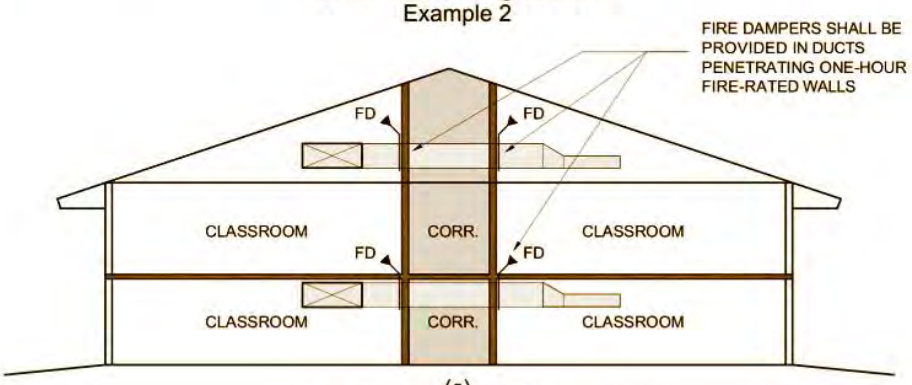
Corridors shall not be used as return air plenums. FBC Section 423.15.2.



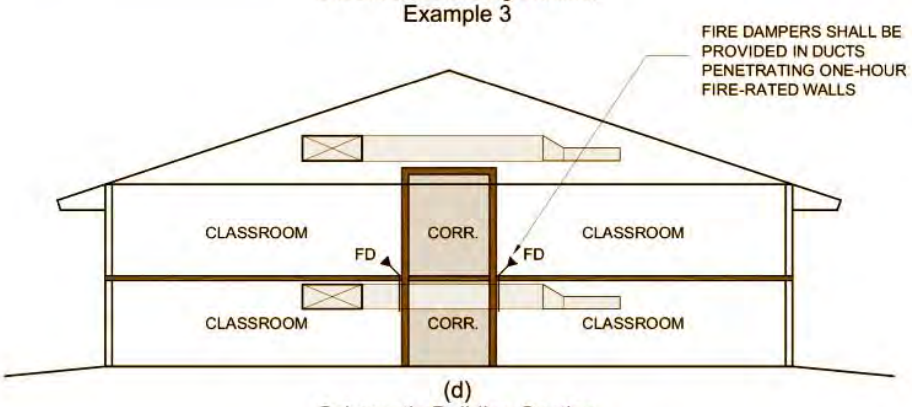
(a)
Schematic Building Section
Example 1



(b)
Schematic Building Section
Example 2



(c)
Schematic Building Section
Example 3

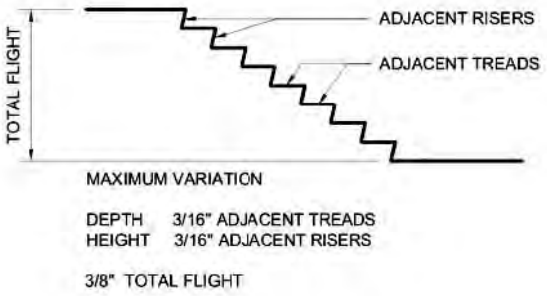


(d)
Schematic Building Section
Example 4

CORRIDOR PROTECTION

Stairs			
			Code Reference
Proportion	Minimum changes in elevation	Changes in elevation of 12 inches or less shall be made by ramps.	FBC 1003.5
	Risers	Risers shall be maximum height of 7 inches and a minimum height of 4 inches.	FBC 1009.4.2
	Treads	Treads shall be a minimum of 11 inches. Where a change in level in a means of egress not exceeding 21 inches is achieved by a stair, the minimum tread depth Is 13 inches.	FBC 1009.3 FBC 1003.4
	Variation	Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed ⅜ inch (9.5mm) in any flight of stairs. The greatest winder tread depth at the walk line within any flight of stairs shall not exceed the smallest by more than ⅜ inch (9.5mm).	FBC 1009.4.4
Widths	Stairs	Minimum stair width shall be based on the number of occupants served, but not less than 44 inches. Stairs shall not decrease in width along the direction of egress travel.	FBC 1009.1 FBC 1009.4
	Landings	The width of landings shall be no less than the width of stairways they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Exception: Landing shall be permitted to be no more than 4 feet in the direction of travel provided the stair has a straight run. During its swing, any door in a means of egress shall leave unobstructed at least one half of the required width of an aisle, corridor, passageway, or landing.	FBC 1009.4 FBC 1009.5
Landings	A flight of stairs shall not have a vertical rise of more than 12 feet between floors or landings.		FBC 1009.7
Storage	There shall be no enclosed, useable space within an exit enclosure, including under stairs.		FBC 423.20.1

(a)
Changes in elevation of 12 inches or less in exit access corridors, exits, and exit discharges shall be made by ramps

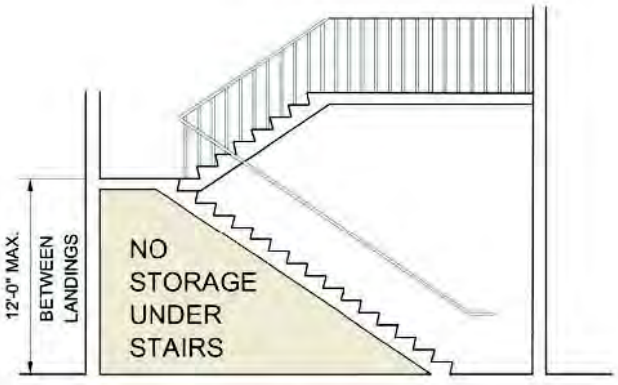


(b)
Dimensional Uniformity

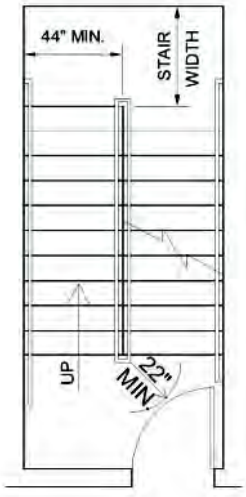
STAIR TREADS AND RISERS
MINIMUM RISER 4"
MAXIMUM RISER 7" MINIMUM TREAD 11"

RULE OF THUMB
2 R (RISERS) + 1 T (TREADS) = 24 TO 25

(c)
Stair Risers and Treads



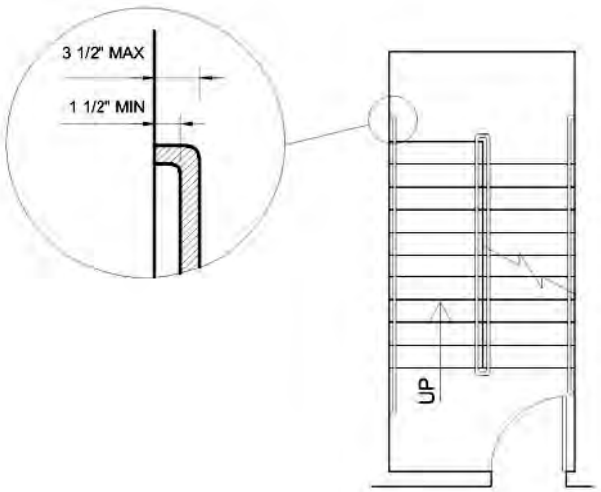
(d)
Stair Landings



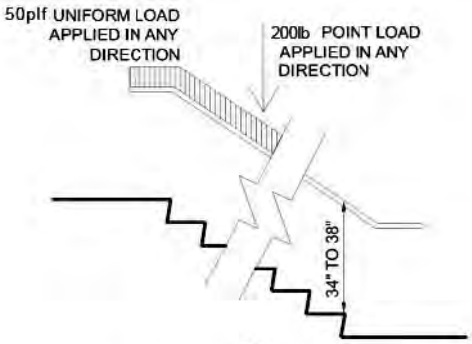
(e)
Stair Clearances

STAIRS

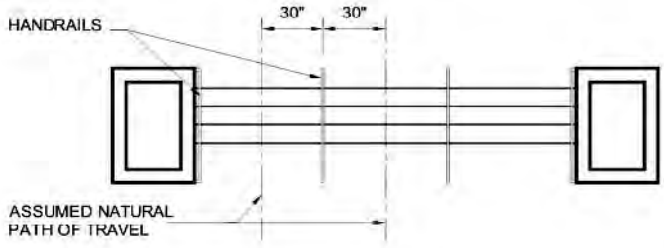
Handrails at Stairs		
		Code Reference
Location	Stairways shall have handrails on each side. Exception: Aisle stairs provided with a center handrail need not have additional handrails. Stairs shall be clear of all obstructions except projections not exceeding 4 ½ inches at or below handrail height on each side. Handrails shall extend at least 12 inches horizontally beyond the top riser of a flight. At the bottom, the handrails shall continue to slope for a distance of the depth of one tread from the bottom riser. Clear space between handrail and wall shall be a minimum of 1½ inches.	FBC 1009.12 FBC 1012.7 FBC 1012.8 FBC 11-4.9.4
Height	Stairways shall be equipped with handrails located no less than 34 inches or more than 38 inches above the leading edge of a tread. Facilities housing pre-K through grade six should also include a second handrail located 26 inches in height.	FBC 1012.2
Handrail Loading	Handrails shall be designed and constructed for a concentrated load of 200 lbs applied at any point and in any direction. Handrails shall be designed and constructed for a load of 50 plf applied in any direction.	FBC 1607.7
Handrail Spacing	Handrails shall be provided within 30 inches of all portions of the stair width required for egress capacity in accordance with FBC Section 1012. The required egress width shall be along the natural path of travel.	FBC 1012.9



(a)
Handrail Location



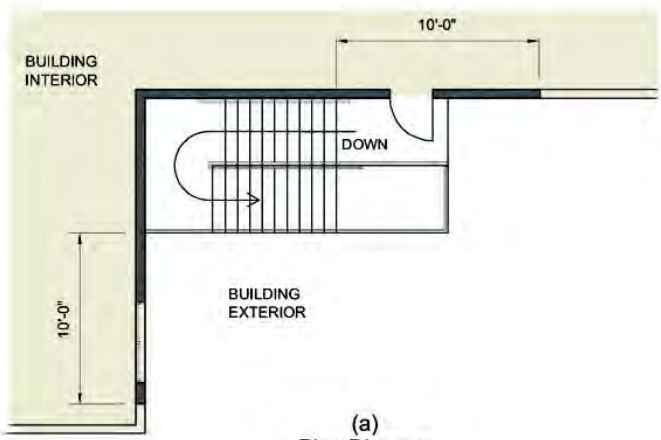
(b)
Handrail Height and Loading



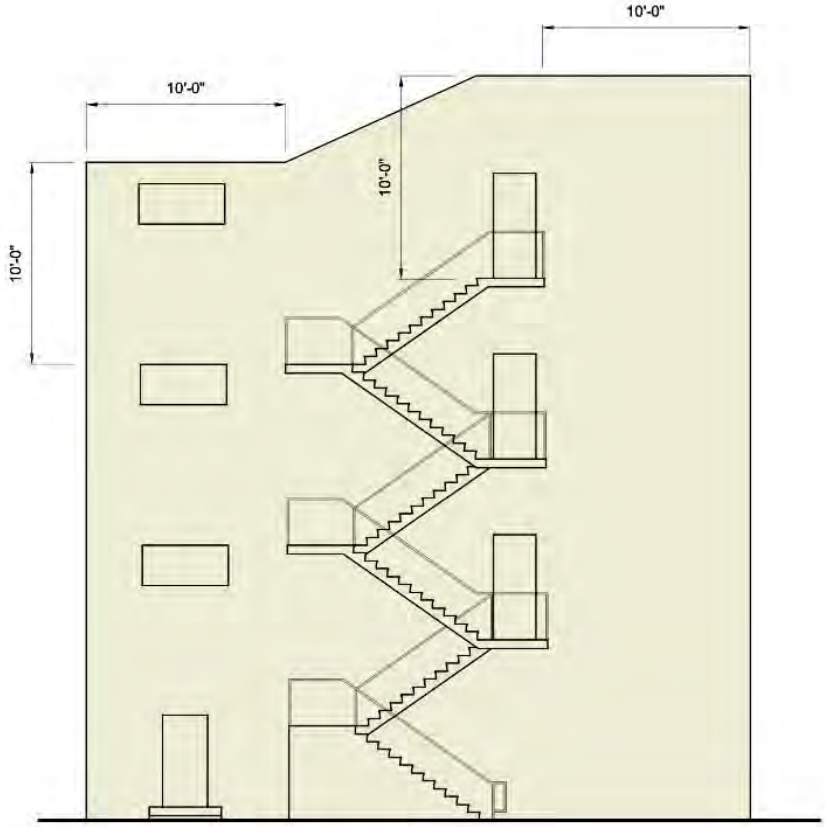
(c)
Handrail Spacing

HANDRAILS AT STAIRS

Separation and Protection of Exterior Stairs		
		Code Reference
Exterior Stairs	Separated from interior of building by walls with a fire resistance rating of not less than 1-hour.	
	Fixed or self-closing opening protective as required for enclosed stairs.	FBC 1026.6
	Protection shall extend vertically from the ground to a point 10 feet above the topmost landing or the roof line, whichever is lower, and horizontally 10 feet from each side of the stairway.	FFPC 7.2.2.5.2.1 FFPC 7.2.2.5.2.3
	Openings within the 10 feet horizontal extension of the protected walls beyond the stairway shall be equipped with fixed ¾-hour assemblies.	



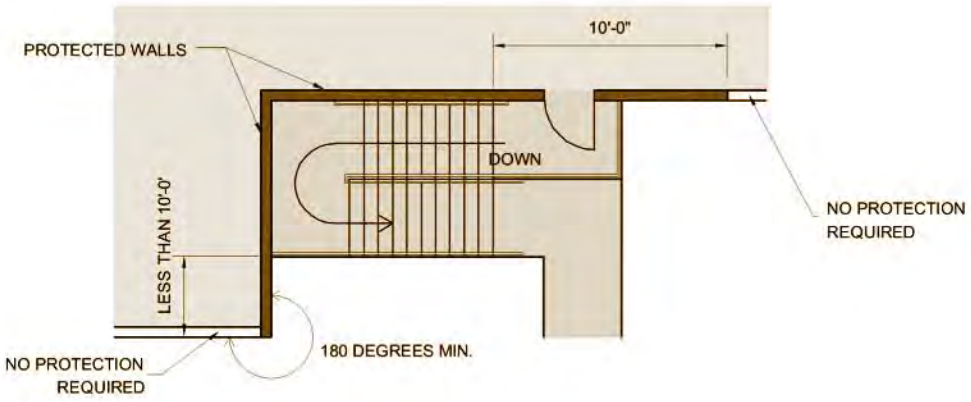
(a)
Plan Diagram



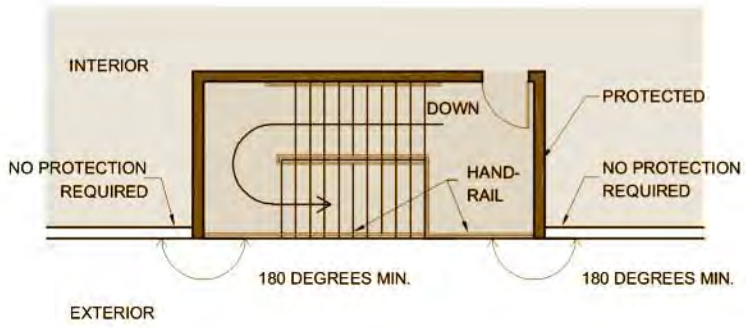
(b)
Schematic Elevation

SEPARATION AND PROTECTION OF EXTERIOR STAIRS

Exceptions to Separation and Protection of Exterior Stairs		
		Code Reference
Exterior Access Balcony	Exterior stairs may be unprotected when serving an exterior exit access balcony that has two exterior stairways, remotely located. Exterior exit access must be a roofed-over open balcony, porch, gallery, or similar space served by at least two stairways located to provide a choice of independent, unobstructed means of egress directly to the ground. Exterior access balcony shall be of sufficient width to accommodate the occupant load, but shall not be less than 6 feet.	FBC 1019.1 FBC 1019.2 FBC 1026.6
Walls At least 180 Degrees From Stair	Walls that are located 10 feet horizontally or less from any side of the stair, but are at an angle of at least 180 degrees from the stair do not require protection.	FFPC 7.2.2.5.2.1 FBC 1022.6
Wall Turns Corner At Least 180 Degrees	Walls that are located 10 feet horizontally or less from any side of the stair, but turn a corner at an angle of at least 180 degrees from the stair do not require protection.	FFPC 7.2.2.5.2.1 FBC 1022.6



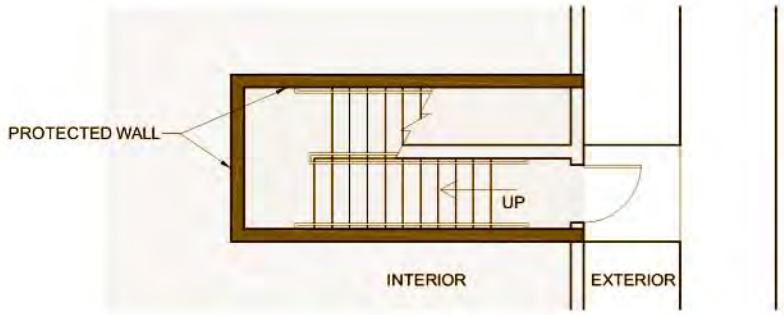
(a)
Wall Turns Corner At Least 180 Degrees



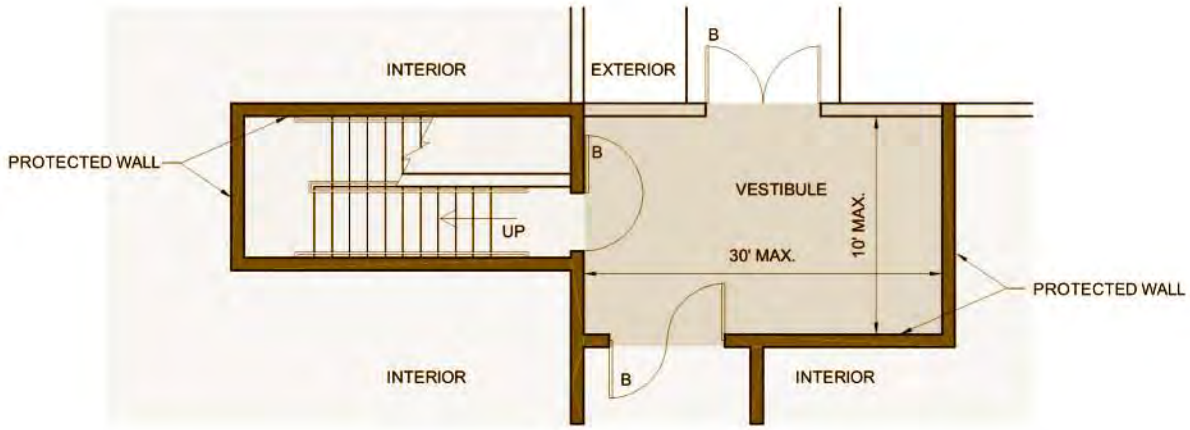
(b)
Walls At Least 180 Degrees From Stair

EXCEPTIONS TO SEPARATION AND PROTECTION TO OUTSIDE STAIRS

Interior Stairs		
		Code Reference
Protection	Exit stairways between floors shall be enclosed or separated by fire-resistant construction. All openings through a floor and penetrations through a floor shall be protected by a shaft enclosure. A shaft enclosure is not required for floor opening between a mezzanine and another floor below.	FBC 1022.1 FBC 707.2
Access and Discharge	A smoke-proof enclosure shall exit into a public way or into a yard, open court, or open space having direct access to a public way. Access to the stairway shall be by way of a vestibule or by way of an open exterior balcony of non-combustible materials. Note: Exit passageways are not permitted in educational facilities.	FBC 1022.9.1



(a)
Stair Exiting to the Exterior

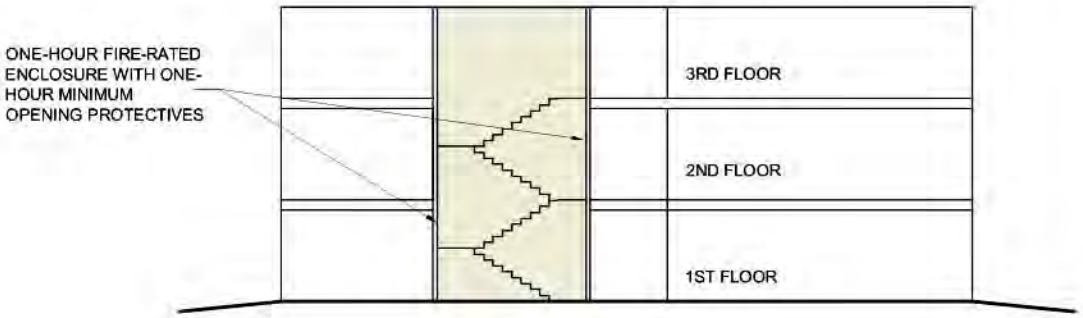


(b)
Stair Exiting to a Protected Vestibule
Vestibule dimension in accordance with FBC Section 1023.1
Exception 2.2

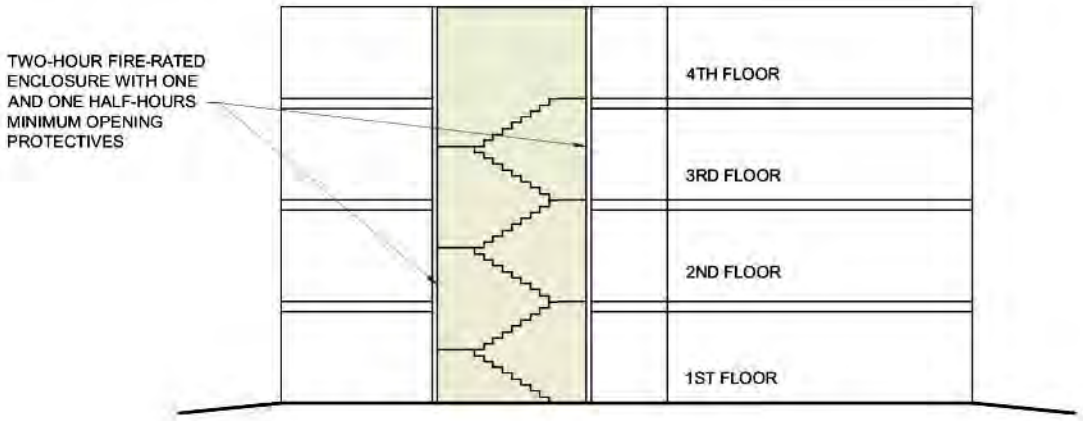
STAIR EXITING

Shaft Enclosure Protection *			
	Walls and Partitions	**Opening Protections**	**Code Reference**
4 or More Stories	2 hours minimum	1 ½ hours minimum	FBC 708.4 FBC 1022.1 FBC Table 715.4
Less than 4 Stories	1 hour minimum	1 hour minimum	

*Includes stairways, exits, and elevator (FBC Table 715.4).



