



Department of Commerce

Board of Building Standards

CODES IN OHIO

A Short Primer on the Basic Concepts of the Ohio Building Codes

Rhode Island Club Fire



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Using the Codes



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Government's Role:

To Serve & Protect

We provide services and protection that society expects.....through our system of electing representatives who make laws



Government's Role:

Why we do what we do:

1. To Promote The Public Welfare.
2. By Responding To Society's Needs

Through:

- Federal Laws & Rules
- State Laws & Rules
- Local Ordinances & Resolutions



Government's Role:

Legislative Changes Often Result From:

1. Excessive enforcement
2. Inadequate enforcement.
3. Disasters



Government's Role:

Responding to Society's Needs:

Protection demanded after an unacceptable loss :

- San Francisco Earthquake & Chicago Fires 1,000
- Triangle Shirt and Waist Factory Fire - 1880's 146
- School Fires of the '40s & '50s
- Coconut Grove Fire in Boston - 1948 492
- Beverly Hills, Kentucky Restaurant Fire 165
- MGM Grand Hotel Fire (Las Vegas) 84
- Kansas City Hotel Walkway Collapse 114
- Earthquakes, Floods, Hurricanes
- Scottstown, Ohio Consumer Fireworks Store 8
- Possible Results From 11 Sept. 2001 Attack 3



What Are the Codes?

1. Responses to the Law
2. Rules to be Enforced
 - Administrative & Process-oriented
 - Primarily Specification, also Performance
3. Established Limits
 - Establishes uniformity for design and application
 - Establishes **ACCEPTABLE** thresholds



Purpose of the Building Code 3781.11 ORC

To Manage Risks With Consideration For:

1. Uniformity
2. Performance Objectives Consistent With Intended Use
3. Permitting Materials & Methods That May Reduce Costs While Maintaining the Acceptable Risk Thresholds
4. Encouraging Standardization of Methods & Materials Without Preference to Any Type or Class



Model Codes Objectives

Primary Considerations:

1. Life Safety – *save occupants/protect those around*
2. Health – *ventilation, plumbing, etc.*
3. Property Protection – *reduce the impact of the loss*
 - Critical Facility Protection - level of necessary operation
 - Reduced Replacement costs for community facilities
4. Welfare & Others – *quality of life, energy, accessibility, renewable resources, sustainability, “green”, etc.*



What About the Code?

The Code:

1. What is the Building Code?
2. How is it developed?
3. What is its structure?
4. What about other standards?



Code Types

1. Land Use & Environmental
 - Zoning, Architectural, Environmental Review
2. Building Design & Construction
 - Building, Mechanical, Electrical, Plumbing Codes
3. Community Safety
 - Fire Prevention & Safety, Property Maintenance Codes
 - Licensing Agencies



How do the Codes Stay Current?

The National "System" Requires Continuous Evaluation of Existing Provisions to Account For:

1. Updated Statistics
2. Changing Materials, Methods, Engineering Analysis, Societal Objectives
3. Cost Impact & Availability of Resources
4. Developing Consensus Standards
5. Capabilities of Testing Laboratories and Certifying Agencies



Delay Times

Delay Data: Delay Times (Minutes) Derived from Actual Fire and Evacuation Exercises Reported in the Referenced Literature

Event Description	N	Min	1st Q	Median	3rd Q	Max	Mean	Factors
High-rise hotel ¹⁰	596	0	3.9	60.0	120.9	200	n/a ^a	MGM Grand Hotel fire, no alarm notification; grouped data from questionnaire
High-rise hotel ¹¹	47	0	2.0	5.0	17.5	120	n/a	Walden Hilton Hotel fire, no alarm in early stages; grouped data from questionnaires
High-rise office building ¹²	85	0	2.0	5.0	10.0	245	11.3	World Trade Center explosion and fire, no alarm notification (building closed to explosion)
High-rise office building ¹³	46	0	4.5	10.0	31.5	185	23.4	World Trade Center explosion and fire, no alarm notification (building further from blast)
High-rise office building ¹⁴	107	1.0	1.0	1.0	1.0	-5.0	n/a	Fire incident, no alarms, data from interviews with occupants of four floors of building (11 interviewees were trapped)
High-rise office building ¹⁵	12	0.8	n/a	1.0	n/a	3.3	1.3	Unannounced drill on three floors; data for first person to reach each of four stairwell doors to wait for voice instruction; trained staff; data from video recordings

