



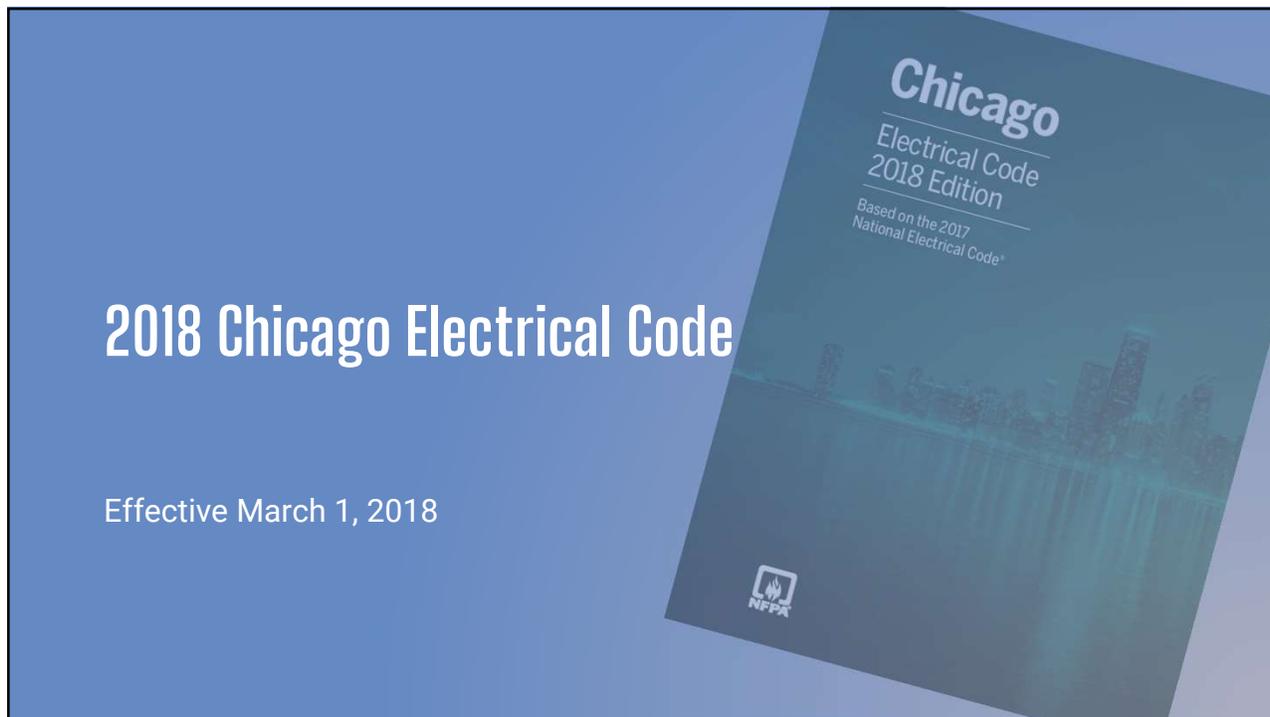
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Overview

- 2018 Electrical Code
- Electrical Planning Basics
- When are Electrical Plans Required?
- Required Electrical Information
- Required Emergency Systems
- Sign Permits



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2018 Chicago Electrical Code

Effective March 1, 2018

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2018 Electrical Code

- 2018 Chicago Electrical Code (Title 14E) effective **March 1, 2018**
- Aligned with 2017 *National Electrical Code*
- Removed or reduced some Chicago-specific requirements
- Code modernization, Phase 1



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Key Chicago Amendments

- Metallic conduit requirements (Chapter 3)
 - But AFCI tradeoff (Sec. 210.12, exceptions)
- Limits on communication cable in plenums (Chapter 8)
- Emergency lighting systems (Art. 700)
- Consolidated requirements for residential buildings (Art. 560)
- Special rules for low-rise residential remodeling (Art. 570)



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Key Chicago Amendments (continued)

- Flexible metal conduit allowed for use in rehab work behind existing walls, floors, and hard-surface ceilings not being removed as part of work in lengths up to 25 feet – **all occupancies.** (Arts. 320, 330, 348)



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Key Chicago Amendments (continued)

- Requirement for light in closet increased from 5 ft² to **25 ft²**. (210.70(A); 560.7)
- No light required over sink in room or area **≤ 64 ft²** (powder rooms, small bathrooms, small laundry rooms, kitchenettes) (210.70(A); 560.7)