(a)
Stair Enclosure Protection 3 Stories or Less

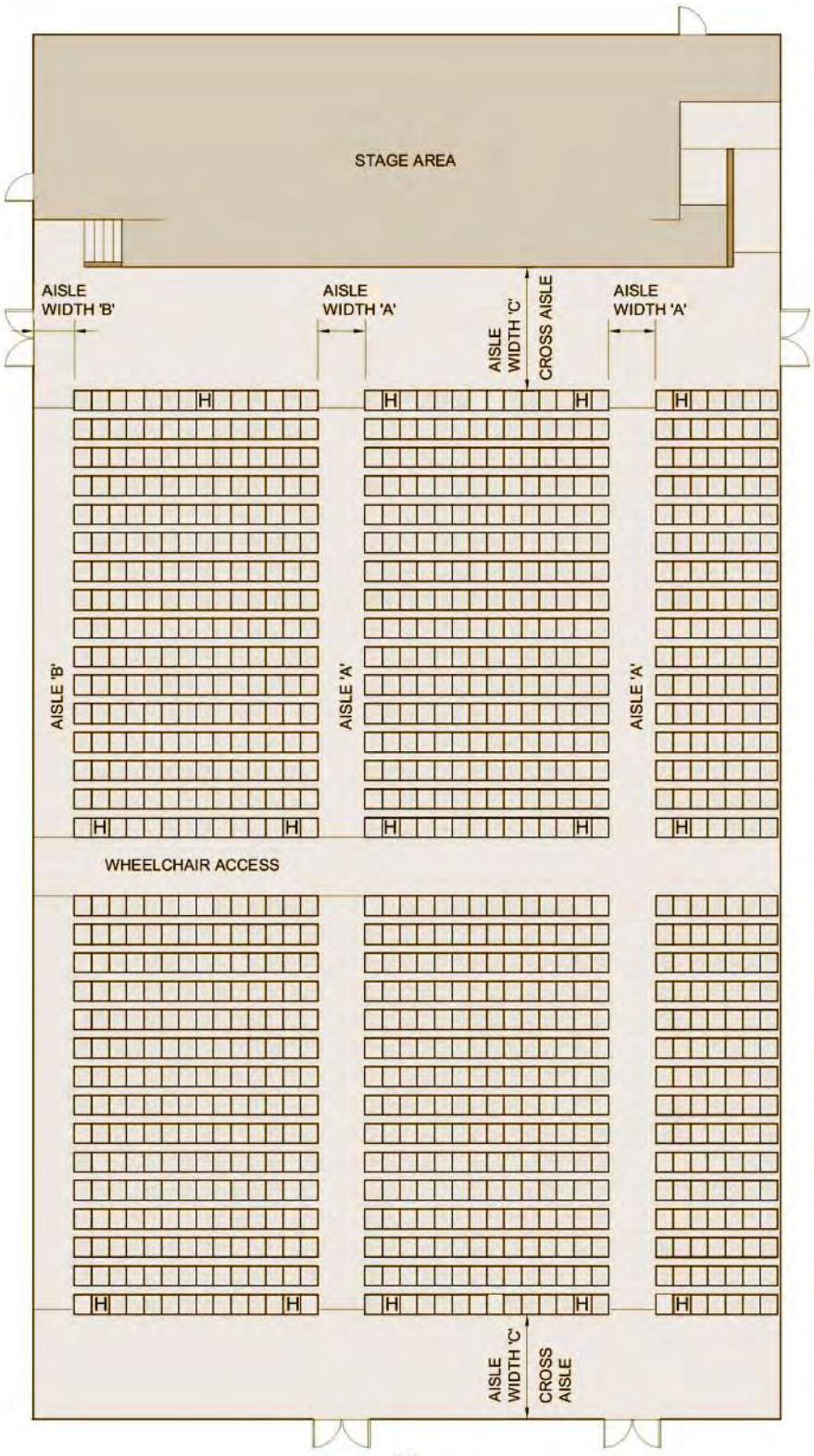


(b)
Stair Enclosure Protection 4 Stories or More

STAIR SHAFT ENCLOSURE

Auditorium Aisle Width		
		Code Reference
Aisles	Aisles shall lead to exit. Those portions of aisle access ways and aisles where egress is possible in either of two directions shall be uniform in required width. Dead-end aisles shall not be greater than 20 feet in length. Exception: Dead-end aisles longer than 20 feet (6096 mm) are permitted where seats beyond the 20-foot (6096 mm) dead-end aisle are no more than 24 seats from another aisle, measured along a row of seats having a minimum clear width of 12 inches (305 mm) plus 0.6 inch (15.2 mm) for each additional seat above seven in the row.	FBC 1028.9 FBC 1028.9.5
Aisle Widths	1. Forty-eight inches for aisle stairs having seating on each side, Exception: Thirty-six inches where the aisle serves less than 50 seats. 2. Thirty-six inches for aisle stairs having seating on only one side. 3. Twenty-three inches between an aisle stair handrails or guard and seating where the aisle Is subdivided by a handrail. 4. Forty-two inches for level or ramped aisles having seating on both sides. Exceptions: 1. Thirty-six inches where the aisle serves less than 50 seats. 2. Thirty-inches where the aisle does not serve more than 14 seats. 5. Thirty-six inches for level or ramped aisles having seating on one side. Exceptions: 1. Thirty inches where the aisle does not serve more than 14 seats. 2. Twenty-three inches between an aisle handrails and seating where an aisle does not serve more than five rows on one side.	FBC 1028.9.1

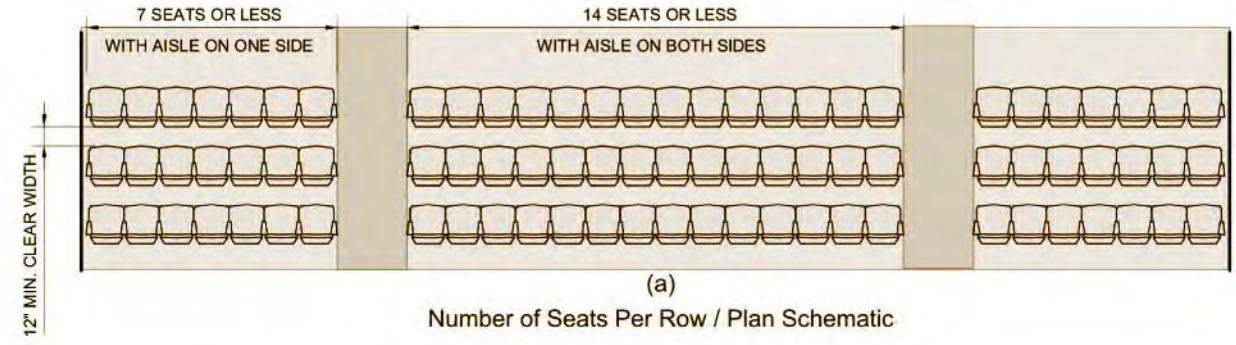
For width of means of egress of assembly without smoke-protection, see FBC 1028.6.1.
For width of means of egress of assembly with smoke-protection, see FBC 1028.6.2.



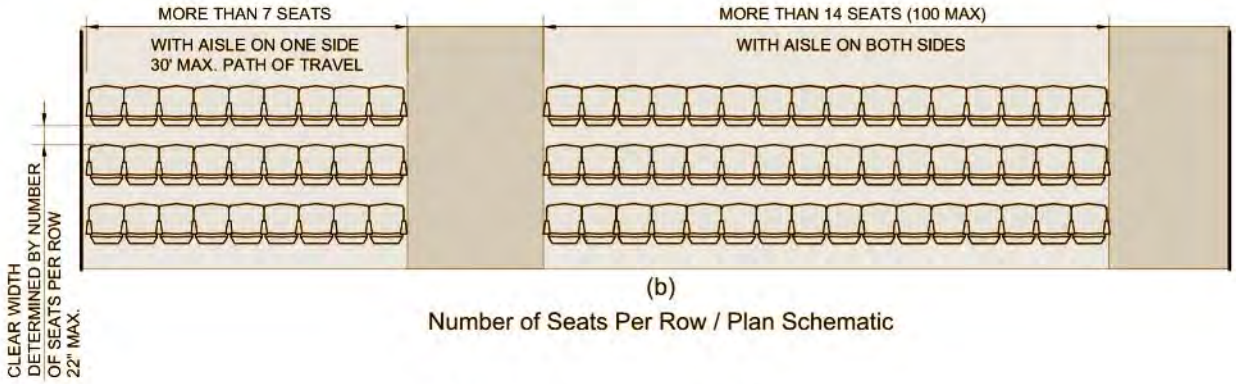
(a)
Seating plan diagram

AUDITORIUM SEATING PLAN

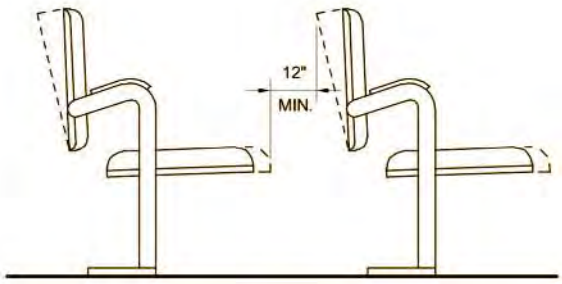
Auditorium Seating			
	Maximum Number of Seats per Row	**Clear Width of Aisle Access Way Required**	**Code Reference**
Rows of Seating Served by Aisles or Doorways at Both Ends	100 Seats.	14 seats per row or less: 12 inches minimum clear width.	FBC 1028.10.1
		More than 14 seats per row: Increase 12 inches minimum clear width by 0.3 inches for every additional seat beyond 14. Minimum clear width not required to exceed 22 inches.	
Rows of Seating by an Aisle or Doorway at One End Only	Determined by path of travel shall not exceed 30 feet from any seat to a point where a person has a choice of two paths of travel to two exits.	7 seats per row or less: 12 inches minimum clear width.	FBC 1028.10.1
		More than 7 seats per row: Increase 12 inch minimum clear width by 0.6 inches for every additional seat beyond seven. Minimum clear width not required to exceed 22 inches.	FBC 1028.10.2



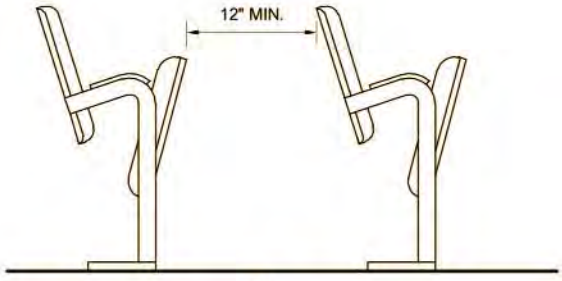
(a)
Number of Seats Per Row / Plan Schematic



(b)
Number of Seats Per Row / Plan Schematic



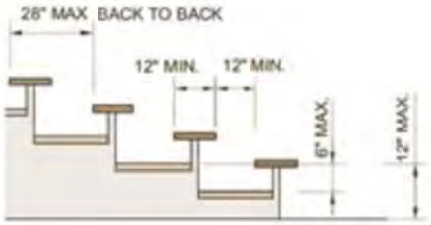
(c)
Non-self Rising Seat



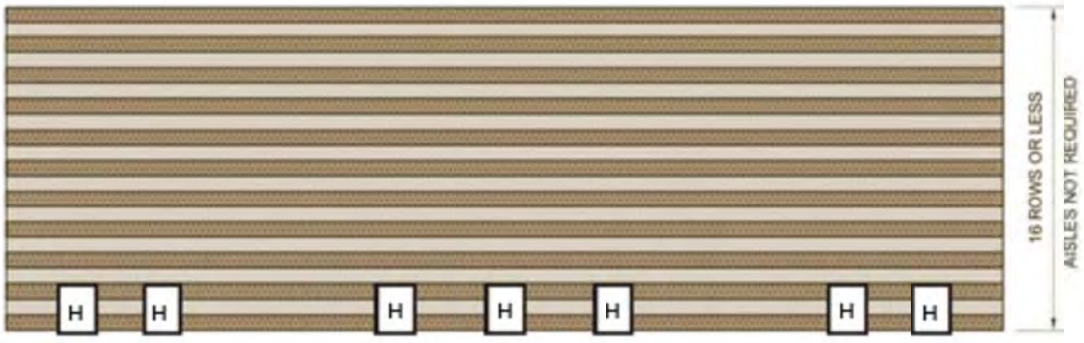
(d)
Self Rising Seat

AUDITORIUM SEATING

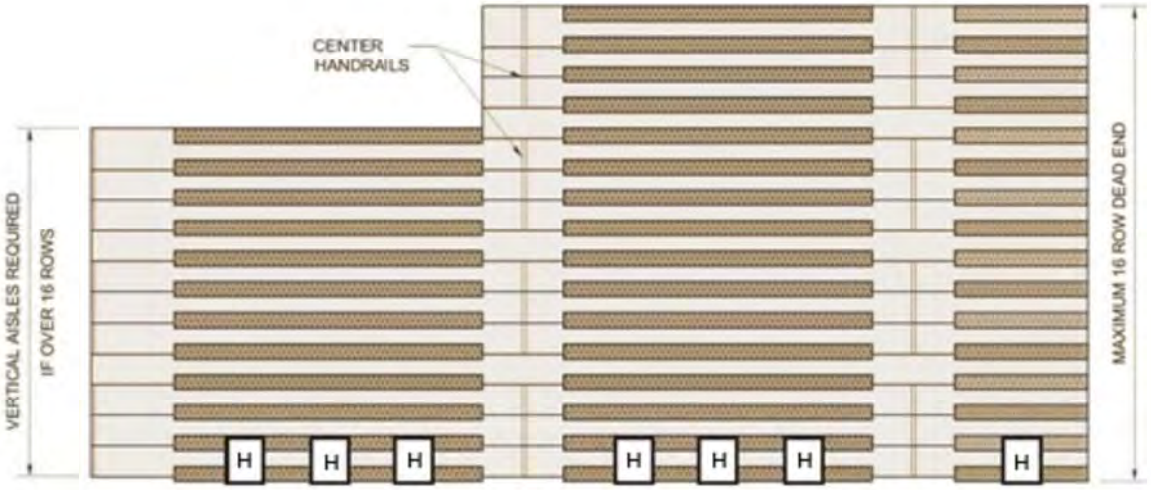
Grandstands and Bleachers		
Aisle Not Required		**Code Reference**
Number of Rows	16 rows or less in height.	FFPC 12.2.5.6.2
Row-to-Row	Not to exceed 6 inches.	FFPC 12.2.5.6.1
Row Spacing	Not to exceed 28 inches unless the seat boards and floor boards are at the same level.	FFPC 12.2.5.6.1
Seat Boards	The first seating board is not more than 12 inches above the ground or floor below or a cross aisle.	FFPC 12.2.5.6.1
	Seat boards provide a walking surface with a minimum width of 12 inches.	
Aisles Required		FFPC 12.2.5.6.2
Number of Rows	More than 16 rows in height.	
Maximum Dead End	16 rows maximum in height when seats do not have backrests.	FFPC 12.2.5.6.1



(a)
Schematic Section with 16 Rows or Less



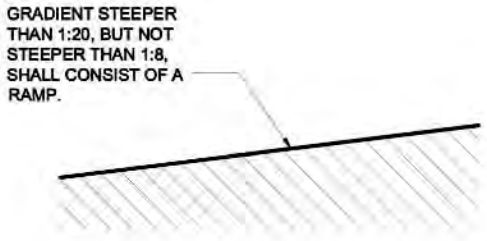
(b)
Schematic Plan with 16 Rows or Less



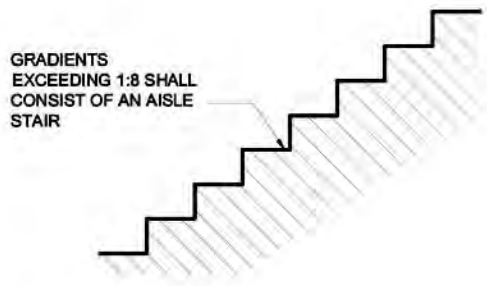
(c)
Schematic Plan with Over 16 Rows

GRANDSTANDS AND BLEACHERS

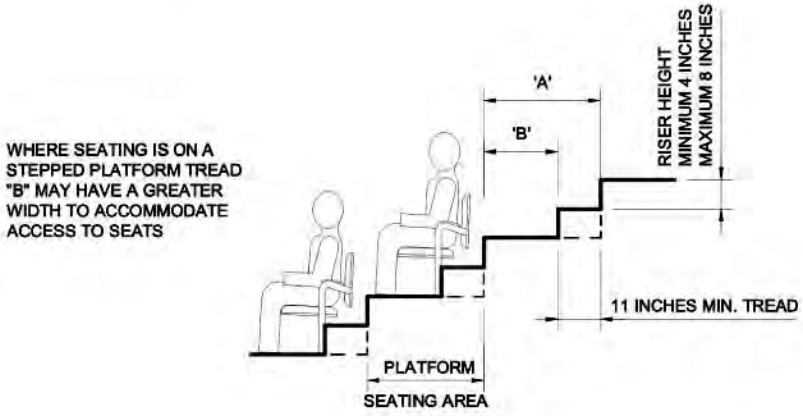
Aisle Ramps and Stairs		
		Code Reference
Ramps	Aisles having a gradient steeper than 1:20, but not steeper than 1:8, shall consist of a ramp.	FBC 1028.11
Stairs	Aisles with a slope exceeding 1:8 shall have an aisle stair.	FBC 1028.11
Treads	Tread depth 11 inches minimum; depths shall be uniform within each aisle. Exception: Non-uniformities shall not exceed 0.188 inches (3/16 inches) between adjacent treads. A contrasting marking stripe shall be provided on each tread at nosing or leading edge. Stripe shall be a minimum of 1 inch and a maximum of 2 inches wide.	FBC 1028.11.1 FBC 1028.11.3
Risers	Riser height shall be a minimum of 4 inches and a maximum of 8 inches high. Riser height shall be uniform with each flight. Exceptions: Where the gradient of an aisle is steeper than 8 inches of rise in 11 inches of run to maintain necessary sight lines in the adjoining seating area, the riser height shall be permitted to exceed 8 inches, but shall not exceed 9 inches. Riser height may be non-uniform, but only to the extent necessitated by changes in the slope of the adjoining seating area to maintain adequate sight lines. Where non-uniformities exceed 3/16 inch between adjacent risers, the exact location of such non-uniformities shall be indicted with a distinctive marking stripe on each tread.	FBC 1028.11.2
Handrails	Ramped aisles having slope exceeding 1:15 and aisle stairs shall be provided with handrails located either at the side or within the aisle width. Where there is seating on both sides of the aisle, the handrail shall be discontinuous with gaps or breaks at intervals not exceeding 5 rows. Handrail gaps or breaks shall have a clear width of at least 22 inches and not greater than 36 inches measured horizontally. Handrails shall have rounded terminations or bends.	FBC 1028.13 FBC 1028.13.1