^a n/a = not available

Author ¹⁶	N	Min	1st Q	Median	3rd Q	Max	Mean	Factors
Walden Hilton	47	0	2.0	5.0	17.5	120	11.3	Walden Hilton fire
MGM Grand	596	0	3.9	60.0	120.9	200	11.3	MGM Grand fire
World Trade Center	132	0	2.0	5.0	10.0	245	11.3	World Trade Center fire
World Trade Center	46	0	4.5	10.0	31.5	185	23.4	World Trade Center fire
World Trade Center	107	1.0	1.0	1.0	1.0	-5.0	1.3	World Trade Center fire
World Trade Center	12	0.8	n/a	1.0	n/a	3.3	1.3	World Trade Center fire



Speeds

Travel Data: Travel Speeds Reported in the Referenced Literature

Type of Situation	Measured Travel Speeds
A. Where Density Was Reportedly Not a Factor	
Transport terminals ¹⁷	265 ft/min on walkways (1.35 m/s)
Average under "normal conditions" ¹⁸	60 m/min (1.0 m/s)
Experiment with disabled subjects ¹⁹	
On horizontal (m/s)	
All disabled subjects	0.10 0.71 1.23 1.77 1.00
With locomotion disability	0.10 0.57 1.02 1.55 0.80
No aid	0.24 0.70 1.02 1.55 0.85
Crutches	0.63 0.67 1.24 1.35 0.94
Cane	0.26 0.49 1.08 1.60 0.81
Walker/holator	0.10 0.34 0.83 1.02 0.57
Without locomotion disability	0.62 1.08 1.34 1.77 1.25
Unassisted wheelchair	0.85 --- 0.93 0.89
Assisted ambulant	0.21 0.58 0.92 1.40 0.78
Assisted wheelchair	0.84 1.07 1.59 1.98 1.30

On overhead incline

Author ²⁰	N	Min	1st Q	Median	3rd Q	Max	Mean	Factors
All disabled	6	0.10	0.42	0.70	1.00	1.00	0.50	
With locomotion disability	6	0.10	0.42	0.70	1.00	1.00	0.50	
No aid	6	0.24	0.49	0.84	1.25	1.55	0.85	
Crutches	6	0.24	0.49	0.84	1.25	1.55	0.85	

B. Where Density Was a Factor

Public places²¹

Author ²²	N	Min	1st Q	Median	3rd Q	Max	Mean	Factors
100-150 ft/min on stairs (0.50-0.75 m/s)	100	0.10	0.42	0.70	1.00	1.00	0.50	



Egress Time

$$\text{Evacuation Time} = T_N + T_R + T_{PA} + T_T$$

Where:

T_N = Time to Notification

T_R = Reaction Time

T_{PA} = Pre-evacuation Activity Time

T_T = Travel Time



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People Movement

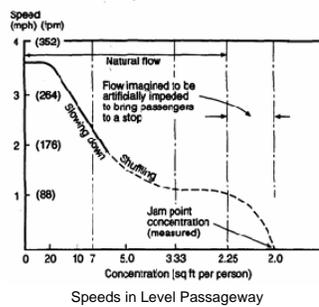
People Movement Calculations:

- Avg. Walking Speed = 250 ft./min.
- Shuffling Speed = < 145 ft./min.
- Avg. Flow Rate
 - Level Passages = 27 people/min./ft. width
 - Down Stairs = 21 people/min./ft. width
 - Upward Travel = 19 people/min./ft. width
- Flow rates can increase 50% in passageways less than 10 ft. long.