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CODE BOOK



Direct from the NEC

- Accepts all load calculation methods from NEC (Art. 220)
- Adopts national standards for sustainable and renewable energy (Arts. 410, 411, 691, 692, 694, 706, 710, 712, 750)
- Allows reduction in required lighting load to coordinate with Energy Conservation Code (Sec. 220.12; CECC C405.4.2)



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Direct from the NEC (almost)

- Spaces around electrical equipment now 95% consistent with NEC ([Art. 110](#))
- Service disconnecting means may now be located outdoors (except 1 and 2 family homes) ([230.70](#))



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CODE BOOK



2019 Amendments

- Secondary source of power now only required for fire pumps in high-rise buildings and other buildings with Type I emergency systems (Group I-2, Condition 2; Group A with OL > 300 in multistory building; Group A-1 with OL > 300)
- Recognition that “standby power” loads may have 10 sec. delay (elevators, some exhaust systems); “emergency power” must still have 1 second delay, consistent with NEC

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KEY CONCEPT



Checking Electrical Requirements

1. General electrical requirements
2. Specialized electrical requirements
3. Lighting requirements
4. Distribution



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General Electrical Requirements

Receptacle Outlets

- Dwelling Units (210.52)
- Guest Rooms, Guest Suites, Dormitories, etc. (210.60)
- [Retail] Show Windows (210.62)
- HVAC Equipment Servicing (210.63)
- Electrical Service Areas (210.64)
- Meeting Rooms (210.71)



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General Electrical Requirements (continued)

- Check receptacle outlet spacing requirements
 - Walls/partitions
 - Kitchen worksurfaces
 - Meeting rooms
- GFCI requirements
- AFCI requirements
 - But see Chicago exception for new/compliant installations
- Tamper-resistant receptacles



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Specialized Electrical Requirements

- Specialized equipment may require:
 - Dedicated circuit(s)
 - Special grounding methods
- Specialized equipment can include:
 - Computer servers / network equipment
 - Photocopiers
 - Microwaves and breakroom appliances
 - Vending machines
 - Industrial equipment



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Lighting Requirements

Lighting Outlets (210.70)

- Dwelling Units (210.70(A))
- Guest Rooms or Guest Suites (210.70(B))
- Storage/Utility Areas—All Occupancies (210.70(C))

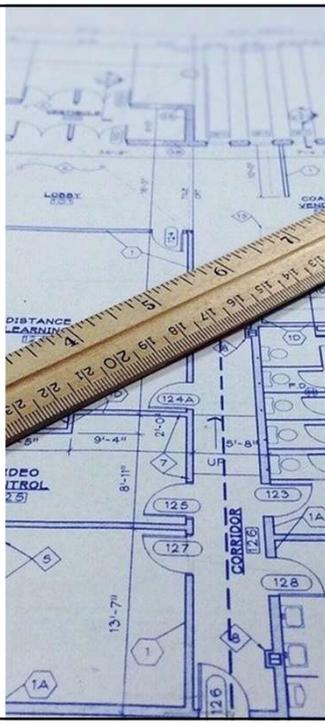
Lighting also required for means of egress per *Building Code*.