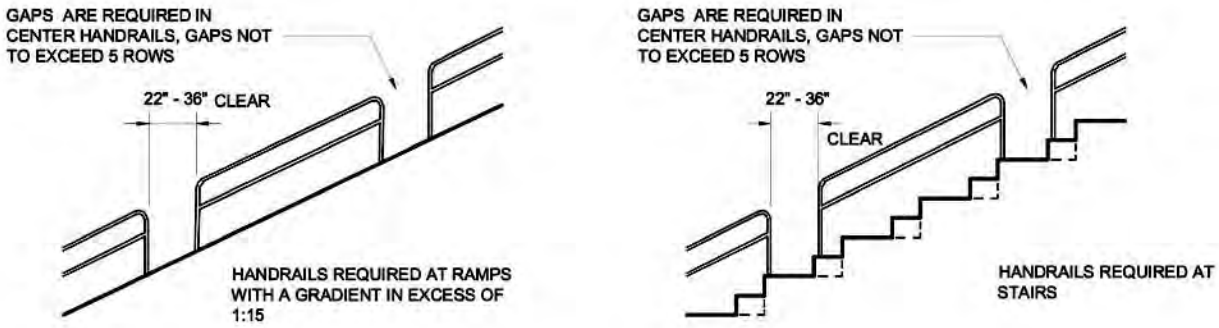
(a)
Ramp



(b)
Aisle Stair



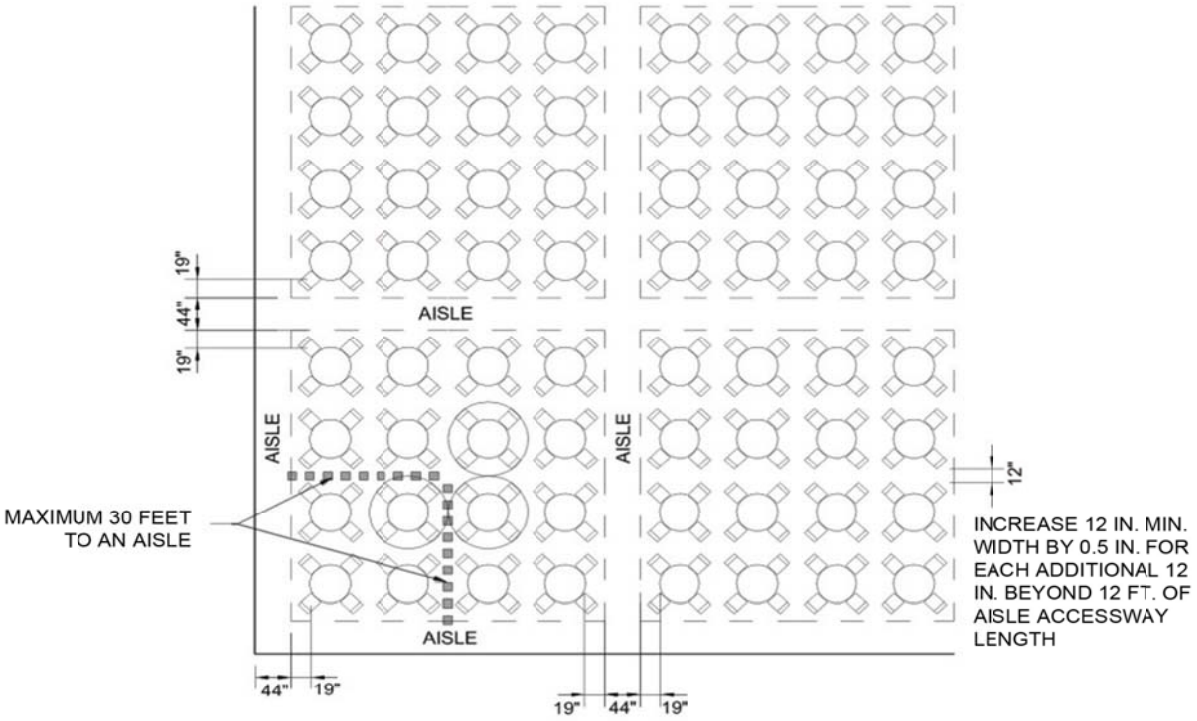
(c)
Risers and Treads

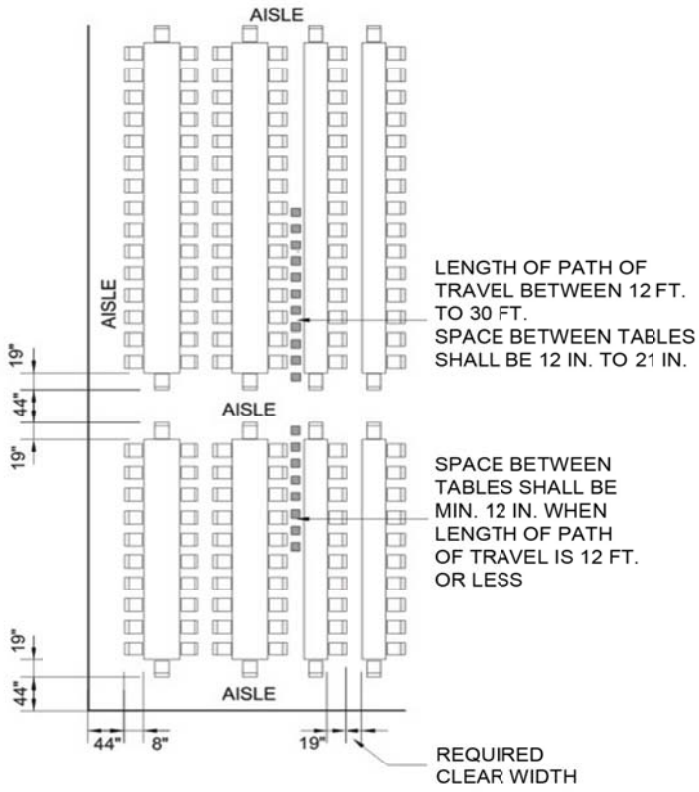


(d)
Handrails

AISLE RAMPS AND SEATS

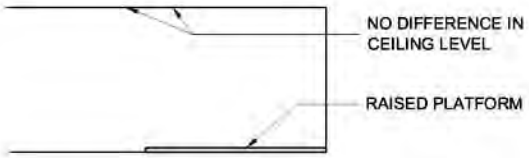
Aisles Serving Seating at Tables			
	Aisles	**Aisles Access Ways**	**Code Reference**
Minimum Clear Width	44 inches. 36 inches where serving an occupant load of not more than 50.	Access ways shall provide a minimum of 12 inches (305 mm) of width plus ½ inch (12.7 mm) of width for each additional 1 foot (305 mm), or fraction thereof, beyond 12 feet (3658 mm) of aisle accessway length measured from the center of the seat farthest from an aisle.	FBC 1017.4
Measurement of Clear Width	Where non-fixed seating is located between a table and an aisle, the measurement of required clear width of the aisle shall be made to a line 19 inches measured perpendicularly to the edge of the table, away from the edge of said table.	Where non-fixed seating is located between a table and an aisle access way, the measurement of required clear width of the aisle access way shall be made to a line 19 inches away from the edge of the table. The 19 inch distance shall be measured perpendicularly to the edge of the table.	FBC 1017.4 FFPC 12.2.5.8.3
Maximum Length Path of Travel	N/A	The length of travel along the aisle accessway shall not exceed 30 feet from any seat to the point where a person has a choice of two or more paths of egress travel to separate exits.	FBC 1017.4.3



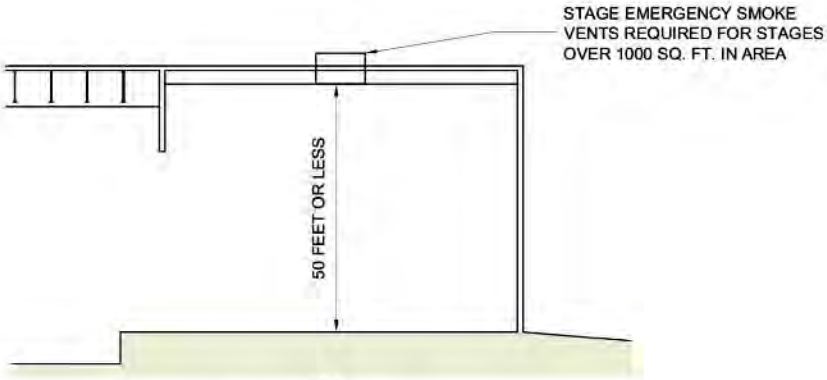


AISLES SERVING SEATING AT TABLES

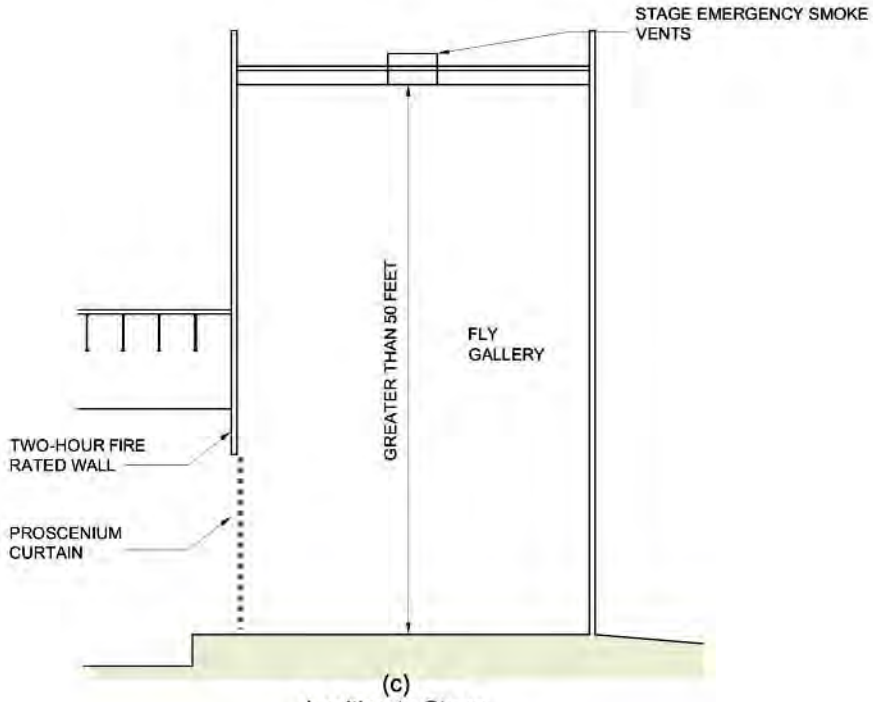
Platforms and Stages		
		Code Reference
Platform	A raised area within a building used for the presentation of music, plays, or other entertainment. No overhead hanging curtains, drops, scenery, or stage effects other than lighting and sound.	FBC 410 FFPC 3.3.166
Regular Stage	A space within a building used for entertainment and utilizing drops, scenery, or other stage effects. Stage height of 50 feet or less measured from the lowest point to the deck above.	FBC 410 FFPC 3.3.210
Legitimate Stage	A space within a building used for entertainment and utilizing drops, scenery, or other stage effects. Stage height is greater than 50 feet measured from the highest point of the roof to the floor deck below.	FFPC 3.3.210.1



(a)
Platform
Schematic Section Diagram



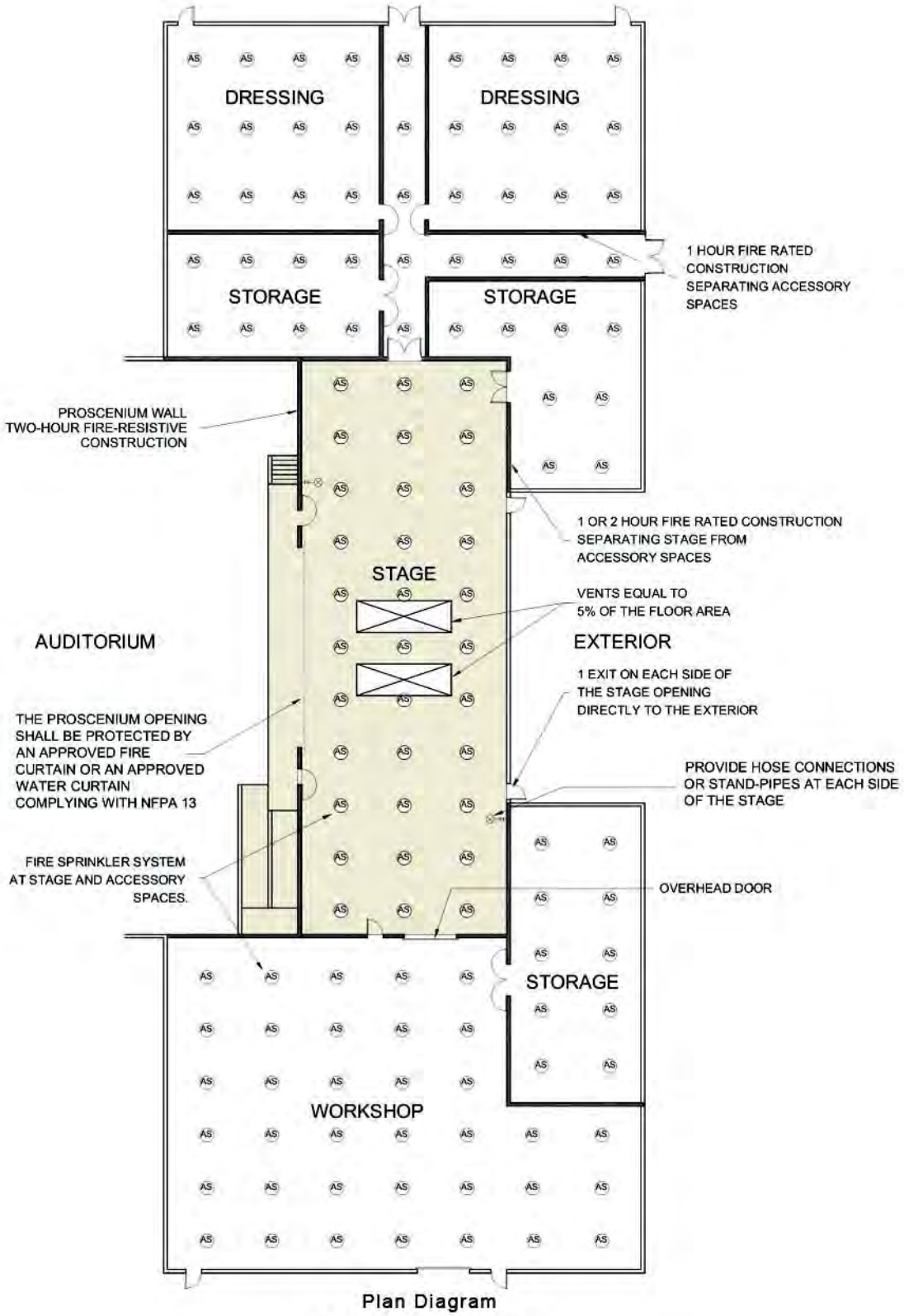
(b)
Regular Stage
Schematic Section Diagram



(c)
Legitimate Stage
Schematic Section Diagram

STAGE TYPES

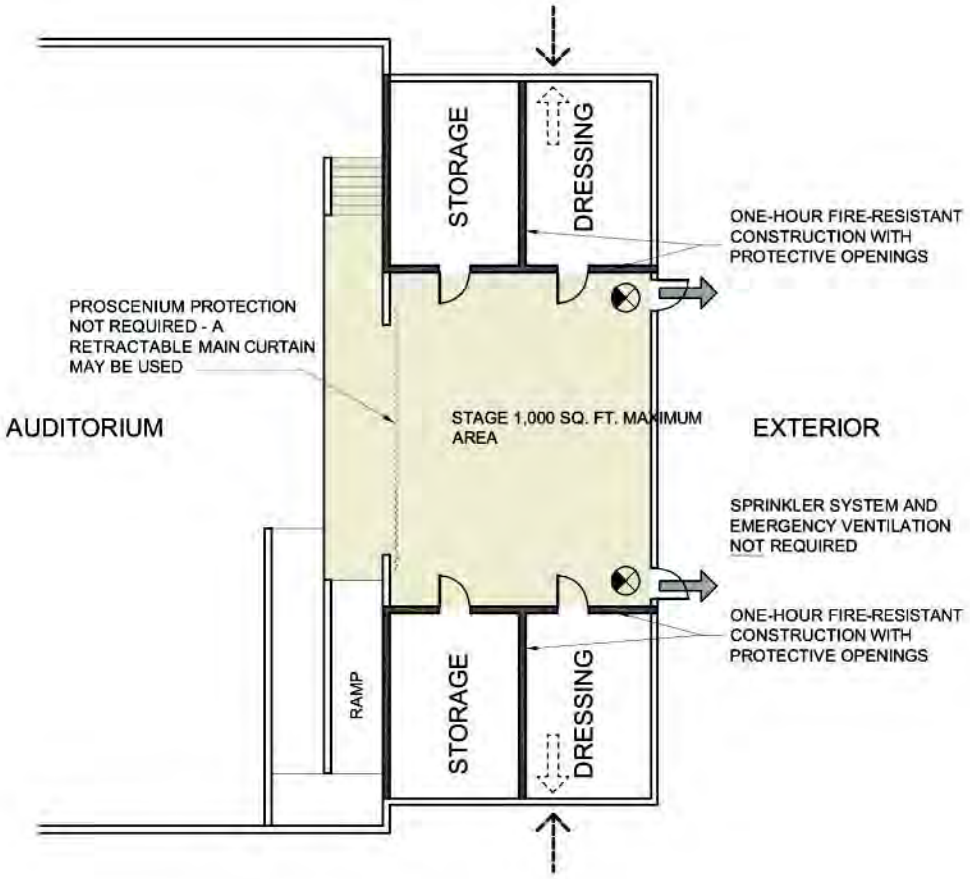
Legitimate Stage (Stages Over 1,000 Sq. Ft. in Area and with a Stage Height Greater Than 50 Ft.)		
Stage Areas		**Code Reference**
Protection	The minimum type of construction for a stage shall be as required for the building as determined by the occupancy, area, and height, except that the floor finish may be of wood in all types of construction. All portions of a stage area with a stage height greater than 50 feet (15.2 mm) shall be within an area separated from all other building areas by 2-hour fire-resistant construction with protected openings. The 2-hour fire-resistant construction shall extend to the roof or floor deck above the auditorium. Stage shall be protected by a supervised automatic sprinkler system. Hose connections or stand-pipes shall be provided at each side of stage.	FBC 410.3
Ventilators	Emergency ventilation shall be provided by one or a combination of the following methods: Smoke Control: Maintain smoke level not less than 6 feet above the highest level of assembly seating or above the top of the proscenium opening where a proscenium wall and opening protection is provided. Activation by sprinkler system and by a manually operated switch. Roof Vents: Two or more vents located near the center of and above the highest part of the stage. Net-free vent area equal to 5% of stage area. Vents raised above the roof. Open automatically by heat-activated devices and manually from stage floor.	FBC 410.3.7
Egress	Two means of egress required, with one means of egress located on each side of the stage. A second means of egress is not required from lighting and access catwalks, galleries, and gridirons where a means of escape to the floor or a roof is provided.	FBC 410.5.3 FFPC 12.2.4.8
Proscenium Wall	Stages shall be completely separated from the seating area by a proscenium wall of not less than 2-hour fire-resistive, noncombustible construction.	FBC 410.3.4 FFPC 12.4.5.6
Proscenium Curtain	The proscenium opening shall be protected and an approved fire curtain or an approved water curtain complying with NFPA 13. The fire curtain or water curtain shall be designed to close automatically upon automatic detection of a fire and upon manual activation. The fire curtain shall resist the passage of flame and smoke for 20 minutes between the stage area and the audience area.	FBC 410.3.5 FFPC 12.4.5.7
Accessory Areas	Accessory spaces contiguous to stages shall be separated from each other and other building areas by 2-hour fire-resistant construction protected openings and shall be protected by a supervised automatic sprinkler system.	FBC 410.5.1



Plan Diagram

LEGITIMATE STAGE
(STAGES OVER 1,000 SQ. FT OR WITH A STAGE HEIGHT GREATER THAN 50 FT.)