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People Movement



Falls

Unintentional-Injury Deaths Due to Falls 1986-1995

Rates per Million Population

Region/Country	Rate	Region/Country	Rate
North America		Europe	
Canada	78	Hungary	309
Mexico	51	Czech Republic	291
USA	50	Norway	228
		Slovenia	105
South America		Finland	103
Venezuela	43	Austria	170
Argentina	33	Finland	107
Chile	30	Italy	102
		Croatia	148
Asia/Pacific		Sweden	104
New Zealand	73	Belgium	145
Australia	57	Finland	110
Japan	35	Netherlands	103
		Portugal	81
		Ireland	77
		United Kingdom	75
		Bulgaria	60
		Greece	55
		Russia	52
		Spain	29

Source: National Safety Council, *International Accident Facts*, 2nd Edition, 1999



Falls

Unintentional Injury Deaths Due to Falls, Deaths Coded on U.S. Death Certificates

Year	Total	Falls on or from Stairs or Steps	Falls on or from Ladders or Scaffolding	Falls from out of Building or Structure	Falls into Holes or Openings in Surface	Other Falls from One Level to Another	Falls on Same Level from Slipping, Tripping, or Stumbling	Falls on Same Level from Collision, Pushing or Shoving	Other or Unknown-Type Falls
1989	12,151	1,183	332	557	77	933	471	5	8,619
1990	12,313	1,148	316	615	84	1,031	491	8	8,520
1991	12,662	1,202	317	607	104	1,061	498	8	8,897
1992	12,645	1,197	298	513	99	984	477	8	8,072
1993	13,141	1,087	301	509	107	1,156	520	9	9,452
1994	13,450	1,163	327	477	93	1,068	600	4	9,920
1995	13,988	1,241	352	487	94	1,145	491	8	10,188
1996	14,395	1,239	359	444	98	1,129	588	3	11,028
1997	15,447	1,298	368	540	70	1,106	728	4	11,329
1998	16,274	1,389	352	550	95	1,187	740	6	11,955

Source: National Safety Council, *Injury Facts and Accident Facts*, National Safety Council, Itasca, IL, 1993-2000, 1998 statistics from the CDC/NCHS website.



Fire

Assumptions for Evacuation from Fire:

Method(s) to save (bring to safety) those not intimate with fire.

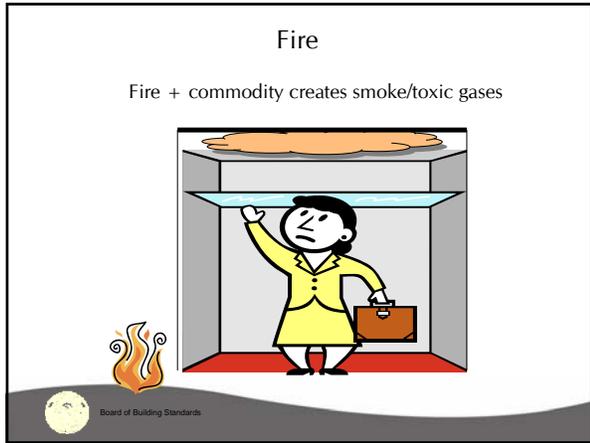
Considerations:

