



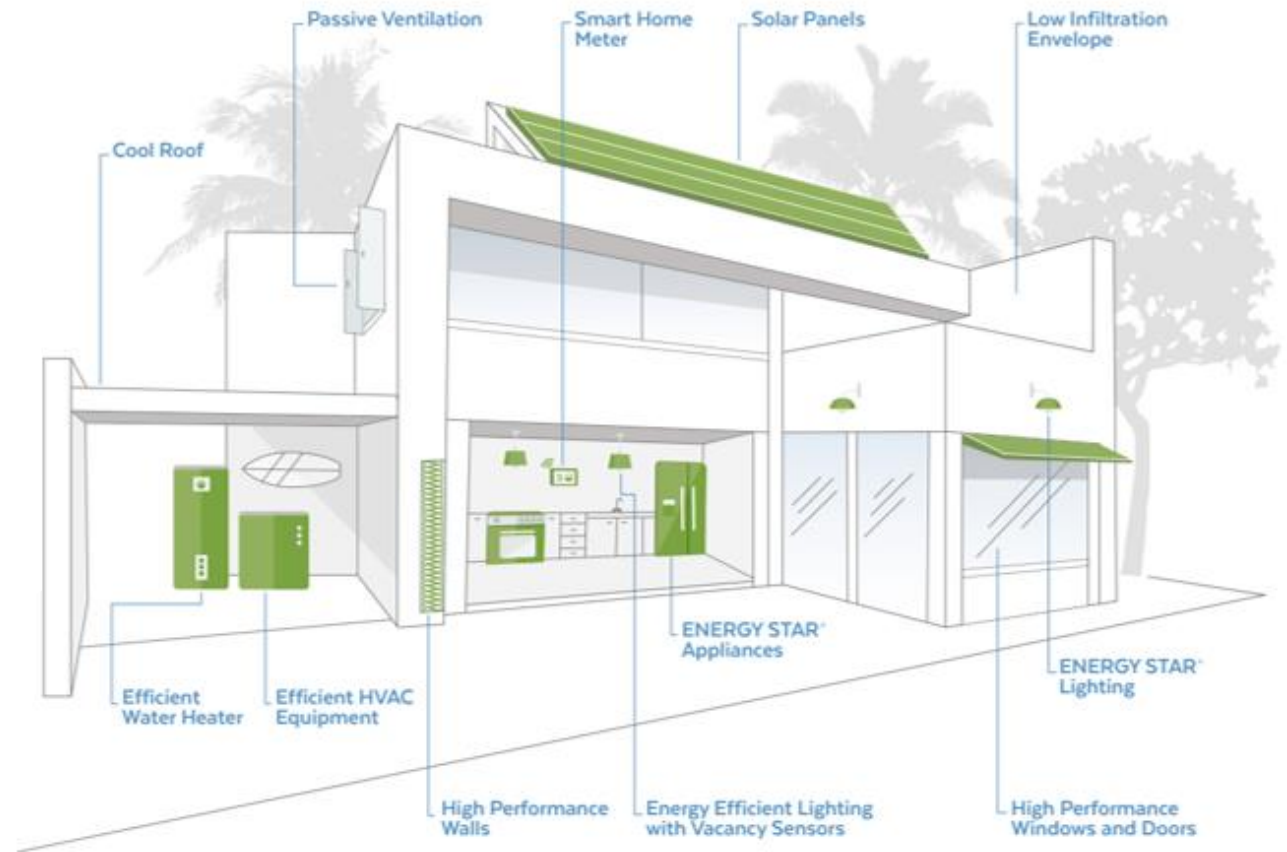
# Decarbonization Code Language

Built Environment and Energy Advisory Committee (MWCOCG)

February 2021

# The Toolkit

- Partnership with NRDC
- Includes three major pieces:
  - Code Overlay
  - Advocacy Framework
  - Outreach Toolkit



# Why an Overlay?

- 2021 IECC provides a solid efficiency foundation to build on
- Most states use the IECC already
- States and cities are familiar with the ICC and amendment process
- Language will be ready for introduction to future model code development cycles