Regular Stage (Stage 1,000 Sq. Ft. Maximum Area and with a Stage Height of 50 Ft. maximum)		
		Code Reference
Stage Areas	Stage shall be of the material required for the types of building construction in which it is located. Floor finish may be made of wood. Proscenium opening protection is not required. Separated from accessory spaces by 1-hour fire-resistant construction with protected openings. Sprinkler system is not required. Emergency ventilation is not required.	FBC 410.3 FBC 410.4 FBC 410.6 FFPC 12.4.5.3.1 FFPC 12.4.5.10.2
Accessory Areas	Dressing rooms, workshops, storerooms, and other accessory spaces contiguous to stages shall be separated from each other and the stage by 1-hour fire-resistant construction and protected openings. Walls shall extend tight to the roof deck.	FBC 410.5.1 FBC 410.5.2

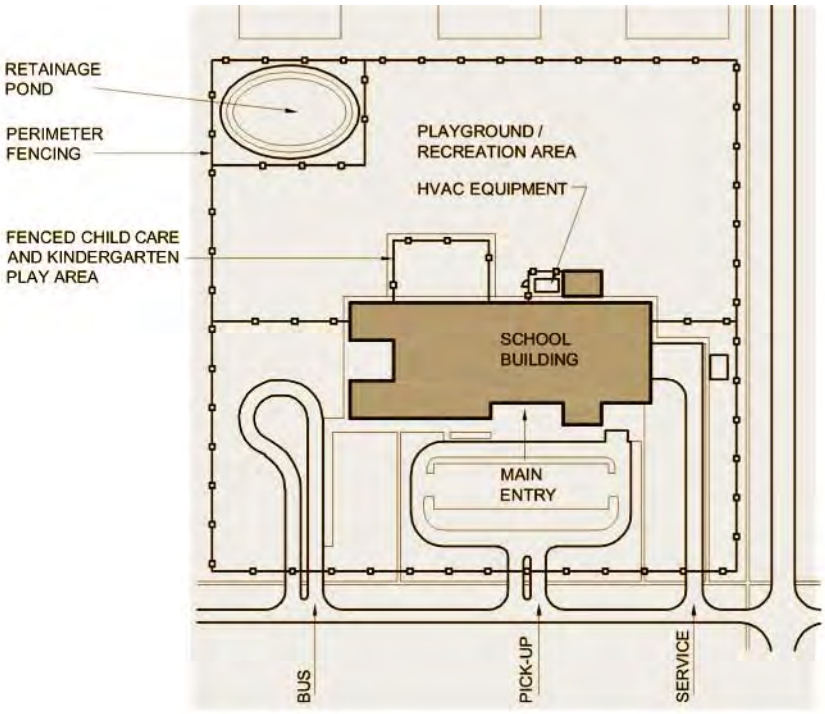


(a)
Plan Diagram

STAGES 1,000 SQ. FT. MAXIMUM AREA OR WITH A STAGE HEIGHT OF 50 FT. MAXIMUM (REGULAR STAGE)
Building is not sprinklered

Site Requirements		
		Code Reference
Fencing	**Required Locations** Pre-kindergarten through grade 12 facilities: Exposed mechanical, plumbing, gas, or electrical equipment located on ground level. All child care and kindergarten play areas. Pre-kindergarten through grade 5 facilities: Special hazard as identified by the authority having jurisdiction including: Retention ponds with permanent water depth or water depth over a 24-hour period exceeding 1 foot. Deep drainage ditches. Canals. Highway. Play fields adjacent to roadways. **Materials** Materials that are non-flammable, safe, durable, and low-maintenance, and that provide structural integrity, strength and aesthetics appropriate for the intended location. **Prohibited materials** Non-agricultural educational plants. Razor wire, barbed wire, and electrically charged systems. **Height** Shall be in compliance with local zoning regulations. Access shall be provided for maintenance machinery.	FBC 423.10.1 FBC 423.10.1.1 FBC 423.10.1.1.1 FBC 423.10.1.1.2 FBC 423.10.1.1.3
Paving	**Required Locations** Walks, roads, drives, and parking areas on educational and ancillary sites. **Materials** Roads, drives, and parking areas shall be in compliance with Department of Transportation (DOT) road specifications and striped in compliance with DOT paint specifications. All paved areas shall have positive drainage.	FBC 423.10.2
Drainage	Soil, grass, and planting beds shall provide positive drainage away from sidewalks. Maximum 3% gradient slope for a minimum distance of 5 feet from the edge of the sidewalk. The location of all drains, grates, drop inlets, catch basins, and other drainage elements and curb cuts shall be out of the main flow of pedestrian traffic.	FBC 423.10.2.3

(continue to next page)

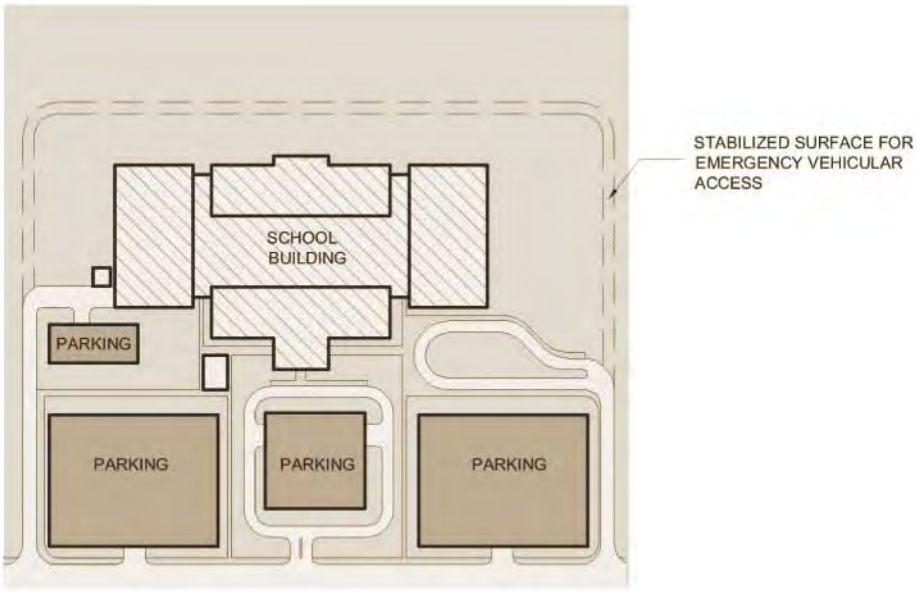


(a)
Example perimeter fencing with limited access points

(b)
Example fencing for exposed mechanical equipment located at ground level

SITE REQUIREMENTS

Site Requirements (continued)		
		Code Reference
Accessible Walk and Bridges	**Required Locations** Accessible walks shall connect building entrances(s) to all: Accessible parking. Public transportation stops. Public streets. Sidewalks. Loading and drop-off zones. Other facilities within the site as required by the accessibility standard. School board sites where educational plants are separated by highways shall be connected by overhead pedestrian bridges.	FBC 423.10.2.2
Covered Walks	**Required Locations** All buildings in pre-K through grade 12 educational facilities shall be connected by paved walks and accessible under continuous roof cover. Long-term relocatable classroom buildings shall be connected to permanent building by paved covered walks where applicable. Roofs for covered walks shall extend one foot beyond each side of the designated walkway width. Gutters or other water funneling devices, including diverters, shall prevent storm water from pouring onto or draining across walks.	FBC 423.10.2.1
Protection for Vertical Drops	**Required Locations** Any vertical drop between joining or abutting surface of more than 6 inches, but less than 18 inches in height: Protected by wall, railing, or other physical barriers that are at least a minimum 12 inches in height. Vertical drop of 18 inches or more: Protected by a wall or guardrail a minimum of 42 inches in height.	FBC 423.10.2.4
Roads and Streets	Primary and emergency access required. Paved driveways shall not encircle a school plant. Vehicular and pedestrian traffic shall not cross on site. Bus driveways and parent pickup areas shall be separated.	FBC 423.10.2.5
Bus Drives	**Dimensional Requirements** Minimum width shall be 24 feet for two-lane traffic. Turning radius: Educational and ancillary sites and for turning off public access streets: One-way traffic: 60 feet minimum measured to the outside curb or edge of the traffic lane. Two-way traffic: 60 feet minimum measured to the centerline of the road. Bus drives shall be designed so that buses do not have to back up.	FBC 423.10.2.6



(a)
Site Plan Schematic
Vehicular Circulation Diagram

(b)
Example covered walkway

SITE REQUIREMENTS

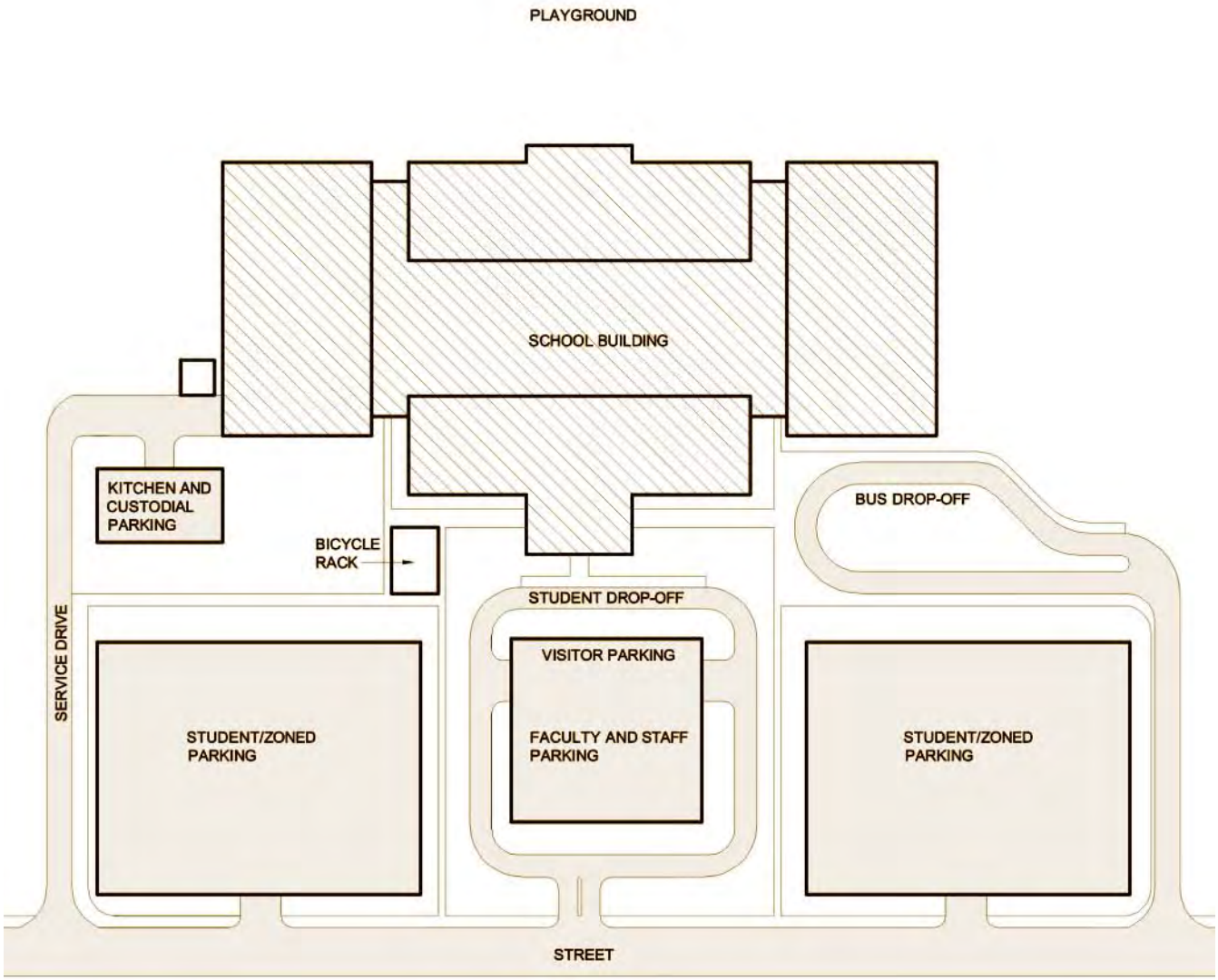
Minimum Parking Requirements		
Group	**Parking Required**	**Code Reference**
Faculty and Staff	1 Space for each member.	FBC 423.10.2.8.1
Visitors	1 Space for every 100 students.	FBC 423.10.2.8.2
Community Clinics	10 Spaces including 1 accessible space.	FBC 423.10.2.8.3
High Schools	1 Space for every 10 students in grades 11 and 12.	FBC 423.10.2.8.4
Vocational Schools	1 Space for every 2 students.	FBC 423.10.2.8.5
Florida Colleges	1 Space for every 2 students.	FBC 423.10.2.8.6
Accessible Parking	Parking spaces designed for persons with disabilities shall comply with ADA, Chapter 11, Florida Building Code, Building, and Section 316.1955, F.S.	FBC 423.10.2.8.7

Vehicle parking areas shall comply with minimum parking space requirements. FBC Section 423.10.2.7.

Except for parking space requirements to meet federal and state accessibility laws, where alternate transportation or parking arrangements are available, the parking area requirements may be reduced from these standards, if sufficient justification documentation is provided and if the review authority approved the reduction based on the justification. FBC Section 423.10.2.7.

Overflow parking areas may utilize alternative parking surfaces that facilitate water absorption rather than runoff, when approved for use by the review authority. This requirement usually applies to a percentage of the parking spaces, not all of them. FBC Section 423.10.2.7.

Exception: Accessible parking spaces shall be hard-surfaced.



(a)
Site Plan / Parking Schematic

SITE REQUIREMENTS

<table>
<tr><th colspan="4">Site Lighting Requirements</th></tr>
<tr><td>Security Lighting Educational and Ancillary Facilities</td><td colspan="2">Required Locations:
Auto, bus, service drives, and loading areas.
Parking areas.
Building perimeter.
Covered and connecter walks between buildings and between buildings and parking.</td><td>Code Reference
FBC 423.10.3
FBC 423.10.3.1
FBC 423.10.3.2
FBC 423.10.3.3
FBC 423.10.3.4</td></tr>
<tr><td colspan="4">Illumination Requirements</td></tr>
<tr><td rowspan="4">Parking Areas</td><td>Location</td><td>Average Maintained Footcandle *</td><td rowspan="7">FBC 423.10.3.5.1
FBC 423.10.3.5.2
FBC 423.10.3.5.3
FBC 423.10.3.6.1
FBC 423.10.3.6.2</td></tr>
<tr><td>Parking Areas.</td><td>1</td></tr>
<tr><td>Covered and Connector Walks.</td><td>1</td></tr>
<tr><td>Entrance/Exits.</td><td>2</td></tr>
<tr><td rowspan="3">Building Exteriors</td><td>Location</td><td>Minimum Footcandle *</td></tr>
<tr><td>Building Entrances.</td><td>5</td></tr>
<tr><td>Building Surrounds.</td><td>1</td></tr>
</table>

Parking area lighting standards shall be designed to withstand appropriate wind loads. FBC Section 423.10.3.5.

*Parking areas shall be illuminated to an average maintained horizontal footcandles measured at the surface. FBC Section 423.10.3.5.

**Building exteriors, perimeters, and entrance may be illuminated to the minimum number of footcandles, measured at the surface with a suggested uniformity ratio of 2:1. FBC Section 423.10.3.6.

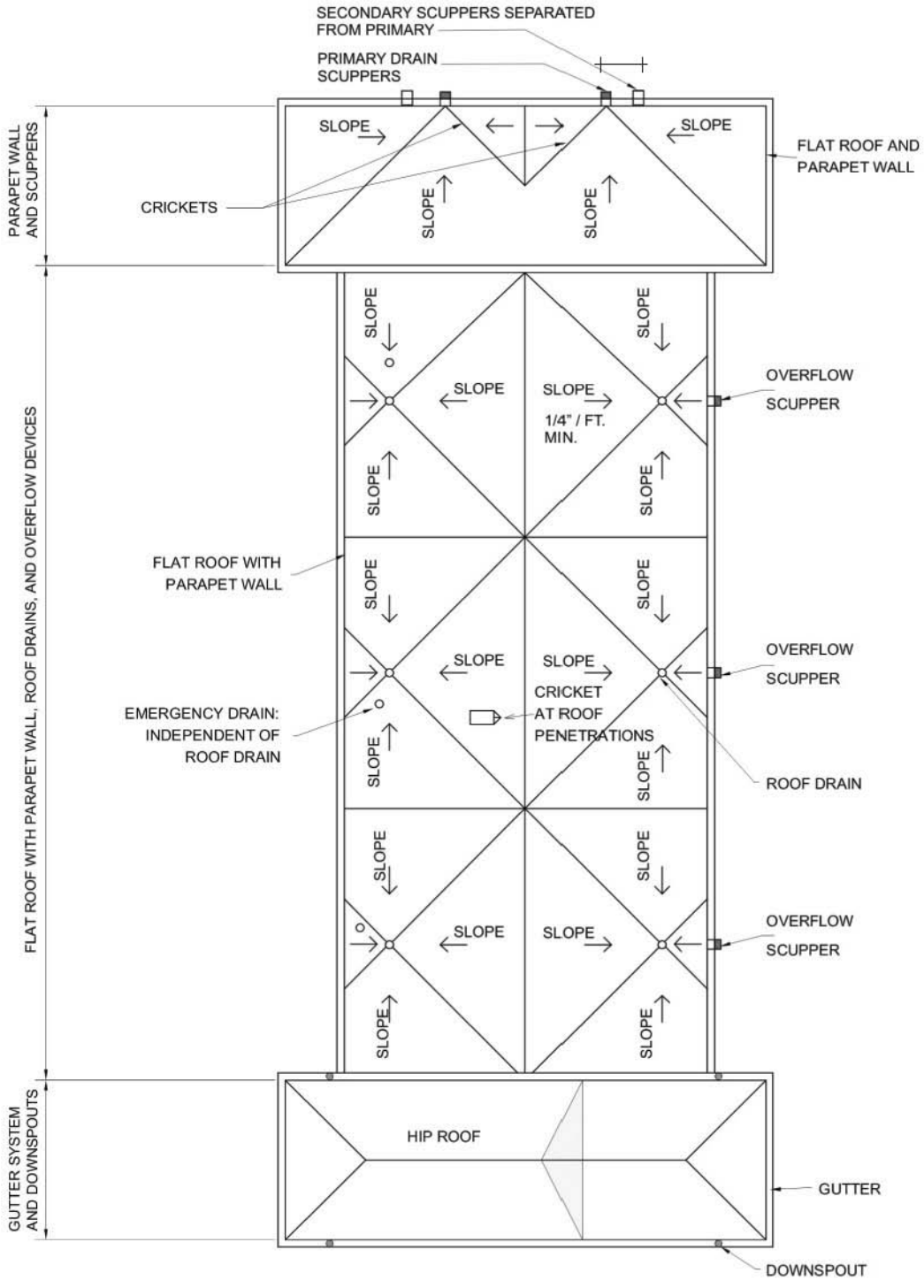
Exterior lighting shall be shielded from adjacent properties. FBC Section 423.10.3.7.

Exterior lights shall comply with the energy efficiency requirements of FBE 13-415 as appropriate.

(a)
Example Lighting Parking Area

SITE LIGHTING REQUIREMENTS

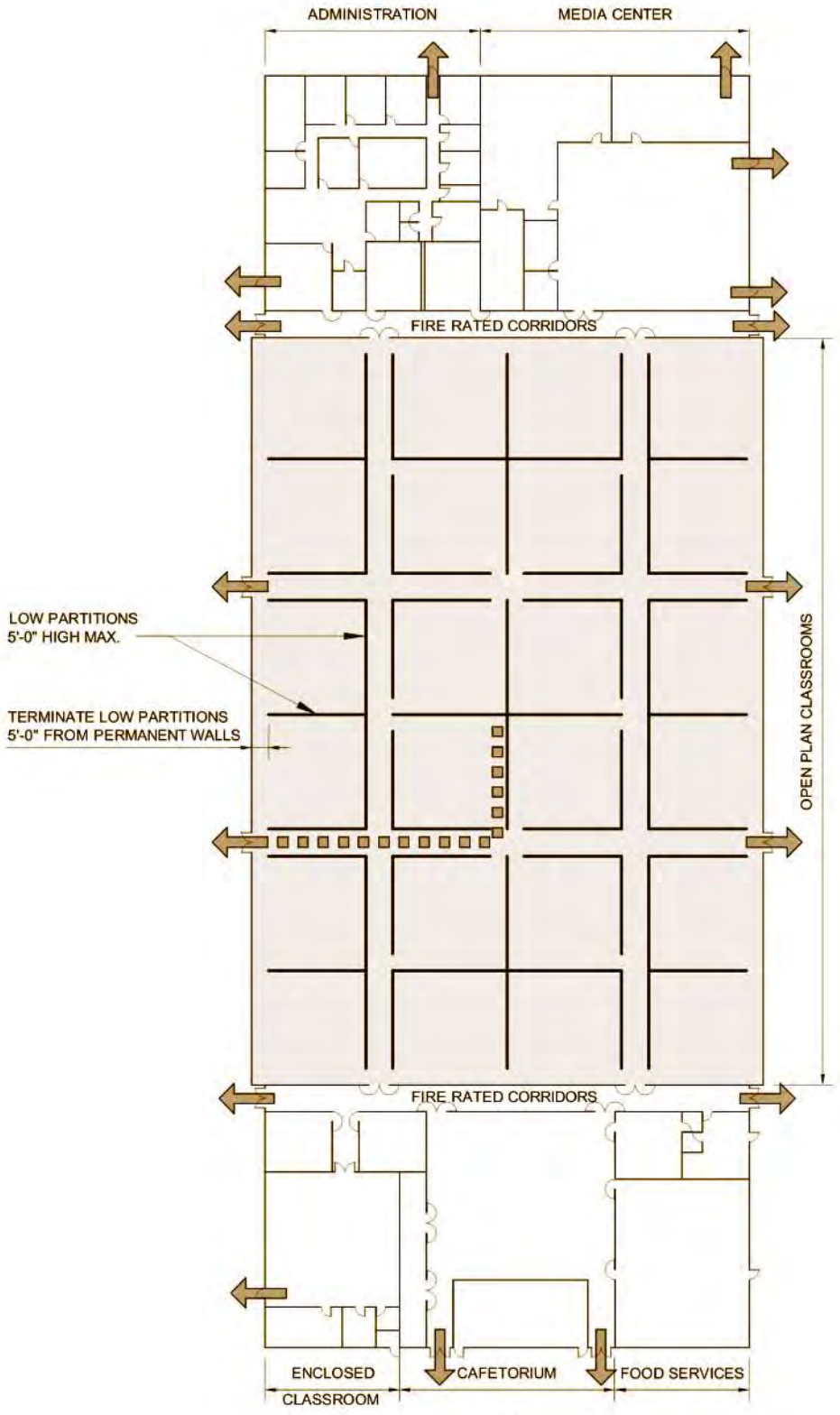
ROOFING MEMBRANE AND DRAINAGE Built-up and Single-Ply Membrane			
			Code Reference
Fire Rating	Class A by ASTM E-108, FBC Section 423.12.1. Certified by a nationally recognized testing laboratory. Excludes nailers and blocking.		ASTM E-108 FBC 423.12.1
ASTM	Roofing materials		FBC 1507.10.2 FBC 1507.11.2 FBC 1507.12.2 FBC 1507.13.2
Wind Uplift	Roofing membrane shall resist wind uplift forces as follows:		
		Non-hurricane shelters: ASCE 7-10, wind speed per FBC Figure 1609.	ASCE 7-10 FBC Figure 1609
		Hurricane Shelters:	
		Recommend: ASCE 7-10, wind speed per FBC Figure 1609 plus 40 mph.	ASCE 7-10 FBC Figure 1609
		Minimum: ASCE 7-10, wind speed per FBC Figure 1609.	ASCE 7-10 FBC Figure 1609
Cross Slope	New construction: All finished roof surfaces shall have a minimum cross slope of 1/4 inch per foot, except coal-tar built-up roofs shall have a minimum cross slope of 1/8 inch per foot.		FBC 1507.10.1
	Re-roofing: All finished roof surfaces shall have positive drainage or a minimum cross slope of 1/4 inch per foot.		FBC 1510.1
Warranty	Specification should provide a manufacturer's warranty against defects in materials and workmanship.		
Installation	Should follow manufacturer's printed instructions.		
Moisture Intrusion	All new installed materials shall be sealed from moisture intrusion at the end of the day.		FBC 423.12.3
Phased Construction	Not permitted		FBC 423.12.3
Primary Drainage	A primary drainage system shall be provided, sized per FBC-Plumbing, Section 1106, Tables 1106.2(1), 1106, 2(2), 1106.3, and Figure 1106.1.		FBC-P 1106
Secondary Drainage	A secondary drainage system shall be provided when roof perimeter construction (Parapets) extends above roof deck so that water is entrapped if primary drains clog.		FBC-P 1107
		Separate from the primary system.	FBC-P1107.2
		Sized per FBC-Plumbing, Section 1107.3. Values obtained from Tables 1106.2(1), 1106.2 (2), 1106.3, and Figure 1106.1	FBC-P 1107.3 FBC-P 1106.1
		Minimum cross-sectional area of an overflow scupper to have a minimum dimension of 4 inches.	FBC-P 1107.3
Overflow Scuppers	Scuppers shall be set at least 2 inches above adjacent deck and not more than 4 inches above the roof covering. (Prevent ponding water from exceeding design depth.)		FBC 1503.4.2.1
Overflow Pipes	Overflow pipes shall be set at least 2 inches and not more than 4 inches above the roof covering. (Prevent ponding water from exceeding design depth.)		FBC 1503.4.2.1
Energy Efficiency	Requires completed FLA/COM compliance form. This shall indicate compliance with Florida Energy Efficiency Code (FEEC) for Building Construction.		FBC 1301.1.1
Final Statement of Compliance	The Contractor shall provide a "Final Statement of Compliance" to the Architect, which states that the finished roof membrane complies with the approved contractual documents. FBC Section 423.12.3.		FBC 423.12.3
Inspection by Manufacturer	The roof membrane shall be inspected by the manufacturer's representative within one year of acceptance of the roof membrane by the Board. FBC Section 423.12.4.		FBC 423.12.4
Rooftop Equipment	Lateral and uplift forces on rooftop equipment.		FBC 1620.6