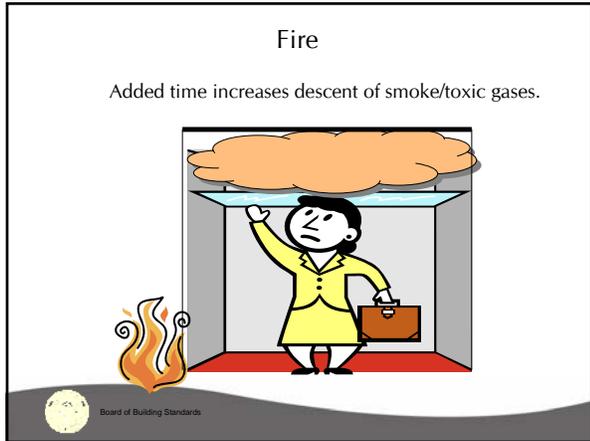
Jeopardy from fire

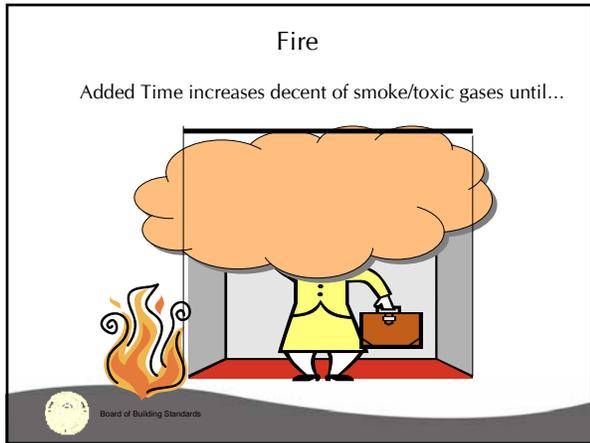
- Combustibles/Commodities burn
 - Smoke Developed/Toxic Gas Build-up – data from tests
 - Rate of Burn – data from tests
- Tenability of Space
 - To Six Feet Above Finished Floor
- Travel Distance to Safety
- Proximity to Fire



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Fire

A fire scenario generally works like this:

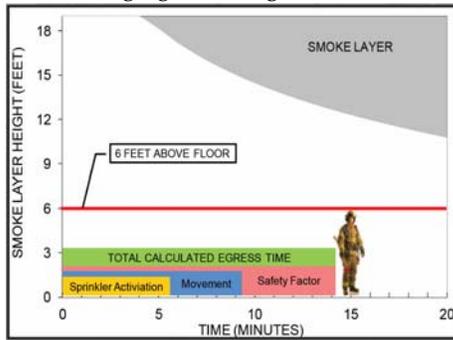
A commodity X (oak as a baseline) in the corner of a room is ignited that will produce a certain level of toxic gases:

- Those toxic gases grow at a greater rate as more or other combustibles are added
- Increased heat ignites other combustibles
- People within a burning building have a **certain predictable amount of time** to reach safety. We can predict, with some degree of certainty, how many people can **safely evacuate based on straight line travel distance and uncomplicated circumstances.**



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Managing Risk – Egress Time



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Managing Risk - Fire

As risk conditions are added:

1. They must be offset so that the required amount of travel time to safety is assured.
2. Increasing toxic gas production has the effect of reducing the time we have to reach safety
3. Increasing travel distance increases the time necessary to reach safety
4. Delaying the time when the occupants are warned increases the time necessary to reach safety



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Elements of Risk

1. Whether Occupants Are Sleeping
2. Familiarity With Surroundings
3. Travel Distances or Multiple Floors to Safety
4. Capability of Responding to an Emergency
5. Willingness to Leave
6. Number of Occupants in the Space
7. Sensory Impairments or Limitations
8. Likelihood of Panic in an Emergency
9. Exposure to Potential Hazards
10. Special Loads



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Managing Risk



Risk Management Strategies:

1. Evacuation
2. Protect in Place
3. Hazard Containment



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Example Occupancy: Elementary School

Pre-modern codes:

- Multiple floors
- Single exits
- No alarm
- No fire drills
- Unprotected frame construction
- Wood burning & coal heat
- Systems not inspected or maintained, etc.

Resulting in multiple-death fires –

HIGH RISK

Current Codes:

- Protected egress routes
- Multiple exits
- Effective alarm system
- Emphasis on fire evacuation drills/response to alarm
- Construction Types defined
- Modern heating systems
- Combustibles storage control
- Maintenance, Inspections

Resulting in the safest occupancy for density per space occupied –

RISK MINIMIZED



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Determining Safety:

- How is the building and its spaces being used?



- How is the building constructed?



- How big is the building?



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Elements of Risk Management

- Fire Protection Systems
- Egress Systems
- Fire Resistance/Fire Separation
- Allowable Height and Area
- Structural Requirements
- Construction Type
- Mechanical and Electrical System



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Modern Code Organization - OBC

1. How to Administer and Enforce the Code	1 - 2
2. Risk Categories and Special Provisions	3 - 4
3. Planning for Buildings	5 - 6
4. Fire Safety for Buildings	7 - 8
5. Fire Protection for Buildings	9
6. Egress Design for Buildings	10
7. Environmental Design for Buildings	11 - 13
8. Building Performance	14 - 26
9. Building Systems	27 - 30
10. Special Types of Buildings	31
11. Protecting During Construction	32 - 33
12. Buildings That Already Exist	34
13. Standards Referenced in the Code	35



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Fire Protection for Buildings

Chapter 9 – Fire Protection Systems

(also see other Chapters 4, 5, etc.)