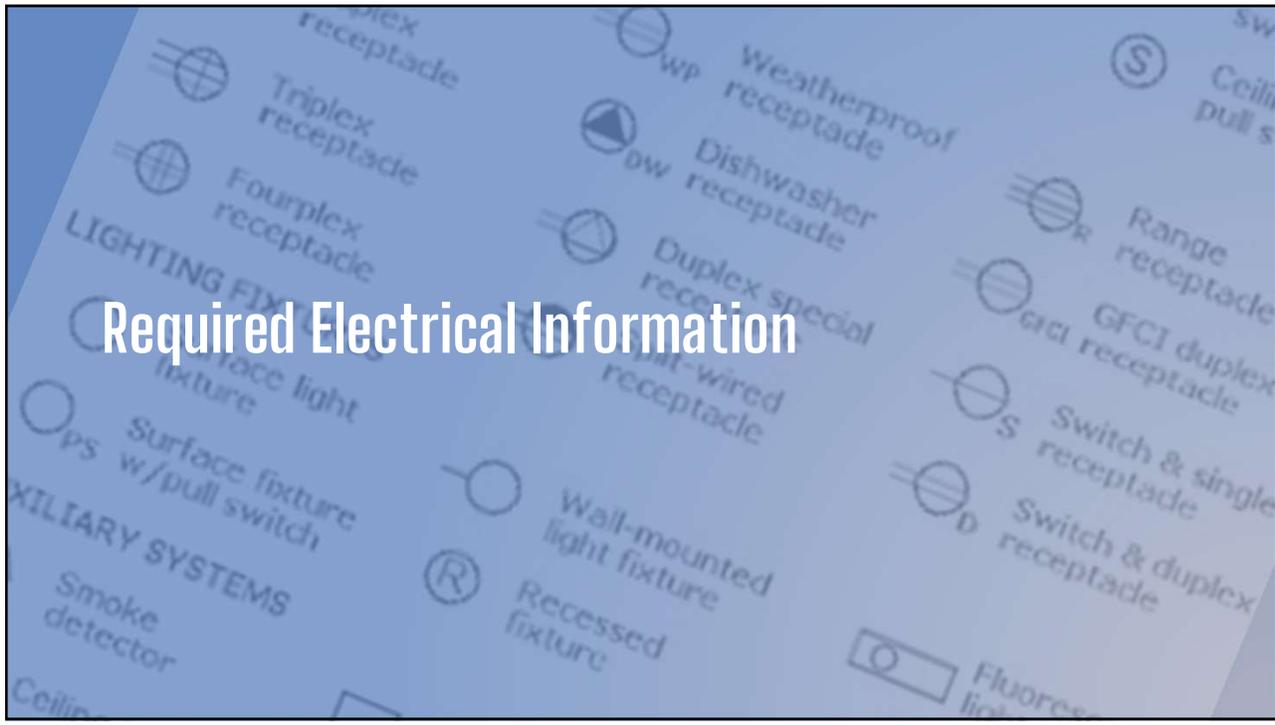
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Electrical Plans Required

- Dwelling occupancies in buildings greater than two stories in height.
- Non-dwelling occupancies in buildings greater than one story in height or greater than 10,000 ft².
- New or replacement services or feeders rated 400 Amps or greater.
- Service switchboards and motor control centers rated in excess of 1,200 amperes or 600 volts.



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Electrical Information Required on Plans

- Single line drawing of the service and distribution.
- Schedule of conduits, wire, switches, circuit breakers, over current devices, transformers, motors and luminaires.
- Load calculations to verify sizes of services, feeders and panel boards indicating available fault-current and withstand ratings.
- Grounding detail, including grounding electrode conductor or common grounding electrode conductor system.
- Equipment layout in switchboard rooms and electrical closets indicating the working space required by 110.26.

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Electrical Information Required on Plans (continued)

Special Services Switchboard

- Switchboard with a single disconnecting means having a frame rating in excess of 1,200 amperes or a sequence service switchboard where the sum of the frame size exceeds 1,200 amperes.
- Drawing submittal requirements.
- Review and approval.

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Required Emergency Systems (14E-7-700)

- Location of all exit and emergency lights on scaled floor plans.
- Review of single line drawing of emergency service and distribution showing sizes of conduit, conductors, switches and over current devices.
- Detail all loads and locations of emergency lighting equipment.
- If applicable, generators must comply with Article 701, Section 18-27-701.6.



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Fire Alarm Systems

- This is a separate submittal of shop drawings by the fire alarm contractor **AFTER** the building permit has been issued.
- Two complete raceway diagrams showing all horizontal and lateral sections and two corresponding circuit diagrams.
- Show the circuits of the control panel, alarm sending stations, automatic detectors, alarm sounding devices, supervisory test switches, trouble sounding device, trouble sounding device test switch, pilot light and switch.