(a)
Schematic Roofing Plan

ROOF SLOPES AND DRAINAGE

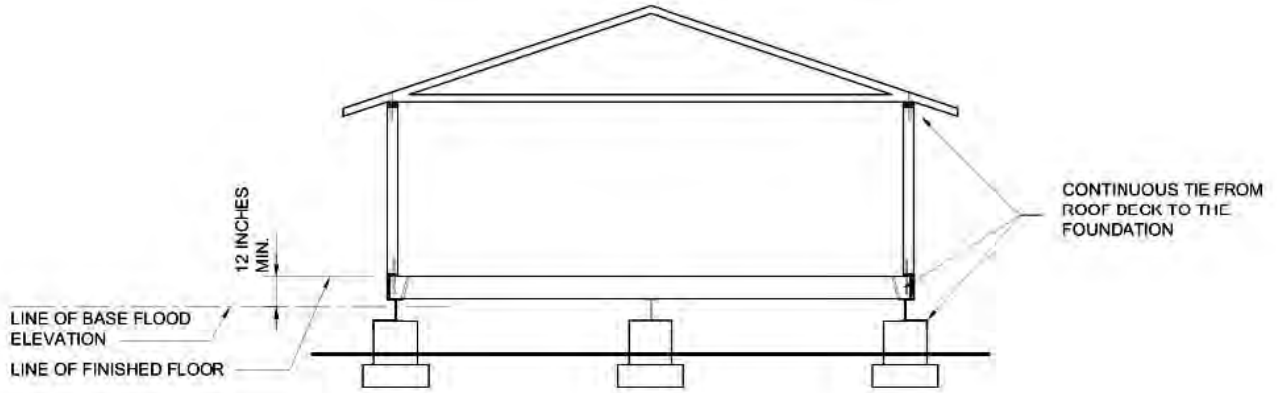
Open Plan Classrooms Group E Educational Occupancy Open Plan Area			
			Code Reference
Partitions	Low height, maximum 5 feet high. Terminate 5 feet from any permanent partition or wall. Circulation openings 5 feet wide minimum.		FBC 423.24
Egress	Each room occupied by more than 300 people shall have 2 or more means of egress entering into separate atmospheres. Where 3 or more means of egress are required, the number of means of egress permitted to enter into the same atmosphere shall not exceed 2.		FFPC 14.4.3.1 FFPC 14.4.3.1.2 FFPC 14.4.3.1.3
Interior Finishes	Unsprinklered Building	Sprinklered Building	FBC Table 803.9
	Class 'B' throughout	Class 'C'	
	Class 'C' for 5-foot high partitions		
Travel Distance	150 feet	200 feet	FBC Table 1016.1
Access Openings for Fire Department Use	Such windows shall be accessible by the fire department and shall open into an area having access to a public way.		FFPC 14.2.11.1(4)



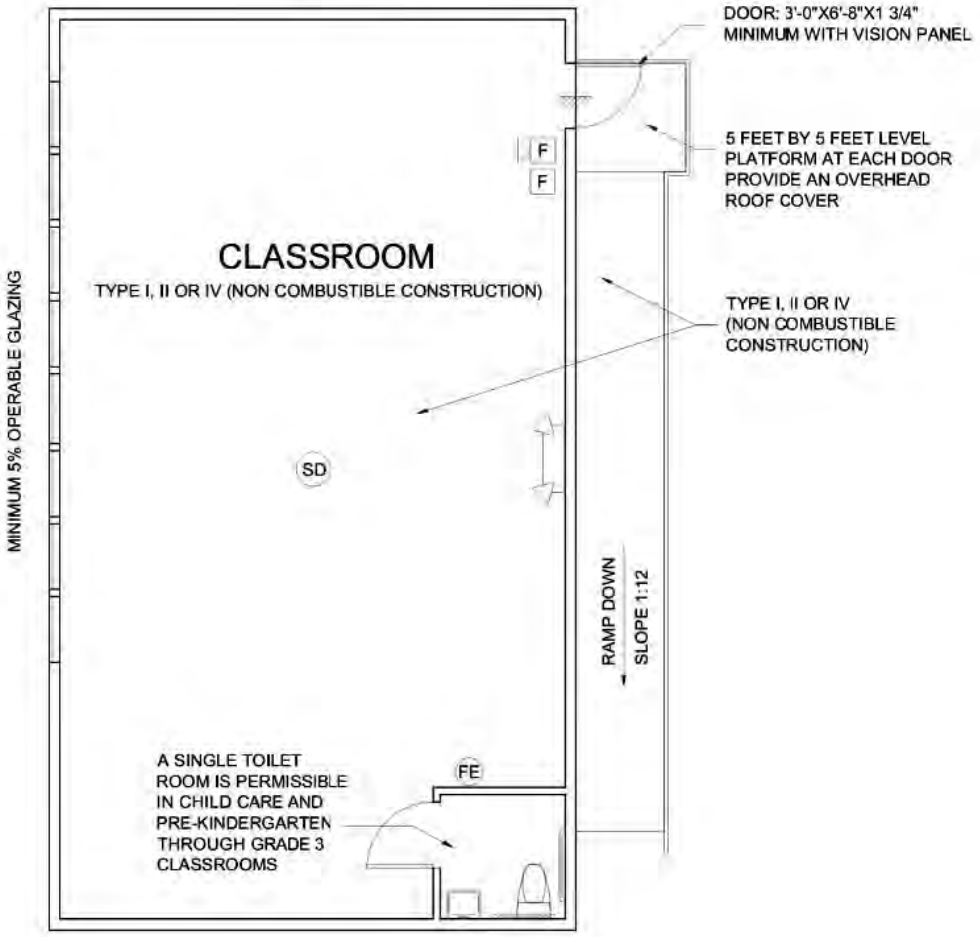
(a)
Plan Diagram

OPEN PLAN CLASSROOMS

Relocatables for Classroom Use		
		Code Reference
Construction	**Type I, II or IV (non-combustible)** Shall comply with: Americans with Disabilities Act, Florida Building Code. Use at facilities housing pre-K through grades 5 or 6, shall also conform to the federal criteria "Accessibility Standards for Children's Environments." Finished floor shall be 12 Inches above base flood elevation. Anchored to resist buoyant forces.	FBC 423.27.3 FBC 423.27.4 FBC 423.27.5.1 FBC 423.27.2.1
Accessible Covered Walks	Required from exit door to core facilities.	FBC 423.27.5.2
Doors	**Exit Doors** Shall swing in the direction of exit travel. **Classroom Locksets** Locksets that are readily opened from the side from which egress is to be made at all times, a threshold, heavy-duty hinges, and closer to control door closing. Each door shall have a view panel. **View Panel** Minimum 8 Inches by 42 inches and maximum 1,296 square inches. 1/4 inch tempered or safety glass installed with the bottom edge of the panel at 30 inches AFF. Exterior doors shall open on to a minimum 5-foot by 5-foot roofed platform with handrails, which is level with the interior floor.	FBC 423.27.8 FBC 423.27.8.1 FBC 423.27.8.2
Windows	Operable windows equal to at least 5 percent of the floor area of the unit. Exterior doors may be included in computing the required 5 percent. Awning, casement, or projection windows shall not be placed in walls with adjacent walks, ramps, steps, or platforms. Emergency rescue window shall comply with NFPA 101, and shall be labeled "EMERGENCY RESCUE - KEEP AREA CLEAR."	FBC 423.27.9 FBC 423.27.9.1
Fire Extinguisher	At least one appropriate fire extinguisher shall be provided in each relocatable classroom unit and in each classroom of a multi-classroom building.	FBC 423.27.11
Illumination	Provide an average maintained 50 footcandles at desk top.	FBC 423.27.15
Emergency Lighting	Each classroom unit shall be equipped with emergency lighting.	FBC 423.27.15.1
Exterior Lighting	Exterior lighting shall be provided as required elsewhere in these public educational facilities code requirements.	FBC 423.27.15.2
Lighted Signs	Exit lights shall be provided as required by the Florida Fire Prevention Code adopted by the State Fire Marshal.	FBC 423.27.15.3
Fire Safety Requirements	New relocatables shall be provided with fire alarm devices meeting the code requirements for permanent educational facilities and shall be connected to the facility's main fire alarm system as required by code.	FBC 423.27.18



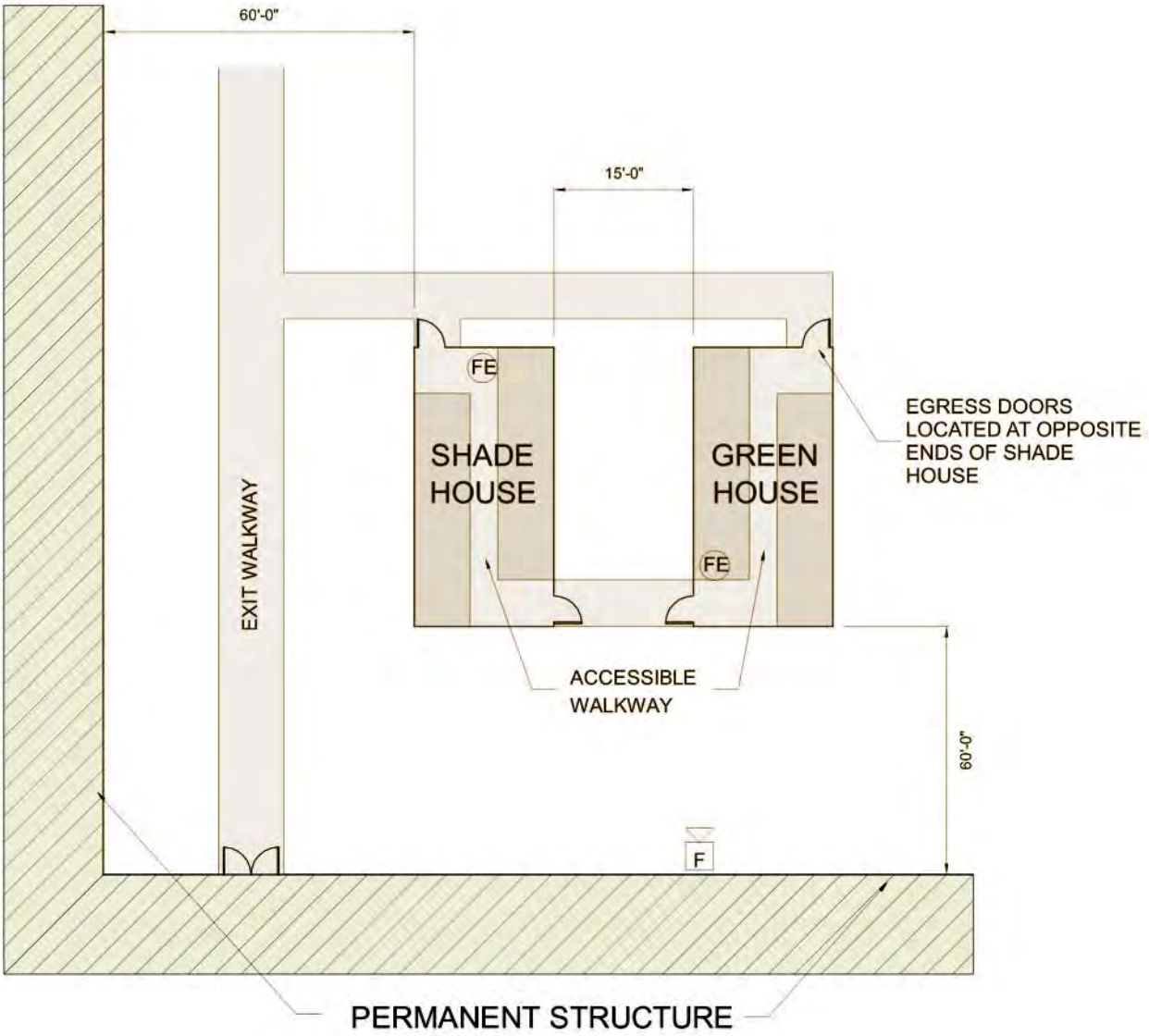
(a)
Section



(b)
Plan

RELOCATABLES

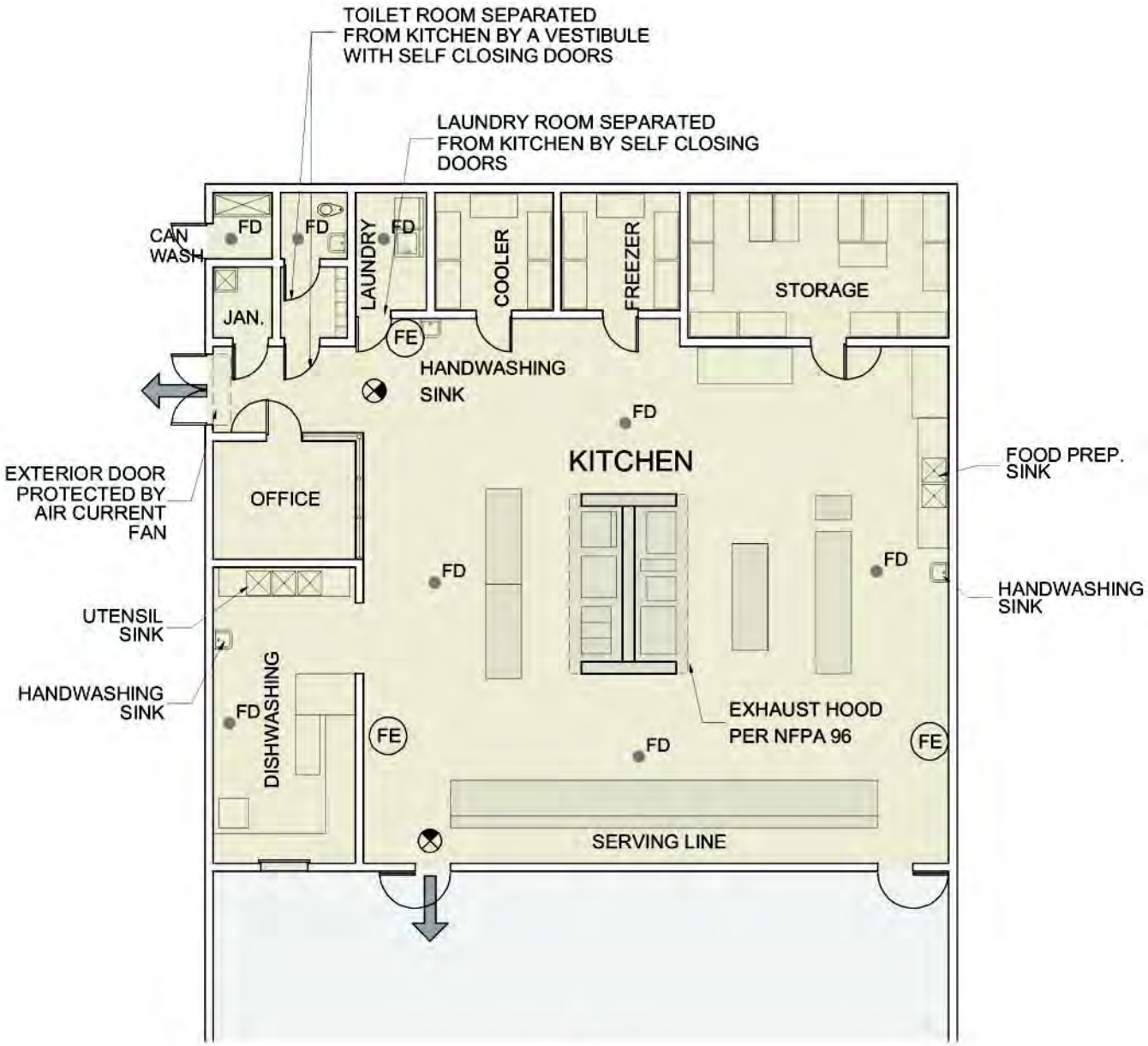
Shade and Green House		
		Code Reference
Construction	Type I, II or IV Construction (metal frame) capable of withstanding the appropriate wind load.	FBC 423.19.1
Location	The location of the shade/green house shall not hinder exiting from new and/or existing structures.	FBC 423.19.2
Egress	A minimum of two doors remotely located shall be provided. Doors shall be side-hinged and shall swing in the direction of egress.	FBC 423.19.3
Accessibility	Green houses shall meet accessibility requirements. The accessible walkway shall be connected to doors leading to an accessible route to the permanent structure.	FBC 423.19.4
Shade Cloth	Shade cloth shall be tear-away fabric securely fastened to the structural frame.	FBC 423.19.5
Fire Extinguisher	A minimum of one Type 2A-10B C fire extinguisher shall be provided per shade/green house.	FBC 423.19.6
Fire Safety Requirements	Fire alarm pull stations shall be located within 200 feet of any shade or green house. Fire alarm horns mounted on a permanent building must be audible inside the shade/green house.	FBC 423.19.7
Space Heaters	Space heaters, when provided, shall be mounted at least 6 feet 8 inches above finished floor (AFF).	FBC 423.19.8



(a)
Plan Diagram

SHADE/GREEN HOUSES

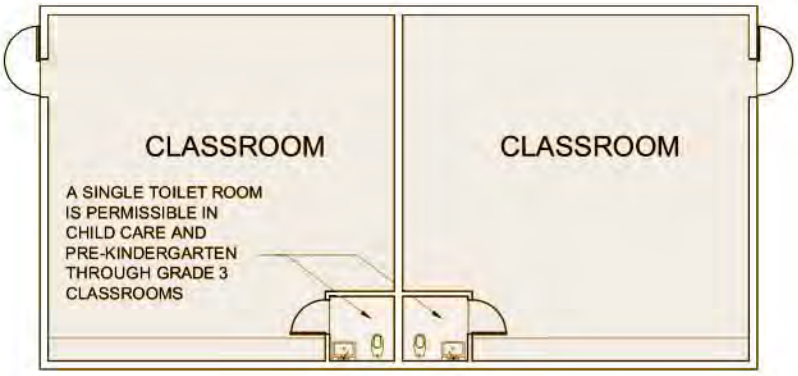
Kitchen and Food Services		
		Code Reference
General	Kitchen and food service areas shall comply with design and construction standards as described in the Food Code, Chapter 509, part I, or Chapter 500, Florida Statutes. Other administrative and programmatic provisions may apply.	FBC 426.1
Toilet and Hand-washing Facilities	Kitchens and food service areas shall be provided with toilet and hand-washing facilities for employees as required by the Florida Building Code, state rules, and state statutes. Toilet rooms shall be completely enclosed and have self-closing doors and shall open into vestibules with self-closing doors. Toilet rooms shall not open directly into food preparation areas, serving areas, or dining areas. A minimum of one water closet and one lavatory, with hot and cold water, shall be provided in each staff toilet.	FBC 423.16.10 FBC 423.16.10.1
Floor Drains	Floor drains shall be provided in the food serving area, kitchen area, scullery, garbage and rubbish rooms and can wash area.	FBC 423.16.10.2
Vermin Control	All areas shall be effectively rodentproofed. Windows used for ventilation must be screened, except when other effective means of vermin control are used. Screening materials shall not be less than 16 mesh to the inch or equivalent, tight fitting, and free of breaks.	FBC 426.3.3 FBC 443.3.1
NFPA 96 Requirements	NFPA 96 provides the minimum fire safety requirements related to the design, installation, operation, inspection and maintenance of all cooking operations. These requirements include, but are not limited to, all manner of cooking equipment, exhaust hood, grease removal devices, exhaust duct work, exhaust fans, dampers, fire extinguishing equipment, and all other auxiliary or ancillary components or systems that are involved in the capture, containment, and control of grease-laden cooking effluent.	NFPA 96 1-1.1