1. Types & where required
 - Sprinklers, alarm and detection, standpipes, smoke control, fire command.
2. Examples:
 - a. A-2 (What is this?), 2-Stories
 - b. B, 10-Stories (What is this?)



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Special Provisions

Chapter 4 - Special provisions for certain Occupancies that have uniqueness

1. Covered and Open Malls - 402;
2. High Rises - 403;
3. Atriums – 404;
4. Underground Buildings – 405;
5. Motor Vehicle Garages, etc. – 406;
6. Institutional I-2 – 407;
7. Institutional I-3 – 408;
8. Motion Picture Projection - 409
9. Stages & Platforms – 410;
10. Special Amusement – 411;
11. Aircraft Related – 412



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Ohio Building Code

Special Provisions

Chapter 4 - Special provisions for certain Occupancies that have uniqueness

12. Combustible Storage – 413;
13. Hazardous Materials – 414;
14. Hazardous Groups – 415;
15. Application of Flammable Finishes - 416;
16. Drying Rooms – 417;
17. Organic Coatings – 418;
18. Live/Work Units – 419; *
19. Sleeping Occupancies – 420;
20. Hydrogen Cut-Off Rooms – 421;
21. Ambulatory Healthcare – 422; *
22. Storm Shelter – 423. *



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Fire Safety

Chapter 7 – Fire Resistance Rated Construction

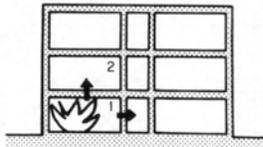
1. Ratings in accordance with tests
2. Tests in accordance with standards
3. Alternative methods
4. Fire:
 - Walls
 - Barriers
5. Smoke:
 - Partitions
 - Compartments
6. Penetrations, Joints, Openings
7. Prescriptive & Calculated Fire Resistance



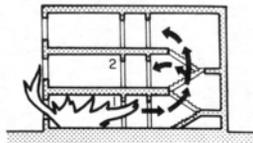
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Managing Risk - Compartmentation



Adequate Compartmentation
Restricts the development of fire and its spread to adjacent spaces.



Inadequate Compartmentation
Permits the development of fire and its spread to adjacent spaces.



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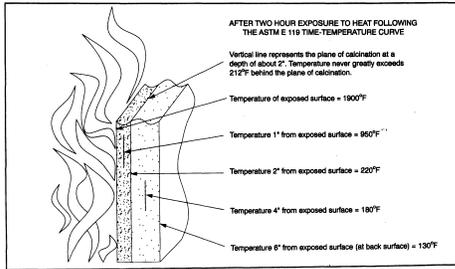
Fire Safety



Radiant Flux Test (NFPA 253)



Fire Safety



Fire Safety



Fire Test (ASTM E119)