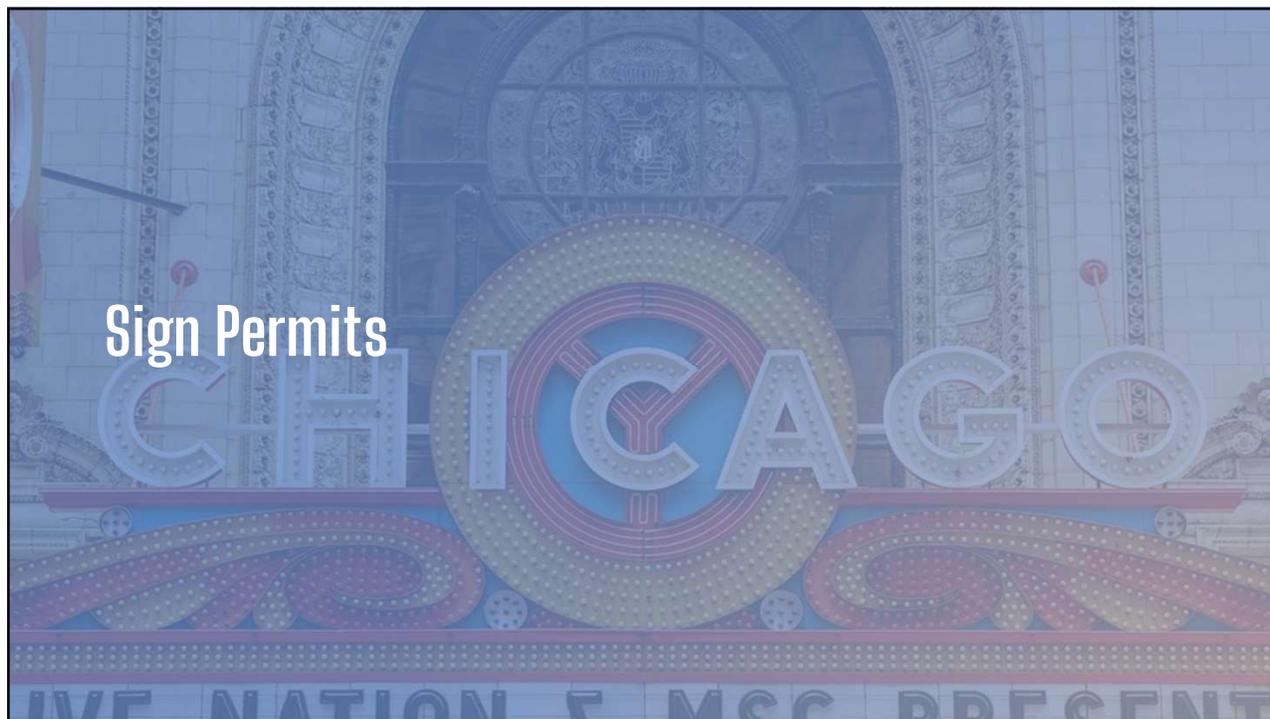


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Fire Alarm Systems (continued)

- Submit two one-line wiring diagrams showing the service entrance conductors, equipment and fire alarm supply source.
- Full load calculations for all initiating and signaling circuits.

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Sign Permits

A separate sign permit is required for:

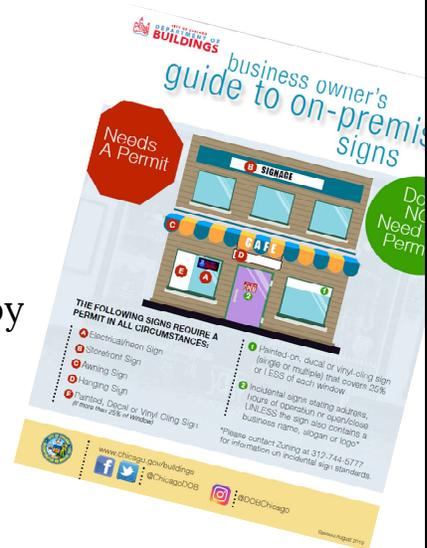
- Building-mounted flat and projecting signs as well as billboard signs, free-standing signs, printed awnings, and monument signs.
 - Includes electric and non-electric signs
 - Sign permit application must be started online by the contractor
 - Zoning review is required
 - Site plan and construction details required
 - May require structural calculations
- Use of public way is required for signs located in or projecting into the public way

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Sign Permits (continued)

For more information, see *Business Owner's Guide to On-Premise Signs*, available on DOB's web site.

- Some window signs do not require a permit
- New fast-track business signs program, run by BACP, will allow up to 16 ft² inside window signs as part of business license



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KEY CONCEPT



Summary

- Provide for required receptacle and lighting outlets.
- Follow the requirements for providing single line drawings, load calculations, grounding detail, and equipment layouts.



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KEY CONCEPT



Contact Information

- For Electrical questions contact:
dcapelectr@cityofchicago.org
- For Electrical Plan Review or Sign Permit Questions contact:
312-744-7955
312-744-3472
- To schedule an inspection visit
www.chicago.gov/buildings and
select “Request a Permit Inspection”



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