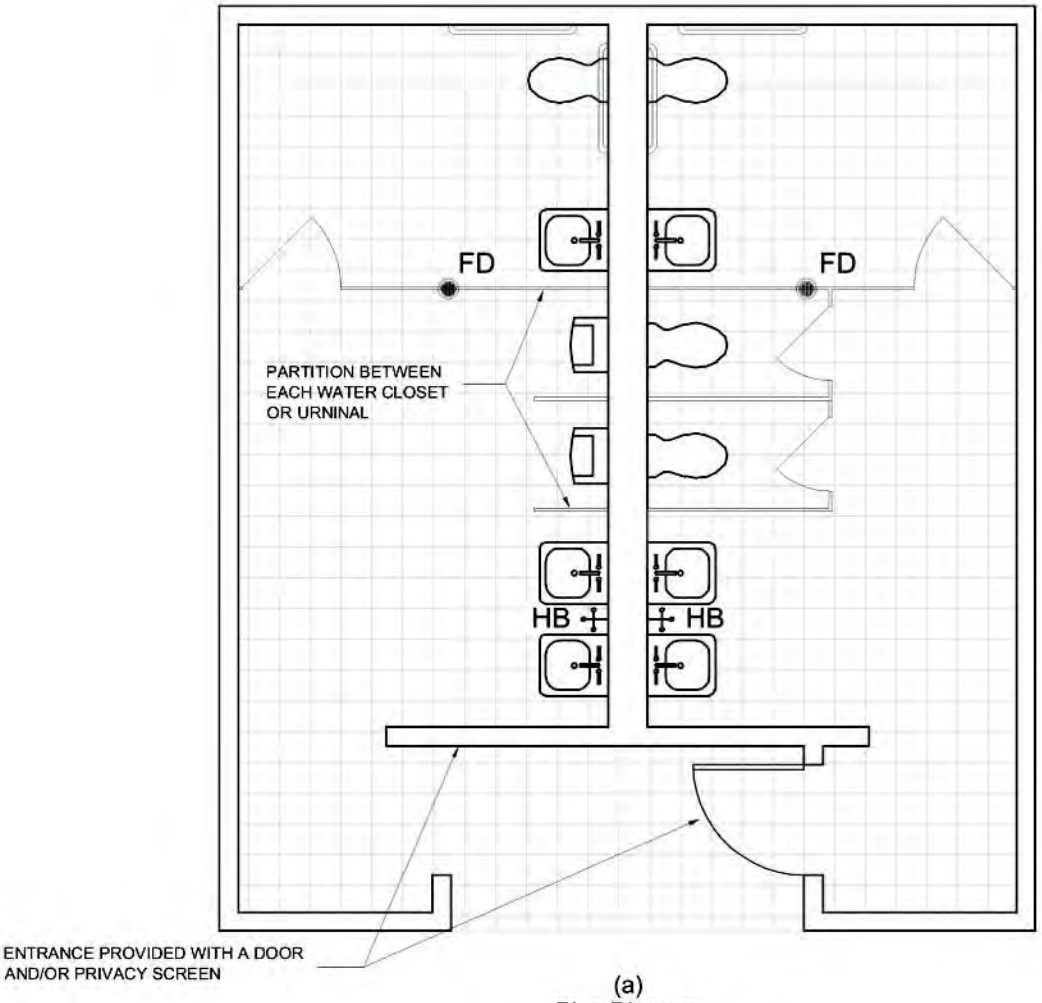
(a)
Plan Diagram

KITCHENS AND FOOD SERVICE

Toilet Rooms		
		Code Reference
Standards	Educational and ancillary facilities shall be provided with toilets, hand-washing facilities, and drinking fountains for all occupants, in rations and accessible as required by the Florida Building Code, Florida Law, and federal requirements. Exception: A single unisex toilet room is allowed where provided in child care and pre-kindergarten through grade 3 classrooms.	FBC 423.16.1 FBC 443.3.5
Teacher Toilets	Faculty and staff toilets shall be separate from student toilets.	FBC 423.16.2 FBC 443.3.5.2
Urinals	Trough urinals shall not be installed in any location.	FBC 423.16.4
Floor Drains and Hose Bibbs	All group toilet rooms shall be provided with at least one floor drain and one easily accessible hose bibb. The floor shall be sloped down to the drain. Stall urinals shall not serve as the required floor drains.	FBC 423.16.5 FBC 443.3.5.6
Shielding Device	The entry to each group toilet room shall be provided with a door, partition, or other shielding device to block from view the occupants in the toilet room. If a door is provided, it shall have a closer and shall swing out in the direction of exit. Exterior entries to toilet rooms shall have outward swinging doors.	FBC 423.16.6 FBC 443.3.5.4
Hot Water	When hot water is supplied to showers, handwash sinks, or lavatories in toilet rooms, a mixing valve shall be installed to control the temperature, which shall not exceed 110°F.	FBC 423.16.7 FBC 443.3.5.8.3
Delayed Closing Valves	Water supply at toilet room lavatories shall be controlled by delayed-closing valves.	FBC 423.16.8
Accessibility Requirements	All toilet rooms, including individual toilet rooms, shall be accessible to the disabled - ADA Title II requirement.	FBC 443.3.5.1
	Accessible requirements for children's environments for elementary grade students shall be utilized.	FBC 423.4.4 FBC 443.3.5.1
	Provide at least one of each type fixture accessible to the disabled in group toilets.	FBC 443.3.5.1 FBC 11-4.22.4 FBC 11-4.22.5 FBC 11-4.22.6
	One additional water closet in group toilets required to be accessible to the disabled when six or more fixtures provided.	FBC 443.3.5.1 FBC 11-4-22.4



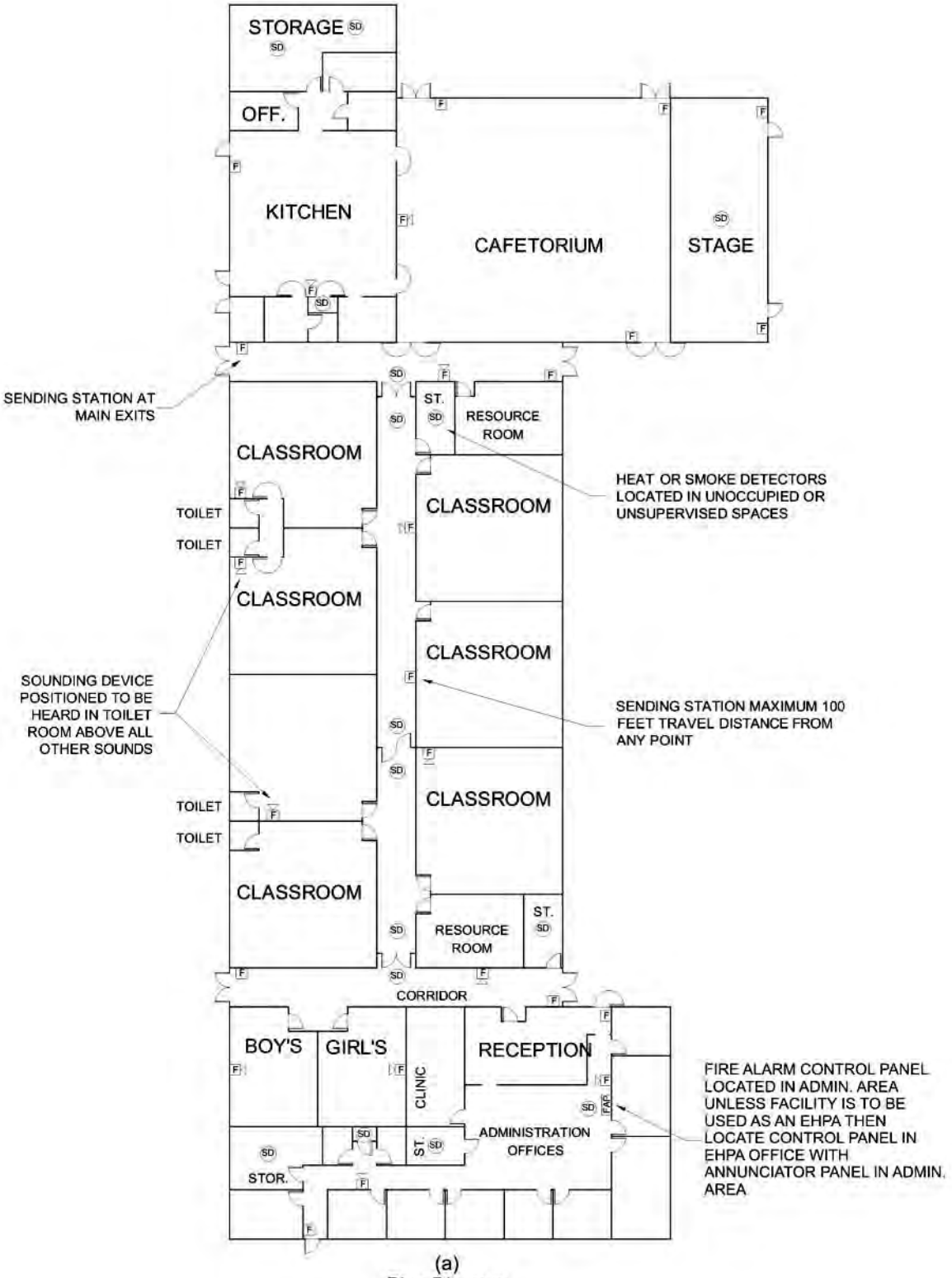
(a)
Toilet Rooms inside the Classroom



(a)
Plan Diagram

GROUP TOILETS

Fire Alarm		
		Code Reference
General Manual Fire Alarm Systems	All systems to be installed in educational facilities shall be in accordance with the 2010 Florida Fire Prevention Code and the National Fire Alarm Code NFPA 72 and shall meet the accessibility requirements of Chapter 11 of the Florida Building Code.	FBC 907.2
	Manual fire alarm pull stations shall be located no more than five (5) feet from the entrance to the exit. This includes each individual classroom that opens to the exterior. The exemption, under Section 907.2.1, Florida Building Code does not apply to educational facilities.	FBC 907.4.2.1
	Manual fire alarm pull stations may be omitted In a building provided it meets all of the exemptions listed in Section 903.3.1.1, Florida Building Code as clarified in the Florida Fire Prevention Code, Sections 14.3.4.2 and 15.3.4.2.	FBC 907.2.3 Exemption 3
Zoning	Each Floor shall be zoned separately. No one zone may exceed 15,000 sq. ft. A zone indicator panel shall be located at grade level, at the normal point of fire department access, or at a constantly attended building security control center.	FBC 907.6.3
Alarm Indicating Appliances	Visible alarm indicating appliances in public and common areas.	FBC 907.5.2.3.1
	Automatically activated by all the following where provided:	FBC 907.5
	Smoke detectors and heat detectors.	
	Sprinkler water-flow devices.	
	Manual fire alarm boxes.	FBC 907.6
	Other approved types of automatic fire-detection device suppression systems.	FBC 907.9.2 FBC Table 907.9.1.3
	Audible alarms:	
	Shall provide a distinctive sound that shall not be used for any other purpose.	FBC 907.5.2
	Sound pressure of 15 dbA above average ambient sound level in every occupied space within the building.	
	Minimum 60 dbA, maximum 130 dbA.	
	Visual:	FBC 11-4.28.3(4)
	Minimum candela level of 75 regardless of location.	
Automatic Fire Detection	Approved single-station or multi-station smoke detectors shall be installed in accordance with NFPA 72.	FBC 907.3
Testing	Upon completion of the fire alarm system, all alarm indicating devices and circuits, alarm indicating appliances and circuits, supervisory signal initiating devices and circuits, signaling line circuits, and primary and secondary power supplies shall be tested in accordance with the Florida Fire Prevention Code.	FBC 907.8



(a)
Plan Diagram

FIRE ALARM SYSTEMS

Example EHPA Design Square Footage and Capacity Calculations
219 Student Station Elementary School

Space	Net Square Footage		Student Stations
	Net Included Spaces	Net Excluded Spaces	
2 Kindergarten Classrooms	899		18
6 Primary Classrooms	5,094		108
4 Intermediate Classrooms	3,080		80
1 Music Room	1,456		
Related Spaces		325	
1 Art Classroom	1,036		
Related Spaces		365	
1 Skills Development Lab	986		
1 Physical Ed Area Storage		1,395	
2 Regular Resource	1,140		
1 ESE	1,190		13
1 Media Center			
Reading/Stacks			
Related	1,110		
Functions/Storage		1,080	
Group Projects	180		
Administration			
Administrative Offices	675		
Related Spaces/Storage		1,125	
Reception/Secretary	413		
Conference Room	450		
Toilets	120		
Food Service			
Dining student/Staff	1,320		
Kitchen related		1,380	
Stage	990		
Related Spaces		400	
Multipurpose			
Storage	930	60	
Other Storage Spaces		105	
Toilets	286		
Custodial		985	
TOTALS	**21,355 Net Included Spaces**	**7,220 Net Excluded Spaces**	**219 Student Stations**
	21,355 + 7,220 = 28,545 Net Square Feet		

Example EHPA Design Square Footage and Capacity Calculations
219 Student Station Elementary School

Notes:

To determine the square footage and capacity for the EHPA in accordance with FBC Section 423.25.3 the following is required:

The excluded spaces shall be subtracted from the total net square footage.

28,575 Total Net Square Feet
− 7,220 Total Net Square Feet Excluded Spaces

21,355 Total Adjusted Net Square Feet

50% of the Total Adjusted Net Square Feet determines the designated square footage requirement for use as an EHPA.

21,355 Total Adjusted Net Square Feet
X .50

10,677.5 ~ 10,677 Square Feet Designated for use as an EHPA

The capacity of an EHPA shall be calculated at 20 square feet per occupant.

10,677 / 20 = 533.85 ~ 534 occupants.

Toilet and hand-washing facilities should be located within the EHPAs and provided at one toilet and one sink per 40 occupants.

534 people / 40 = 13.35 ~ 14

14 Toilets Required, 7 female and 7 male (3 toilets and 4 urinals)
14 Sinks Required

Toilet facilities located within the EHPA area are not in addition to toilet facilities provided for the normal school usage.

EHPA - Electrical and Emergency Power Systems Standby Circuits.			
	Code Reference		
EHPA Emergency Power Loads	**Primary**	**First Priority**	**Second Priority**
Lighting	FBC 4233.25.5		
EHPA Fire Alarm System	FBC 423.25.5		
EHPA Main Office Receptacles	FBC 423.25.5.3		
Ventilation Fans	FBC 423.25.5 (minimum)		FBC 423.25.5.2 - additional requirements
Campus Fire Alarm System		FBC 423.25.5.2	
Campus Exit Lights (Illuminated)		FBC 423.25.5.2	
Campus Emergency Lights		FBC 423.25.5.2	
Intercom System			FBC 423.25.5.2
Campus Security Lighting			FBC 423.25.5.2
Additional Power Receptacles			FBC 423.25.5.2

Recommended Acreage								
Schools						**Florida State Colleges**		
FTE Student Capacity	Acreage Recommenced			Vo-Tech School		**FTE Student Capacity**	Acreage required	
	Elem	Mid/Jr	Sr High	FTE Student Capacity	Acreage Required		Main Campus	Separate Center
200-299	4					500-599	Minimum	40
300-399	5	6	7			600-699	100	42
400-499	6	7	9			700-799		44
500-599	7	8	11	500-549	20	800-899		46
600-699	8	9	13	510-599	21	900-999		48
700-799	9	10	15	600-649	22	1000-1099		50
800-899	10	11	17	650-699	23	1100-1199		52
900-999	11	12	19	700-749	24	1200-1299		54
1000-1099	12	13	21	750-799	25	1300-1399		56
1100-1199	13	14	22	800-849	26	1400-1499		58
1200-1299	14	15	23	850-899	27	1500-1599		60
1300-1399	15	16	24	900-949	28	1600-1699		62
1400-1499		17	25	950-999	29	1700-1799		64
1500-1599		18	26			1800-1899		66
1600-1699			27			1900-1999		68
1700-1799			28			2000-2099		70
1800-1899			29			2100-2199		72
1900-1999			30			2200-2299		74
2000-2099			31			2300-2399		76
2100-2199			32			2400-2499		78
2200-2299			33			2500-2599		80
2300-2399			34			2600-2699		82
2400-2499			35			2700-2799		84
2500-2599			36			2800-2899		86
						2900-2999		88
1 Acre for each additional 100 students						3000-3099		90
						3100-3199		92

FBC CHAPTER 16 - STRUCTURAL LOADS			
			Code Reference
Dead Loads	Actual weights of materials.		FBC 1606.1 ASCE 7-10 Tables C3-1 & C3-2
Partition Loads	Permanent: part of dead load.		FBC 1607.5
	Partitions not shown or likely to be shifted: 15 psf in addition to permanent loads.		
	Exceptions: when live load exceeds 80 psf, partitioning not required.		
Live Loads	Floor:		FBC 1607.3
		Uniform: FBC Table 1607.1. See Section 1607.9 for allowable reductions. Distribution: FBC Sections 1607.4 and 1607.10.	
		Concentrated: FBC Section 1607.4.	FBC 1607.4
		Interior wall loads: 5 psf minimum, applied perpendicular.	FBC 1607.13
		Truck and bus garages: FBC 1607.6, Table 1607.6.	FBC 1607.6
	Roof: FBC Section 1607.11.2. Reductions: FBC Section 1607.11.2.1.		FBC 1607.11.2
Rain Loads	Not more than uniform live load if roof is drained and scupper set properly. FBC 1503.4.2.1.		FBC 1611.1
Impact:			FBC 1607.8
Wind	ASCE 7-10 and commentary thereon:		
	Velocity:		
		Non-hurricane shelters: ASCE 7-10, Figure 26.5-1B.	
		Hurricane shelters containing EHPA.	ASCE 7-10
		Recommend: wind speed plus 40 mph.	
	Risk and Importance factors:		ASCE 7-10 Table 1.5-2
		Non-hurricane shelters: Risk category IV, 1 = 1.0.	ASCE 7-10
		Hurricane shelters containing EHPA: Risk category IV, 1 = 1.0.	ASCE 7-10
	Exposure: See FBC and IBC Section 1609.4 for definitions.		FBC 1609.4
	Directionality: 0.85 only when wind load is combined with other loads ASCE 7-10, Table 26. 6-1 and footnote.		ASCE 7-10
	Topography: See ASCE 7-10 Section 26.8.1, Section 26.8.2, K_{ZT} = 1.		ASCE 7-10
	Enclosed or partially enclosed building: ASCE 7-10, pages 241 and 242 definitions		ASCE 7-10 FBC 1609.2
	Coefficients:		
		Main wind force resisting systems: ASCE 7-10. Chapters 27-29.	ASCE 7-10
		Components and cladding: ASCE 7-10, Chapter 30; FBC Table 1609.6.2(2).	ASCE 7-10
		Internal pressure Coefficients: ASCE 7-10. Table 26.11-1. Enclosed building: plus/minus 0.18. Partially enclosed buildings; plus/minus 0.55.	ASCE 7-10
		Minimum :16.	ASCE 7-10, Section 28.4.4

(Continue to next page)

FBC CHAPTER 16 - STRUCTURAL LOADS (Continued)			
			Code Reference
Wind (Continued)		Combined force: FBC Sections 1605.2.1 and 1605.3.1, Load combinations.	FBC 1605.2.1 FBC 1605.3.1
		Structures other than buildings:	
		Round structures: ASCE 7-10, Figure 29.5-1.	ASCE 7-10
		Free-standing walls and solid signs; ASCE 7-10, Figure 29.4-1.	ASCE 7-10
		Open signs: ASCE 7-10, Figure 29.5-2.	ASCE 7-10
		Trussed towers: ASCE 7-10, Figure 29.5-3.	ASCE 7-10
	Missile impact; SSTD 12 for hurricane shelters, see FBC Section 423.25.4.		FBC 423.25.4
Deflections	FBC Sections 1604.3.1 through 1604.3.6; Table 1604.3.		FBC 1604.3
Special	Foundations and retaining wall; see FBC Table 1610.1; also geotechnical engineering report weights and lateral pressures.		
	Basement walls; if below grade, consider upward pressure of water.		
	Handrails and guards:		
		Concentration: 200 pounds at any point and in any direction, along top.	FBC 1607.7.1.1
		Uniform: 50 plf in any direction, at top.	FBC 1607.7.1
		Application: Not simultaneous.	FBC 1607.7.1.1
		Grab bars, shower seats, dressing room benches - 250 lbs. concentration.	FBC 1607.7.3
	Awnings and Canopies (fabric construction supported by lightweight rigid skeleton structure) - 5 psf.		FBC Table 1607.1
Wind-borne Debris **See Figure 1609B**	FBC Section 1609.1.2 applies to glass only, One of the following shall apply: Areas within 1 mile of coastal mean high water line, where the ultimate design wind speed is 130 mph or greater. Areas where the ultimate design wind speed is 140 mph or greater. Exception: Building designed as "partially enclosed." Missile impact resistance need not be considered in window design.		FBC 1609.2
High Velocity Hurricane Zones	General Deflection Volume Changes Minimum Loads Roof Live loads Roof Drainage Special Load Considerations Live Load Reductions Wind Loads Overturning Moment and Uplift Screen Enclosures Live Load Posted, Occupancy Limits Foundation Design Load Tests Impact Tests for Wind-borne Debris		FBC 1615 FBC 1616 FBC 1617 FBC 1618 FBC 1619 FBC1620 FBC 1621 FBC 1622 FBC 1623 FBC 1624 FBC 1625 FBC 1626