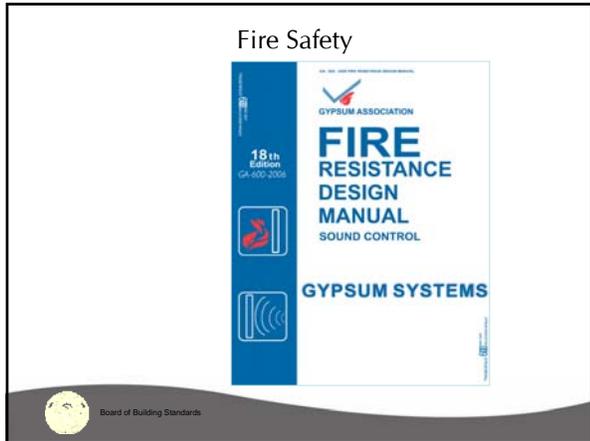


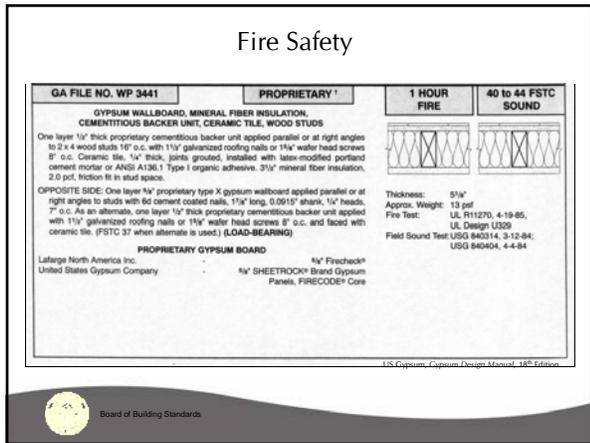
Fire Safety

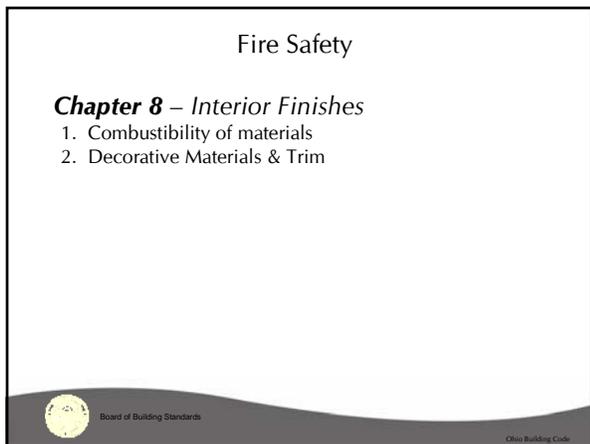
How does this all work together?

1. Lists for Rated Assemblies (Test Number)
2. Listings
3. Labeling
4. Use in Construction Documents
5. Field Verification









Egress Design

Chapter 10 – Means of Egress

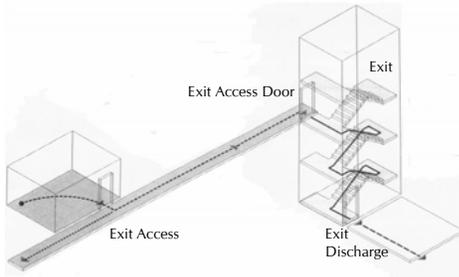
1. Occupant load determination, size, and arrangement of all elements – based upon actual use of space
Example: Church, mixed use – Assembly w/fixed seats, w/o fixed seats, business, educational, kitchen, platforms
2. Accessibility, lighting, doors, stairways, ramps, guards, etc.
3. Elevators



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Egress Design



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Code Overview

Designing and Managing the Building,
its Environment and Systems



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Ohio Building Code

How to Administer and Enforce the Code

Chapter 1 – Requirements related to:

1. Building department administration
 - What enforcement personnel are authorized to do & for which they can be held responsible
 - What processes must be used

Chapter 2 – Definitions

1. Meaning of terms used in the code in the context of the codes use



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Ohio Building Code

Risk Categories

Chapter 3 - Occupancy Descriptions

1. Categories of Risks/how the structures and spaces within them are being used.
 - General groups: A, B, E, F, H, I, M, R, S, U.
 - Specific Occupancy Descriptions: restaurants, arenas, offices, clinics, hospitals, schools, child care, ammunition magazines, hazards containment, etc.



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Ohio Building Code

Planning for Buildings

Chapter 5 – Allowable Bldg. Height & Area

1. Height & Area Table
2. Mixed Use and Incidental areas
3. Height & Area Modifications

Chapter 6 – Types of Construction

1. Types based on material & resistance to fire



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Ohio Building Code

Environmental Design

Chapter 11 – Accessibility

1. Facility usability
2. Facility access and function for people with disabilities
3. ANSI

Chapter 12 – Interior Environment

1. Space and dimensions for rooms, ventilation, lighting, temperature & sound control,

Chapter 13 – Energy Efficiency

1. IECC
2. ASHRAE 90.1
3. Etc.



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Building Performance

Chapter 14 – Exterior Walls

1. Performance
2. Weather resistance & wall covering

Chapter 15 – Roof Assemblies & Structures

1. Weather resistance
2. Performance, materials, installation

Chapter 16 – Structural Design

1. Design considerations
2. Wind, snow, seismic, dead & live Loads
3. Forces, material values



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Building Performance

Chapter 17 – Structural Tests & Special Inspections for specialized construction

1. Steel, Welds, etc.
2. Masonry
3. Concrete
4. Steel Fabrication
5. Seismic
6. Soils: Piles, piers
7. Sprayed fire resistant material/coatings
8. Pre-fabricated wood assemblies
9. Smoke Control