FBC CHAPTER 18 - SOILS AND FOUNDATIONS		
		Code Reference
Soils Report	Soil brings representative of footprint Soil profile Ground water level Plasticity index Expansion index Standard penetration testing or cone penetration testing	FBC 1803 FBC 1803.6
Soil Containment	See geotechnical report. Usually 18 inches minimum, except for pre-engineered, prefabricated buildings.	
Allowable Bearing Pressure	FBC Table 1806.2 for maximum values. Exceptions: See geotechnical report.	FBC 1806.2
Lateral Sliding Resistance	FBC Table 1806.2 Exceptions: See soils report Increase: FBC Sections 1806.3.3, 1806.3.4.	FBC 1806.3
Differential Settlement	See geotechnical report; usually ½ inch maximum.	
Type of Soil	Acceptable for Foundation: Natural geotechnical compacted Compacted fill.	FBC 1804.5
Problem Soils	Expansive geotechnical, plastic clays: Shrink-swell potential, over-excavate. Also see geotechnical report.	FBC 1805.2.5 FBC 1805.8
Water Table	Allowable bearing pressure Affects placement of foundation concrete if high. See Geotechnical report. Located above finished floor; waterproofing required	FBC 1803.5.4 FBC 1805.1, 1805.3 FBC 1807.2.2
Continuous Wall or Strip Footing Only	Not affected by differential settlement.	
Spread Footings and Continuous Footings	See geotechnical report for recommended depth of soil compaction.	
Footing Design	Method of load calculation: See FBC Section 1808.3.	FBC 1808.3
	Width of Footing: 12 inches minimum.	FBC 1809.4
	Concrete design: See FBC Chapter 19 and ACI 318-10, Chapter 15.	FBC Chapter 19 ACI 318-10
Footing Concrete Strength	FBC Table 1808.1, 2500 psi minimum.	FBC Table 1808.1
Retaining Walls		FBC 1807
Pile Foundations	See geotechnical report.	FBC 1810.1.1
	Lateral Support	FBC 18110.2.1 and 1810.2.2
	Stability in all directions: 3 piles minimum, connected by rigid cap, located in radial directions from group centroid not less than 60 degrees apart.	FBC 1808.2.2

(Continue to next page)

FBC CHAPTER 18 - SOILS AND FOUNDATION (Continued)		
		Code Reference
Pile Foundations (Continued)	Allowable stresses, FBC Table 1810.3.2.6.	FBC Section 1810.3.2.8
	Splices develop minimum 50% least capacity in bending.	FBC 1810.3.6
	Splices located in upper 10 feet of embedded portion of pile, resist moment and shear from 3-inch load eccentricity.	FBC 1810.3.6
	Pile caps: Tops of piles embedded 3 inches minimum in cap. Caps extend 4 inches minimum past piles.	FBC 1810.3.11
Allowable Pile Load	Driven piles: Driving formula; 40 tons maximum capacity.	FBC 1810.3.3.1.1
Allowable Pile Load	Load test method: Not more than ½ the test load-capacity per FBC Section 1810.3.3.1.2. Determined by Florida registered P.E.	FBC 1810.3.3.1.2
	Allowable Frictional Resistance: 500 psf maximum.	FBC 1810.3.3.1.4
	Uplift capacity, single deep foundation grouped deep foundation, the lesser of : Proposed individual pile uplift working load times the number of piles in group. Two-thirds of the effective weight of the pile group and the soil contained within a block defined by the perimeter of the group and the length of the pile. Not to exceed ultimate load capacity divided by 2.	FBC Section 1810.3.3.1.5 FBC 1810.3.3.1.6
	Bearing Capacity: Ultimate load capacity of at least twice the design working loads in the designated bearing layers. No soil layer underlying the designated bearing layers shall cause the bearing capacity safety factor to be less than 2.	FBC 1810.3.3.1.7
Structural Steel Piles	Not outlined because not generally used on schools.	FBC 1810.3.5.3
Concrete filled Steel Pipe and Tube Pipes	Not outlined because not generally used on schools.	FBC 1810.3.5.3.2
Driven Pile Foundations	Precast Concrete Piles:	FBC 1810.3.8.1
	Precast, non-prestressed concrete piles:	FBC 1810.3.8.2
Precast Prestressed Concrete Piles	Effective prestress, FBC Section 1810.3.8.3.1 Piles up to 30 feet - 400 psi Piles 30 to 50 feet - 550 psi Piles greater than 50 feet - 700 psi	FBC 1810.3.8.3
High Velocity Hurricane Zones	Footings and Foundations Termite Protection Excavations Bearing Capacity of Soil Soil Bearing Foundations Concrete Slab on Fill Monolithic Footings Pile Foundations Wood Piles Precast Concrete Piles Prestressed Precast Concrete Piles Cast in Place Rolled Structural Shapes Special Piles or Special Conditions Load Test on Piles Foundation Walls and Grade Beams Grades Under Buildings Retaining Walls Sea Walls and Bulkheads Soil Improvement	FBC 1805 FBC 1816 FBC 1817 FBC 1818 FBC 1819 FBC 1820 FBC 1821 FBC 1822 FBC 1823 FBC 1824 FBC 1825 FBC 1826 FBC 1827 FBC 1828 FBC 1829 FBC 1830 FBC 1831 FBC 1832 FBC 1833 FBC 1834

FBC CHAPTER 19 --- CONCRETE		
		Code Reference
Reference Standards	ACI 318-08, Building Code Requirements for Structural Concrete. ACI 506.2, Specification for Concrete. ASTM Standards.	ACI 318-08 ACI 506.2
Strength	Strength of concrete: 2,500 psi minimum, stated on plans and specifications.	FBC 1905.1.1 Table 1904.3
Mix Design	Minimum strength 2500 PSI.	FBC 1905.1.1
	Selecting proportions.	FBC 1905.2
	Methods of design.	FBC 1905.3, 1905.4, 1905.5
Slump	Slump for regular concrete subject to vibratory compaction shall be 4 inches plus/minus 1 inch. See ACI 301, Section 4.2.2: also ACI A-117, Section 2.5.1.	ACI 301, 4.2.2.2 ACI 530.1-08, 2.6B2
	For filled cells in reinforced masonry, use 8 inch to 11-inch slump. See ACI 530.1-08, Section 2.6B2.	
Reinforced Steel	Reinforced steel shall be free of mud, oil, or other non-metallic coatings that would decrease the bond with concrete. No field bends except as approved by the architect.	FBC 1907.3 and 4 ACI 318-08, 7.3 & 7.4
Fly Ash	Fly ash in concrete shall not exceed 25 percent by weight.	ACI 318-08, 4.2.3
Mixing Time	When air temperature is between 85 and 90 degree F., reduce mixing and delivery time to 75 minutes. When air temperature is higher than 90 degrees, reduce mixing and delivery time to 60 minutes.	
Segregation of Materials	Concrete shall be deposited as nearly as practicable to its final position to avoid segregation of material due to re-handing or flowing.	FBC 1905.9 ACI 318-08, 5.10.1 FBC 1905.10
Flow	Concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into spaces between reinforcement.	FBC 1905.10 ACI 318-08, 5-10.2
Prohibited	Suggest prohibiting the following concrete:	FBC 1905.10 ACI 318-08, 5.10.3, 5.10.4
	1. Partially hardened concrete.	
	2. Contaminated concrete.	
	3. Re-tempered concrete.	
	4. Concrete remixed after it had taken its initial set.	
Continuous Operation	After concreting has been started, It should be carried on as a continuous operation until placing of a panel or section, as determined by its boundaries or joints, is completed.	FBC 1905.10 ACI 318-08, 5.10.5
Construction Joints	Construction joints shall be constructed (cleaned, laitance removed, wetted, standing water removed).	ACI 318-08, 6.4.2
Consolidated	All concrete shall be thoroughly consolidated by suitable means during placement and should be worked around reinforcement and embedded fixtures and into corners of forms.	FBC 1905.10 ACI 318-08, 5.10.8
Cover of Steel	Minimum clearances for reinforcing steel.	FBC 1907.7.1 ACI 318-08, 7.7.1
Curing	Wet cure time of 7 days minimum at 50 degrees minimum temperature.	FBC 1905.11 ACI 318-08, 5.11.
Finishing Tolerance	Finishing tolerance for concrete floor slabs which receive resilient coverings shall be ⅛ inch in 10 feet.	ACI 301, 11.8.2, 11.7.3, 11.9.1

(Continue to next page)

FBC CHAPTER 19 --- CONCRETE (Continued)		
		Code Reference
Testing	Test cylinders. Two concrete test cylinders shall be broken at 28 days and the average value used as the test result.	ACI 301,11.8.2, 11.7.3, 11.9.1
	Criteria for acceptance of concrete cylinder tests.	FBC 1905.6 ACI 318-08, 5.6.2.4, 5.6.3.3
Slab at Grade	Not less than 3 ½ inches thick.	FBC 1910.1
Headed anchors	Strength in tension.	FBC Table 1911.2
	Strength in shear.	
Vapor retarder;	Vapor retarder should be 6 mil minimum polyethylenes with joints lapped 6 inches.	FBC 1910.1
Shotcrete	General Proportions and materials Aggregate Reinforcement Preconstruction tests Rebound Joints Damage Curing Strength tests	FBC 1913.1 FBC 1913.2 FBC 1913.3 FBC 1913.4 FBC 1913.5 FBC 1913.6 FBC 1913.7 FBC 1913.8 FBC 1913.9 FBC 1913.10
Light Weight Insulation Concrete Fill	Minimum thickness 2 inches	FBC 1917.4.2
	Maximum Compressive Strengths per ASTM C 495 and C796. Aggregate Concrete - 125 psi. FBC Section 1917.1.1 Cellular lightweight insulating concrete - 160 psi. FBC Section 1917.1.2. Cellular aggregate (hybrid) lightweight insulating concrete - 200 psi FBC Section 1917.1.3.	FBC 1917.1
High Velocity Hurricane Zones	General Standards Definitions Materials Concrete Quality Mixing and Placing Concrete Formwork, Embedded Pipes and Construction Joints Details Reinforcement Precast Concrete Units Prestressed Concrete Pneumatically Placed Concrete (Shotcrete)	FBC 1919 FBC 1920 FBC 1921 FBC 1922 FBC 1923 FBC 1924 FBC 1925 FBC 1926 FBC 1927 FBC 1928 FBC 1929

FBC CHAPTER 21 - REINFORCED MASONRY		
		Code Reference
Code	All design and construction of reinforced masonry shall conform to ACI 530-08.	ACI 530-08
ASTM	Portland cement: C150 Sand and aggregate: C33 Block: C90, Type N Mortar: C270 Grout: C476 Reinforcing bars: A615 Truss reinforcing: A82	
Elastic Module	Concrete masonry $900f'_m$, ACI 530-08, Section 1.8.2.2.1. Reinforcing steel: 29,000,000 psi, ACI 530-08, Section 1.8.2.1.	ACI 530-08
Proportions	Mortar-see ASTM C-270, FBC Table 2103.8.	FBC 2103.8
	Grout-see ASTM C-476, FBC Table 2103.12.	FBC 2103.12
Slump	Slump for grout in filled ceils should be 8 inches to 11 inches. See ACI 530.1-05, Section 2.6.B.2.	ACI 530.1-08
Compressive Strength	See FBC Table 2105.2.2.1.1. Minimum Strength of masonry units and grout stated. ACI 530.08, Section 2.1.3.1.	FBC 2105.2.2.1.1
Allowable Stress Design	General	FBC 2107.1
	Lap Splices. Modify ASCE 530-08.2.1.10.3, Section values of splices.	ACI 530-08, Section 2.1.10 and FBC 2107.3, 2107.4, 2107.5
	Empirical design limited to ultimate design, wind speed of 115 mph. ACI 530-08, Section 5.1.2 for general limitations.	FBC 2109.1.1, ACI 530-08, 5.1.2
Reinforcing Steel	Reinforcing steel should be free of mud, oil or non-metallic castings that would decrease the bond with concrete. No field bends except as approved by the architect.	FBC 1907.3, 1907.4, ACI 318-08, 7.4
Lintel Bearing	Specify the minimum lintel bearing, in inches.	
Masonry Veneer	Special wind load requirements per ACI 530, Section 6.2.2.1 and 6.2.2.2.	ACI 530, 6.2.2.1, 6.2.2.11
Clean-out Holes	Use inspection and clean-out holes at bottom of wall reinforced vertical cells for grouting lifts over 5 feet high. Clean-out holes should be 3 feet minimum, see ACI 530.1-08, Section 3.2F. See grout space requirements for various grout pour heights in ACI 530.1-08, Section 3.5C with Table 7.	ACI 530.1-08
High Velocity Hurricane Zones	Design Quality, Test and Approval Allowable Unit Stresses in Unit Masonry Construction Details Reinforced Unit Masonry	FBC 2118 FBC 2119 FBC 2120 FBC 2121 FBC 2122

FBC CHAPTER 22 - STEEL		
Codes		**Code Reference**
Structural Steel	A.I.S.C. Manual of Steel Construction, 2005, Thirteenth Edition, including Specification for Structural Steel Buildings 360-05.	FBC 2214.1-6 AISC 360-05
	Grades of steel: A36: 36 ksi yield stress: Wide- flange and other shapes used for beams. A572: 42 ksi and 50 ksi yield stress: Wide-flange and other shapes for beams. A588: 50 ksi yield stress: Wide-flange and other shapes used for beams. A992: 50 ksi yield stress: Wide-flange and other shapes used for beams. A500; Grade B: 42 ksi (round) and 46 ksi (shaped) yield; Cold-rolled square, round and rectangular tubes used for columns and pipe columns. A501; 36 ksi yield stress; hot-rolled square, round and rectangular steel tubes used for columns. A53, Grade B, Type E or S: 35 ksi yield stress: Pipes used for columns.	FBC 2205
Cold-Formed Lightgage Steel	Code: North American Specifications for the Design of Cold-Formed Steel Structural Members, AISI 5100-07. Code: Standard for Cold-Formed Steel Framing-General Provisions, Floor and Roof System Design, Wall Stud Design, Header Design, Lateral Design, Trusses. ASTM A-653. Metal roof decks and floor decks. Steel Deck Institute DDM-03 Diaphragm Design Manual. Steel Deck Institute MOC-2 Manual of Construction with Steel Deck. Standing seam metal decks. Lightgage steel trusses, Code: Standard for Cold Formed Steel Framing - Trusses.	AISI 5100-07 AISI 9200-07, 5211-07, 5212.07, 5213-07, 5214-07 FBC 2209.1 FBC 2210.1, 2210.2, 2210.3, 2210.4, 2210.5, 2210.6
Open-Web Steel Joints	Standard Specifications for Open-Web Steel Joists, K-series Standard Specification for Longspan Steel Joists, LH series and Deep Longspan Steel joists, DLH-series. Standard Specification for Joist Girders.	FBC 2206
Welding	Welding done by certified welders.	FBC 2218.3
High Velocity Hurricane Zones	General Material Design Loads Minimum Thickness of Materials Connections Tubular Columns Protection of Metal General-Open Web Steel Joists Cold-Formed Steel Construction Pre-engineered, Prefabricated Metal Building Systems and Components Chain Link Fences	FBC 2214 FBC 2215 FBC 2216 FBC 2217 FBC 2218 FBC 2219 FBC 2220 FBC 2221 FBC 2222 FBC 2223 FBC 2224
Joist Bridging Layout	The specialty engineer for the steel joist supplier shall certify, in a cover letter that the steel joist bottom chords will safely resist the wind uplift, considering the spacing of the joist bridging. Calculations shall be submitted.	FBC 1609.3 Figure 1609 FBC 2206.3
Submittals	Steel shop drawings shall be signed, sealed and dated by the Florida-registered professional engineer who is responsible for their preparation, unless design of connections is shown on contract plans.	Section 471.025(1) F.S.
Structural Steel Fabrication	A.I.S.C. Manual of Steel Construction, 2005, Thirteenth Edition	AISC 360-05
Structural Steel Erection	A.I.S.C. Manual of Steel Construction, 2005, Thirteenth Edition	

FBC CHAPTER 23 - WOOD			
Code	NDS-05 Load and Resistance Factor Design Standard for Engineered Wood Construction. National Design Specification for Wood Construction - 2005 Supplement		**Code Reference** NDS-05
Permitted Use	Educational facilities construction; Type I, II, or IV, no wood permitted for structural use. Types III and IV are permitted as follows:		FBC 423.8.3.4
		1. Covered walkways open on all sides.	FBC 423.8.3.4
		2. Dugouts, concession stands and related public toilets.	
		3. Press boxes located on the first floor or with nothing directly below.	
		4. Non-flammable storage buildings detached at least 60 ft from educational facility.	
		5. Wood may be used for non-structural uses, such as blocking, moldings, nailers, etc.	
Non-Permitted Use	Non-bearing interior partitions in permanent educational facilities.		

ROOF SHINGLES		
Fire Rating	Shingles Class A	**Code Reference** FBC 423.12.1
Cross Slope	Minimum roof cross slope for shingles 2:12.	FBC 1507.2.2
ASTM	Shingles comply with ASTM D225 or D3462.	FBC 1507.2.5
Underlayment	Comply with ASTM D226, Type I or Type II, or ASTM D4869 Type I or Type II, or ASTM D6757.	FBC 1507.2.3
	For roof slopes between 2:12 and 4:12: Two layers of felt, minimum. Starting at the eave, a 19 inch strip of underlayment shall be: Applied parallel to and starting at the eave, and Fastened sufficiently to hold it in place. Starting at the eave, 36-inch wide strips of underlayment felt shall be applied: Overlapping successive sheets 19 inches and Fastened sufficiently to hold them in place.	FBC 1507.2.8
	For slope greater than 4:12: Starting at the eave, one layer of underlayment felt shall be applied as follows: Applied shingle fashion parallel to and starting at the eave, and lapped 2 inches, and fastened sufficiently to hold it in place.	
Fasteners	Fasteners for asphalt shingles shall be:	
	Galvanized, stainless steel, aluminum, or copper roofing nails, minimum 12 gauge (0.105. inch) shank with a minimum ⅜-inch diameter head, and	
	Length sufficient to penetrate through the roof materials and a minimum of ¾ inch into the roof sheathing. Where the sheathing is less than ¾ inch thick, the nails shall penetrate through the sheathing.	FBC 1507.2.6
	Comply with ASTM F1667	
Anchoring	Asphalt shingles shall be secured to the roof with fasteners, per FBC Table 1507.2.7.	FBC 1507.2.9.25
Valleys	Valley linings shall be installed per manufacturer's printed instructions before applying asphalt shingles. Valley linings for the following types are approved:	FBC 1507.2.9.2
	For open valleys (valley lining exposed) lined with metal, the valley lining shall be: At least 16 inches wide and Made of any of the corrosion-resistant materials listed in FBC Table 1503.2.	
	For open valleys, valley lining of two piles of mineral surface roll roofing is permitted. Bottom layer shall be 18 inches wide, minimum. Top layer shall be 36 inches wide, minimum.	
	For closed valleys (valley covered with shingles), valley lining shall be one of the following: Type 1 or 2 above. One ply of smooth roll roofing at least 36 inches wide and complying with ASTM D6380 Class S.	FBC 1507.2.9.2
Coatings	No elastomeric and/or maintenance coatings unless approved by the manufacturer and installed per manufacturer's instructions.	FBC 1507.15.3, 1521.17.1
Photovoltaic System	Rooftop-installed photovoltaic systems shall be installed per FBC 1505.8 and 1507.17.	FBC 1505.8, 1507.17, 1518.11
Drip Edge	Drip edge shall be 3 inches minimum.	FBC 1507.2.9.3

(Continue to next page)

ROOF SHINGLES (Continued)		
		Code Reference
Drip Edge	Drip edge shall be: Provided at eaves and gables of shingle roofs. Overlapped a minimum of 2 inches. Eave drip edges shall extend: ½ inch below sheathing, and Back on the roof a minimum of 2 Inches. Drip edge shall be mechanically fastened a maximum of 12 inches on center. Drip edge may be installed over or under underlayment. If drip edge is installed over underlayment, there shall be a minimum width of 4 inches of roof cement over the drip edge flange.	FBC 1507.2.9.3
Final Statement of Compliance	The Contractor shall provide a "Final Statement of Compliance" to the architect, which states that the finished roof membrane complies with the approved contractual documents.	FBC 423.12.3
Inspection by Manufacturer	The roof membrane shall be inspected by the manufacturer's representative within one year of acceptance by the Board.	FBC 423.12.4
Primary Drainage	A primary drainage system shall be provided, size per FBC-Plumbing Section 1106, Tables 1106.2(1), 1106.2(2), 1106.3 and Figure 1106.1.	FBC-P 1106
Secondary Drainage	A secondary drainage system shall be provided when parapets surround the perimeter.	FBC-P 1107
	Separate from the primary system. FBC-P 1107.2. Values from Tables 1106.2(10), 1106.2(2), 1106.3 and Figure 1106.1.	FBC-P 1107.2
	Sized per FBC-P Section 1107.3.	FBC-P 1107.3
	Overflow scupper to have a minimum dimension of 4-inch opening.	FBC-P 1107.3
High Velocity Hurricane Zones	General Definitions Weather Protection Performance Requirements Fire Classification Materials Roof Coverings with Slopes 2:12 or Greater Roof Coverings with Slopes Less than 2:12 Roof Insulation Re-roofing Rooftop Structures and Components Testing Required Owners Notification for Roofing Considerations Uniform Permit Application	FBC 1512 FBC 1513 FBC 1514 FBC 1515 FBC 1516 FBC 1517 FBC 1518 FBC 1519 FBC 1520 FBC 1521 FBC 1522 FBC 1523 FBC 1524 FBC 1525
Energy Efficiency	Submit complete FLA/COM compliance form. This shall indicate compliance with Florida Energy Efficiency Code (FEEC) for Building Construction.	FBC 13-400.0

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.1 Scope: Public educational facilities	X	X	X
423.2 Public schools and Florida colleges general requirements	X	X	X
423.2.1 Owner	X	X	X
423.2.2 Exemption from local requirements	X	X	X
423.2 Code enforcement	X	X	X
423.3.1 School boards and Florida college boards	X	X	X
423.3.2 Owner review and inspection	X	X	X
423.3.3 Local government review and inspection	X	X	X
423.3.4 Other regulatory agencies	X	X	X
423.3.5 Day labor projects	X	X	X
423.3.6 Routine maintenance	X	X	X
423.3.7 Certificate of occupancy	X	X	X
423.3.8 Reuse of prototype plans	X	X	X
423.4 Reference documents	X	X	X
423.4.1 Rule 6-2	X	X	X
423.4.2 Flood resistant construction	X	X	X
423.4.3 Florida statutes and state rules	X	X	X
423.4.4 Accessibility requirements for children's environments	X	Footnote(1)	Footnote(1)
423.4.5 Handbook for public playground safety	X	Footnote(1)	Footnote(1)
423.4.6 ANSI Z53.1	X	X	X
423.4.7 ASCE 7	X	X	X
423.4.8 Life Cycle Cost Guidelines for Materials and Buildings for Florida's Public Educational Facilities	X	X	X
423.5 Definitions	X	X	X
423.5.1 Assembly	X	X	X
423.5.2 Board	X	X	X
423.5.3 Boiler	X	X	X
423.5.4 Certificate of occupancy	X	X	X
423.5.5 Courtyard	X	X	N/A
423.5.5.1 Exterior courtyard	X	X	N/A
423.5.5.2 Enclosed courtyard	X	X	N/A
423.5.5.3 Roofed courtyard	X	X	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.5.6 Facility	X	X	X
423.5.6.1 Ancillary facility	N/A	N/A	X
423.5.6.2 Auxiliary plant	N/A	N/A	X
423.5.6.3 Auxiliary facility	X	X	N/A
423.5.6.4 Educational facility	X	X	N/A
423.5.6.5 Educational plant	X	X	N/A
423.5.6.6 Existing facility	X	X	X
423.5.6.7 Leased facility	X	X	X
423.5.6.8 Permanent facility	X	X	X
423.5.6.9 Relocatable portable facility	X	X	X
423.5.6.10 Modular facility	X	X	X
423.5.7 Maintenance and repair	X	X	X
423.5.8 New construction	X	X	X
423.5.9 Open plan building	X	X	X
423.5.10 Open plan instructional space	X	X	N/A
423.5.11 Owner	X	X	X
423.5.12 Permit	X	X	X
423.5.13 Remodeling	X	X	X
423.5.14 Renovation	X	X	X
423.5.15 Separate atmosphere	X	X	X
423.5.16 Separate building	X	X	X
423.5.17 Florida college	N/A	X	N/A
423.5.18 Student-occupied space	X	X	N/A
423.6 Administration of public education projects	X	X	X
423.6.1 Occupancy during construction	X	X	X
423.6.2 Contractor toxic substance safety precautions	X	X	X
423.6.3 Flammable or explosive substances	X	X	X
423.7 Life safety	X	X	X
423.7.1 Separate exits	X	X	X
423.7.2 Exit access	X	X	X
423.7.3 Location of fire extinguishers and blankets	X	X	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.7.4 Common fire alarm	X	X	Footnote[(2)]
423.7.5 Fire Alarm sending stations	X	X	X
423.7.6 Automatic shut off	X	X	N/A
423.7.6.1 Kitchen gas supplies	X	X	X
423.7.6.2 Emergency power	X	X	X
423.7.7 Unoccupied rooms and concealed spaces	X	X	X
423.7.7.1 Fully sprinklered buildings	X	X	X
423.7.8 Boiler rooms	X	X	X
423.8 General requirements for new construction, additions, renovations and remodeling	X	X	X
423.8.1 Codes and standards	X	X	X
423.8.1.1 Educational occupancy	X	X	N/A
423.8.1.2 Business occupancy	N/A	X	X
423.8.1.3 Ancillary facility	N/A	N/A	X
423.8.2 Space standards	X	X	X
423.8.3 Construction type	X	X	X
423.8.3.1 Noncombustible Type I, II or IV	X	X	X
423.8.3.1.1 Interior nonload-bearing wood studs	X	X	X
423.8.3.2 Type I	X	X	X
423.8.3.3 Type IV	X	X	X
423.8.3.4 Exceptions to types of construction	X	X	X
423.8.4 Standards for remodeling and/or renovation	X	X	X
423.8.4.1 Fire sprinkler in existing buildings	X	X	X
423.8.5 Leased facilities	X	X	X
423.8.6 Asbestos prohibited	X	X	X
423.8.7 Life cycle cost guidelines for materials and building systems	X	X	X
423.8.8 Safe school design	X	X	N/A
423.8.8.1 Natural access and control	X	X	N/A
423.8.8.2 Natural surveillance	X	X	N/A
423.8.8.3 Territorial integrity	X	X	N/A
423.8.8.4 Audio and motion detection systems	X	X	N/A
423.8.8.5 Design	X	X	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.8.8.6 Exterior stairs, balconies, ramps, etc.	X	X	N/A
423.8.8.7 Open areas	X	X	N/A
423.9 Structural design	X	X	X
423.9.1 Load importance factor	X	X	X
423.10 Site requirements	X	X	X
423.10.1 Fencing	X	X	X
423.10.1.1 Required locations	X	N/A	N/A
423.10.1.1.1 Kindergarten through grade 12	X	N/A	N/A
423.10.1.1.2 Kindergarten through grade 5	X	N/A	N/A
423.10.1.1.3 Kindergarten through grade 12	X	N/A	N/A
423.10.2 Walks, roads, drives, and parking areas	X	X	X
423.10.2.1 Covered walks	X	N/A	N/A
423.10.2.2 Accessible walks and bridges	X	X	X
423.10.2.3 Drainage	X	X	X
423.10.2.4 Vertical drops	X	X	X
423.10.2.5 Roads and streets	X	X	X
423.10.2.6 Bus drives	X	X	X
423.10.2.7 Vehicle parking areas	X	X	X
423-10.2.8 Minimum parking requirements	X	X	X
423.10.2.8.1 Faculty and staff	X	X	X
423.10.2.8.2 Visitors	X	X	N/A
423.10.2.8.3 Community clinics	X	X	X
423.10.2.8.4 High schools	X	N/A	N/A
423.10.2.8.5 Vocational schools	X	Footnote(3)	N/A
423.10.2.8.6 Florida colleges	N/A	X	N/A
423.10.2.8.7 Accessible parking	X	X	X
423.10.3 Site lighting required	X	X	X
423.10.3.1 Auto, bus and service drives	X	X	X
423.10.3.2 Parking areas	X	X	X
423.10.3.3 Building perimeter	X	X	X
423.10.3.4 Covered and connector walks	X	X	X

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.10.3.5 Lighting for parking areas	X	X	X
423.10.3.5.1 Parking areas	X	X	X
423.10.3.5.2 Covered and connector walks	X	X	X
423.10.3.5.3 Entrances/exits	X	X	X
423.10.3.6 Building exterior	X	X	X
423.10.3.6.1 Entrances	X	X	X
423.10.3.6.2 Building surrounds	X	X	X
423.10.3.7 Shielding	X	X	X
423.10.4 Building setbacks	X	X	X
423.10.5 School board playgrounds, equipment, and athletic fields	X	X	N/A
423.10.5.1 Kindergarten play areas	X	Footnote(1)	Footnote(1)
423.10.5.2 Playgrounds and equipment	X	Footnote(1)	Footnote(1)
423.10.5.3 Direct access from the school buildings	X	Footnote(1)	Footnote(1)
423.10.5.4 Related facilities	X	X	N/A
423.10.5.5 Playground drainage	X	Footnote(1)	Footnote(1)
423.10.6 Exterior signage	X	X	X
423.10.6.1 Site signage	X	X	X
423.10.6.2 Accessible route	X	X	X
423.10.7 Landscaping	X	X	X
423.10.8 Water irrigation	X	X	X
423.10.9 Transmission line right-of-way	X	X	X
423.10.10 School site master plan	X	X	N/A
423.11 Wood: fire-retardant treated wood (FRTW)	X	X	N/A
423.11.1 Fire-retardant treaded wood	X	X	N/A
423.11.2 Inspection access panels	X	X	N/A
423.11.3 Evidence of compliance	X	X	N/A
423.12 Roofing	X	X	X
423.12.1 Class A materials	X	X	X
423.12.2 Insulation and moisture protection	X	X	X
423.12.3 Phased installation prohibited	X	X	X
423.12.4 Manufacture's one-year inspection	X	X	X

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.13 Doors and windows	X	X	X
423.13.1 Doors	X	X	N/A
423.13.1.1 Door swing	X	X	X
423.13.1.2 Obstruct or conceal an exit	X	X	X
423.13.2 Recessed	X	X	X
423.13.3 Special function doors	X	X	X
423.13.4 Overhead and siding security grilles	X	X	X
423.13.5 Gates	X	X	X
423.13.6 Hardware	X	X	X
423.13.7 Safety glazing: Panels and storefronts	X	X	X
423.13.7.1 Glazing in hazardous locations	X	X	X
423.13.7.2 Large glass panels	X	X	X
423.13.8 Windows	X	X	X
423.13.8.1 Natural light and ventilation	X	N/A	N/A
423.13.8.2 Projecting and awing windows	X	X	X
423.13.8.3 Security/storm screens and grills	X	X	N/A
423.14 Special safety requirements	X	X	X
423.14.1 Master control switch	X	X	N/A
423.14.2 Interior signage	X	X	X
423.14.2.1 Emergency rescue openings	X	N/A	N/A
423.14.2.2 Maximum capacity sign	X	X	X
423.14.2.3 Room name, number sign	X	X	X
423.14.2.4 Evacuation sign	X	X	X
423.14.2.5 Accessibility signage	X	X	X
423.14.2.6 Hazardous work & storage areas	X	X	X
423.14.3 Other potential hazards	X	X	X
423.14.4 Storage shelving	X	X	X
423.14.5 Vertical platform lifts and inclined wheelchairs lifts	X	X	X
423.14.5.1 Not reduce width of egress	X	X	X
423.14.5.2 Shielding devices	X	X	X
423.14.5.3 Key operated	X	X	X

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.14.5.4 Inclined wheel chair lifts	X	X	X
423.14.5.4.1 Sensing	X	X	X
423.14.5.4.2 Guide rails	X	X	X
423.14.6 Color code machinery	X	X	X
423.14.7 Anchor equipment	X	X	X
423.14.8 Interior finishes	X	X	X
423.14.8.1 Floors	X	X	X
423.14.8.2 Walls	X	X	X
423.14.8.3 Ceilings	X	X	X
423.15 Mechanical	X	X	X
423.15.1 Gas and fluid piping	X	X	X
423.15.1.1 Flammable liquid/gases	X	X	X
423.15.1.2 Piping systems	X	X	X
423.15.1.3 Main supply valve	X	X	X
423.15.2 Air plenums	X	X	X
423.15.3 Residential equipment	X	X	X
423.15.4 Toilet room venting	X	X	X
423.15.5 Chemistry laboratories and science classrooms	N/A	N/A	N/A
423.15.6 Ventilation air make-up for HVAC Systems	X	X	N/A
423.16 Plumbing	X	X	X
423.16.1 Standards	X	X	X
423.16.1.1 Assembly occupancies	X	X	X
423.16.1.2 Location	X	X	N/A
423.16.2 Teacher toilets	X	N/A	N/A
423.16.3 Public shelter	X	X	X
423.16.4 Urinals	X	X	X
423.16.5 Floor drains and hose bibs	X	X	X
423.16.6 Exterior entries	X	X	X
423.16.7 Hot water	X	X	X
423.16.8 Delayed closing valves	X	X	X
423.16.9 Shower facilities	X	X	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.16.9.1 Shower facilities	X	X	N/A
423.16.9.2 Floor finish	N/A	N/A	N/A
423.16.9.3 Water temperature	N/A	N/A	N/A
423.16.9.4 Master control valve	X	X	N/A
423.16.10 Kitchens	X	X	X
423.16.10.1 Toilet rooms	X	X	X
423.16.10.2 Floor drains	X	X	X
423.16.11 Dousing shower and eye wash	X	X	N/A
423.16.12 Floor drains and plumbing fixtures in equipment room	.X	X	X
423.17 Electrical	X	X	X
423.17.1 Emergency lighting	X	X	X
423.17.2 Electrical rooms and closets	X	X	N/A
423.17.3 Space capacity	X	X	X
423.17.4 Emergency shutoff switches	X	X	N/A
423.17.5 Emergency disconnect	X	X	N/A
423.17.6 Sauna and steam rooms	X	X	N/A
423.17.7 Lightning	X	X	X
423.17.8 Ground fault interrupter (GFI) receptacles	X	X	X
423.18 Assembly occupancies in public educational facilities	X	X	N/A
423.18.1 Occupant capacity	X	X	N/A
423.18.1.1 Dressing rooms	X	X	N/A
423.18.1.2 Gymnasium	X	X	N/A
423.18.1.3 Classrooms and labs	X	X	N/A
423.18.1.4 Small group areas in media centers	X	X	N/A
423.18.1.5 Closed circuit television production, distribution, and control	X	X	N/A
423.18.1.6 Interior courtyards	X	X	N/A
423.19 Shade and green houses	X	X	N/A
423.19.1 General	X	X	N/A
423.19.2 Unrestricted exiting	X	X	N/A
423.19.3 Required doors	X	X	N/A
423.19.4 Accessibility	X	X	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.19.5 Shade cloth	X	X	N/A
423.19.6 Fire extinguisher	X	X	N/A
423.19.7 Fire alarm	X	X	N/A
423.19.8 Space heaters	X	X	N/A
423.20 Storage	X	X	X
423.20.1 General storage	X	X	X
423.20.2 Custodial work areas and storage	X	X	X
423.20.3 Custodial closets and storage	X	X	X
423.20.4 Chemical and hazardous materials storage	X	X	X
423.20.4.1 Chemical storage	X	X	X
423.20.4.2 Hazardous materials storage	X	X	X
423.21 Child care/day care/pre-kindergarten facilities	X	X	Footnote(1)
423.21.1 Located on school board property	X	X	Footnote(1)
423.21.2 Toilet facilities	X	X	Footnote(1)
423.21.3 Bathing area	X	X	Footnote(1)
423.21.4 Toilet facilities finishes	X	X	Footnote(1)
423.21.5 Drinking fountains	X	X	Footnote(1)
423.21.6 Hand washing facilities	X	X	Footnote(1)
423.21.7 Residential-type kitchen	X	X	Footnote(1)
423.21.8 Sleeping areas	X	X	Footnote(1)
423.21.9 Prohibited storage	X	X	Footnote(1)
423.21.10 Outdoor play areas	X	X	Footnote(1)
423.21.11 Play area shade	X	X	Footnote(1)
423.21.12 Play equipment	X	X	Footnote(1)
423.21.13 Grounds	X	X	Footnote(1)
423.22 Clinics	X	Footnote(3)	N/A
423.22.1 Clinic general	X	Footnote(3)	N/A
423.22.2 Include locked storage, toilet room, etc.	X	Footnote(3)	N/A
423.22.3 Sanitary facilities	X	Footnote(3)	N/A
423.22.3.1 Elementary school clinics	X	Footnote(3)	N/A
423.22.3.2 Secondary & VTC school clinics	X	Footnote(3)	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.22.3.3 Include hot & cold water	X	Footnote(3)	N/A
423.22.3.4 Toilet exhaust fans	X	Footnote(3)	N/A
423.22.3.5 Working counter top	X	Footnote(3)	N/A
423.22.4 Bed areas	X	Footnote(3)	N/A
423.22.4.1 Up to 500 students	X	Footnote(3)	N/A
423.22.4.2 501-1,000 students	X	Footnote(3)	N/A
423.22.4.3 1,001-2,000 students	X	Footnote(3)	N/A
423.22.4.4 Over 2,000 students	X	Footnote(3)	N/A
423.22.5 Full-service school health clinics	X	X	N/A
423.22.5.1 Location	X	X	N/A
423.22.5.2 Parking	X	X	N/A
423.22.5.3 Sanitary facilities	X	X	N/A
423.22.5.3.1 Toilet rooms	X	X	N/A
423.22.5.3.2 Hot & cold water	X	X	N/A
423.22.5.3.3 Exhaust fans	X	X	N/A
423.22.5.3.4 Nurses' station	X	X	N/A
423.22.5.4 Storage rooms	X	X	N/A
423.22.5.5 Data outlets	X	X	N/A
423.23 Kilns	X	X	N/A
423.24 Open plan schools	X	X	N/A
423.25 Public shelter design criteria	X	X	X
423.25.1 New facilities	X	X	X
423.25.1.1 Enhanced hurricane protection areas	X	X	X
423.25.1.1.1 Application	X	X	X
423.25.1.2 Serve primary function of building	X	X	X
423.25.2 Site	X	X	X
423.25.2.1 Emergency access	X	X	X
423.25.2.2 Landscaping	X	X	X
423.25.2.3 Parking	X	X	X
423.25.2.4 Signage	X	X	X
423.25.3 Design	X	X	X

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.25.3.1 Excluded spaces	X	X	X
423.25.3.2 Capacity	X	X	X
423.25.3.3 Toilets	X	X	X
423.25.3.3.1 Support systems	X	X	X
423.25.3.3.2 Plumbing and valve systems	X	X	X
423.25.3.4 Food service	X	X	X
423.25.3.5 Manager's office	X	X	X
423.25.4 Structural standard for wind loads	X	X	X
423.25.4.1 Missile impact criteria	X	X	X
423.25.4.1.1 Missile impact criteria	X	X	X
423.25.4.1.2 Cyclic loading	X	X	X
423.25.4.2 Roofs	X	X	X
423.25.4.2.1 Light weight concrete	X	X	X
423.25.4.2.2 Roof openings	X	X	X
423.25.4.2.3 Roof coverings	X	X	X
423.25.4.2.4 Roof slope and drainage	X	X	X
423.25.4.2.5 Roof Parapets	X	X	X
423.25.4.3 Windows	X	X	X
423.25.4.3.1 Permanent protective systems	X	X	X
423.25.4.3.2 Mechanical ventilation	X	X	X
423.25.4.4 Doors	X	X	X
423.25.4.5 Exterior envelope	X	X	X
423.25.4.5.1 HVAC equipment	X	X	X
423.25.4.5.2 HVAC roof curb	X	X	X
423.25.4.6 Foundation and floor slabs	X	X	X
423.25.5 Electrical and standby emergency power system	X	X	X
423.25.5.1 EHPA lighting	X	X	X
423.25.5.2 Optional standby circuits	X	X	X
423.25.5.3 Receptacle outlets	X	X	X
423.25.6 Inspections	X	X	X
423.25.6.1 Inspection during construction process	X	X	X

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.25.6.2 Inspection of emergency electrical system	X	X	X
423.25.6.3 5-year inspection & recertification	X	X	X
423.25.6.4 Annual inspections and maintenance	X	X	X
423.26 Time-out rooms	X	Footnote(4)	N/A
423.26.1 Locking of time-out rooms	X	Footnote(4)	N/A
423.26.2 Electromagnetic locking device	X	Footnote(4)	N/A
423.26.2.1 Engagement of lock	X	Footnote(4)	N/A
423.26.2.2 Activation device	X	Footnote(4)	N/A
423.26.2.3 Interface relay	X	Footnote(4)	N/A
423.26.2.4 Automatic disengagement	X	Footnote(4)	N/A
423.26.2.5 Timers prohibited	X	Footnote(4)	N/A
423.26.3 Door requirements	X	Footnote(4)	N/A
423.26.3.1 Swing out	X	Footnote(4)	N/A
423.26.3.2 Vision panel	X	Footnote(4)	N/A
423.26.3.3 Door frame and jamb	X	Footnote(4)	N/A
423.26.4 Finishes	X	Footnote(4)	N/A
423.26.5 Minimum size	X	Footnote(4)	N/A
423.26.6 Lighting	X	Footnote(4)	N/A
423.26.7 HVAC required	X	Footnote(4)	N/A
423.27 New relocatables	X	X	X
423.27.1 Relocatables	X	X	X
423.27.1.1 Shelter	X	X	X
423.27.2 Design, plan, approval, construction	X	X	X
423.27.2.1 District-wide foundation plans	X	X	X
423.27.2.2 DOT requirements	X	X	X
423.27.2.3 Inventory/construction date signage	X	X	X
423.27.3 Construction type	X	X	X
423.27.4 Accessibility	X	X	X
423.27.5 Site standards/site plan	X	X	X
423.27.5.1 Floodplain	X	X	X
423.27.5.2 Covered walks and technology	X	N/A	N/A

OFFICE OF EDUCATIONAL FACILITIES SECTION 423 APPLICATION MATRIX			
Section	**K-12**	**College**	**Ancillary**
423.27.5.3 Separation of units	X	X	X
423.27.6 Structure	X	X	X
423.27.7 Fire-retardant treated wood (FRTW)	X	X	X
423.27.8 Doors	X	X	X
423.27.8.1 Classroom locksets	X	X	N/A
423.27.8.2 Roofed platform	X	X	X
423.27.9 Operable windows	X	N/A	N/A
423.27.9.1 Rescue	X	N/A	N/A
423.27.10 Finishes	X	X	X
423.27.10.1 Interior walls and ceilings	X	X	N/A
423.27.10.2 Floors	X	X	N/A
423.27.10.3 Toilet rooms, showers, and bathing facilities	X	X	X
423.27.10.3.1 Floors and walls	X	X	X
423.27.10.3.2 Ceilings	X	N/A	N/A
423.27.11 Fire extinguishers	X	X	N/A
423.27.12 Document storage	X	X	X
423.27.13 Time-out rooms	X	Footnote[4]	N/A
423.27.14 Child care/day units	X	Footnote[1]	Footnote[1]
423.27.14.1 Residential kitchens	X	X	N/A
423.27.15 Illumination required	X	X	N/A
423.27.15.1 Emergency lighting	X	X	N/A
423.27.15.2 Exterior lights	X	X	X
423.27.15.3 Exit lighting	X	X	X
423.27.16 Air conditioning, heating and ventilation	X	X	X
423.27.17 Technology	X	X	N/A
423.27.18 Fire safety requirements	X	X	N/A
423.27.19 Inspection of units during construction	X	X	X
423.27.20 Inspection of units prior to occupancy	X	X	X

[1] If Daycare Program exists
[2] Where required by NFPA
[3] If Vocational Program is present
[4] If included in program