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Building Performance

Chapter 18 – Soils & Foundations (*Footer or Footing*)

1. Determining soil bearing
2. Excavation, grading, fill
3. Depth, frost, thickness, reinforcement
4. Water-resistance
5. Piers, piles, material

Chapter 19 – Concrete

1. Content for specs & construction docs.
2. Standards for materials
3. Durability, quality, mixing, placing
4. Forms, reinforcement
5. Revisions to standard
6. Concrete types, anchorage, etc.



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Building Performance

Chapter 20 – Aluminum

1. Materials

Chapter 21 – Masonry

1. Materials standards
2. Types, methods
3. Cold weather req. based on temp.
4. Quality, seismic, strength, bonding, etc.
5. Fireplaces, heaters, chimneys

Chapter 22 – Steel

1. Structural ID, connections
2. Joists, cable structures, storage racks, cold formed



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Building Performance

Chapter 23 – Wood

1. Standards & Quality
2. Construction requirements
3. Decking, connections & fasteners
4. Heavy timber
5. Structural panels, shear walls
6. Design factors
7. Conventional framing

Chapter 24 – Glass & Glazing

1. Loads
2. Sloped & skylights
3. Safety glazing
4. Special glazing installations



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Building Performance

Chapter 25 – Gypsum & Plaster

1. Standards & Quality
2. Construction requirements
3. Lath & Plastering
4. In wet locations
5. Interior & exterior

Chapter 26 – Plastic

1. Use of foam plastics
2. Interior finish & trim
3. Plastic veneer
4. Light Transmitting



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Ohio Building Code

Building Systems

Chapter 27 – Electrical

1. Applicable standard
2. Tests & Listings
3. Emergency & standby power systems
4. Penetrations
5. Smoke detection

Chapter 28 – Mechanical

1. See the Ohio Mechanical Code

Chapter 29 – Plumbing Systems

1. See the Ohio Plumbing Code



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Building Systems

Chapter 30 – Elevators

1. Other conveying systems
2. Applicable standard
3. Enclosures
4. Emergency power systems
5. Hoistway venting
6. Machine Rooms



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Special Types of Building

Chapter 31 – *Special Structures*

1. Membrane structures, Pedestrian Walkways, Tunnels, Awnings, Canopies, Marquees & Signs, Radio & TV Towers, Swimming pool areas, etc.



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Protection During Construction

Chapter 32 – *Right-of-Way Encroachments*

Chapter 33 – *Construction Safeguards*

1. Demolition, site work, required sanitary facilities,
2. Protection for:
 - Pedestrians, adjoining property
3. Use of public routes
4. Fire extinguishers
5. Exits, sprinkler system, standpipes



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Buildings That Already Exist

Chapter 34 – *Existing Structures*

1. Maintenance, repairs, additions, alterations, changes of occupancy, historic buildings, accessibility for existing buildings, etc.



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Ohio Building Code

Standards Referenced in the Code

Chapter 35 – Referenced Standards

1. ANSI, ASTM, and other standards applicable to the extent indicated in the code section applicable.



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The Plumbing Code

Chapter 1 - as indicated in OBC Chapter 1

Chapter 3 - General...(Misc.)

1. Materials ID, installation, protection of piping & public systems, rodent proofing, trenching/backfill & structural safety, piping support, facilities for workers
2. Tests & Inspections
3. Efficiencies
4. Welding & Brazing



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The Plumbing Code

Chapter 4 – Fixtures, Faucets & Fittings

1. Materials, quality, minimum plumbing fixtures
2. Installation, washers, bathtubs, bidets, dishwashers, drinking fountains, floor drains, disposals, lavs, showers, sinks, urinals, water closets, whirlpools, healthcare fixtures & equipment, faucets floor sinks, etc.

Chapter 5 – Water Heaters



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The Plumbing Code

Chapter 6 – Water Supply & Distribution

1. Water required
2. Water Service
3. System Supply
4. Materials, Joints, connections
5. Installation of system
6. Hot water
7. Protection of system
8. Health care
9. Disinfection & treatment of system
10. Solar systems
11. Temp control devices & valves



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The Plumbing Code

Chapter 7 – Sanitary Drainage

1. Sewer required
2. Materials, above ground, vent & underground
3. Installation, joints
4. Cleanouts
5. Fixture units, system sizing, systems in high rises
6. Sumps & ejectors, healthcare plumbing
7. Computerized design, backwater valves

Chapter 8 – Indirect & Special Waste



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The Plumbing Code

Chapter 9 – Vents

1. Materials
2. Outdoor Extensions & Terminals
3. Connections, grades
4. Fixture, individual, common, wet, waste stack, relief & circuit vents
5. Vent sizing
6. Air admittance valves
7. Engineered & computerized design



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The Plumbing Code

Chapter 10 – Traps, Interceptors & Separators

Chapter 11 – Storm Drainage

Chapter 12 – Special Piping & Storage systems

Chapter 13 – Referenced Standards



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The Mechanical Code

Chapter 1 - as indicated in OBC Chapter 1

Chapter 3 - General...(Misc.)

1. Equipment requirements, listing/labeling, electrical & plumbing associated elements of systems and equipment
2. Fuel gas standard
3. Structural protection
4. Equipment and appliance locations
5. Installation requirements
6. Misc.: Condensate disposal; clearance reductions; temp. control; explosion control; smoke & heat vents; heating & cooling calculations
7. Welding & Brazing



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The Mechanical Code

Chapter 4 – Ventilation

1. General, openings
2. Natural ventilation
3. Mechanical ventilation
4. Enclosed parking garages, systems control, ventilation of uninhabited spaces
5. Required outdoor air



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Chapter 5 – Exhaust Systems

1. Required systems: Aircraft fueling; Battery charging industrial uses; Dry cleaning, etc.
2. Motors & Fans, dryers, domestic & commercial kitchen exhaust & hoods, makeup air, hazardous exhaust, dust, stock & conveying systems, subsoil exhaust, smoke control, energy recovery



The Mechanical Code

Chapter 6 – Duct Systems

1. General
2. Plenums
3. Duct construction
4. Insulation, Air Filters
5. Smoke detection systems control
6. Duct & transfer openings

Chapter 7 – Combustion Air

1. General
2. Indoor, outdoor air
3. Forced combustion air
4. Misc., direct connection, combustion air, opening locations, protection & obstructions



The Mechanical Code

Chapter 8 – Chimneys & vents

1. General, connectors, vents, direct, integral & mechanical draft systems
2. Factory built chimneys, metal chimneys

Chapter 9 – Appliances, Fireplaces & Solid Fuel Burning Equipment

1. See individual type, sections 901-926



The Mechanical Code

Chapter 10 – Boilers, Water Heaters & Pressure Vessels

- 1. Scope, limitations & exceptions
- 2. Conditions for use and installations, connections
- 3. Safety & pressure relief valves & control
- 4. Cutoff & blow off valves
- 5. H W Boiler expansion tank
- 6. Gauges



The Mechanical Code

Chapter 11 – Refrigeration

- 1. Scope, equipment & Materials, referenced standards
- 2. System requirements
- 3. Refrigerants, mixing, purity
- 4. System classification
- 5. Application requirements
- 6. Machinery room requirements
- 7. Piping
- 8. Field & periodic tests



The Mechanical Code

Chapter 12 – Hydronic Piping

- 1. Sizing, insulation, material, installation
- 2. Valves
- 3. Transfer fluid, tests, embedded piping

Chapter 13 – Fuel Oil Piping & Storage

- 1. Scope & referenced standards
- 2. Materials
- 3. Joints & Connections
- 4. Piping support
- 5. Installation of systems
- 6. Valves
- 7. Testing



The Mechanical Code

Chapter 14 – Solar Systems

1. Scope, water supply, equipment & appliances, ducts
2. Installation
3. Heat transfer fluids
4. Materials

Chapter 15 – Referenced Standards



Board of Building Standards

Managing Risk



Board of Building Standards



Board of Building Standards