IECC<sup>®</sup>

INTERNATIONAL  
ENERGY CONSERVATION

International Code Family<sup>®</sup>

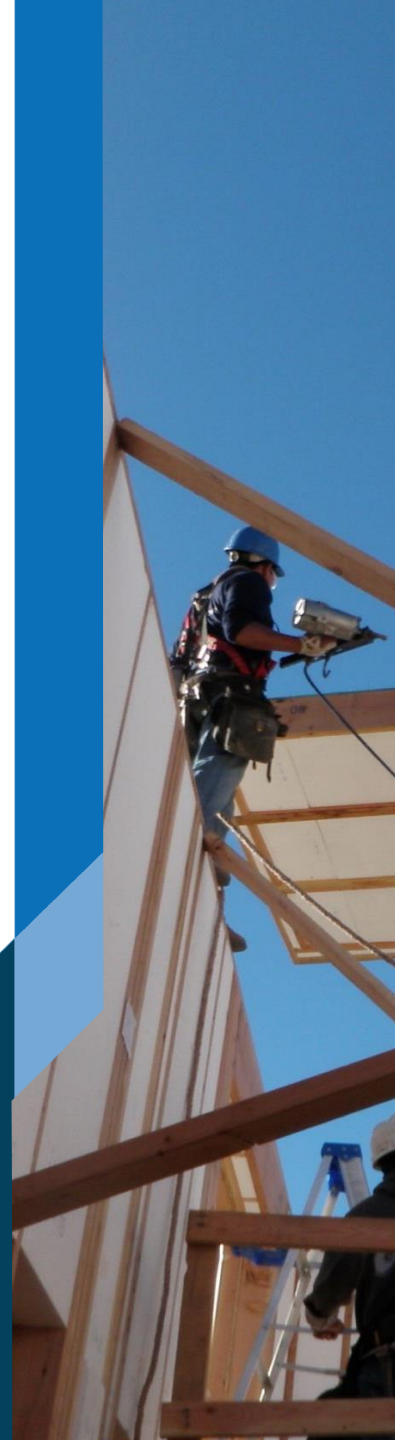
2021



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# Overlay Structure

- Focuses on new construction
- Includes residential and commercial
- Includes two “steps” for jurisdictions:
  - Mixed-fuel electric ready buildings
  - All-electric buildings
- Adds key enforcement language and removes vestigial language when necessary
- Most amendments in electric power sections

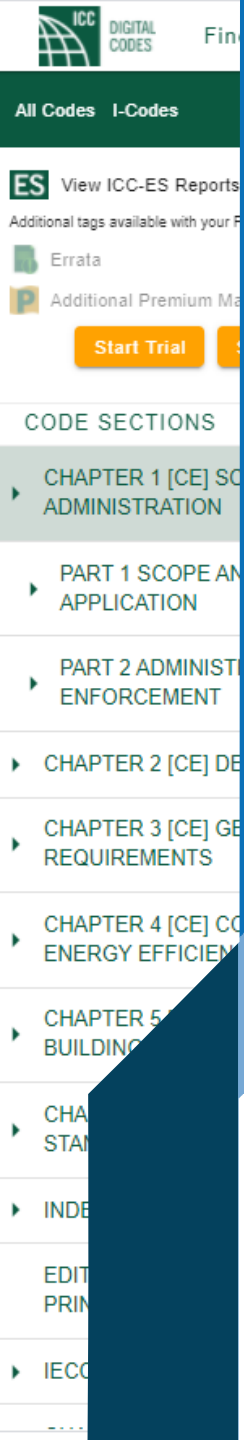


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# Overlay Structure

- Key areas for electrification: heating, water heating, cooking, lighting
- Addresses regulated loads only and creates exceptions for institutional uses that are critical to service (i.e., hot water in hospitals)
- Adds language for onsite renewable energy, storage ready, EVs, and demand response





# Example / Change in Language

- Full strike out and underline mark up, ready for adoption with the 2021 IECC

**C101.3/R101.3 Intent.** This code shall regulate the design, and construction of buildings for the ~~effective use and conservation~~ reduction of greenhouse gas emissions and for the efficient production, use and storage of energy over the useful life of each building. This code is intended to provide flexibility to permit the use of innovative approaches and techniques to achieve this objective. This code is not intended to abridge safety, health or environmental requirements contained in other applicable codes or ordinances.

# Electric-Readiness

- Electric infrastructure required for:
  - Water heating
  - Space heating
  - Clothes drying
  - Cooking
  - “Other”
- Requirements for:
  - Branch circuits and labeling
  - Physical space and other associated needs (i.e. condensate drains)



# Electric-Ready Water Heating

**C405.16.2 Combustion water heating equipment.** Gas-fired water heaters with a capacity less than 300,000 Btu/h (88 kW) shall be installed in accordance with the following:

1. A dedicated 208/240-volt branch circuit with a minimum capacity of 30 amps shall terminate within 3 feet (914 mm) ...
2. A condensate drain that is no more than 2 inches (51 mm) higher than the base of the installed water heater ...
3. The water heater shall be installed in a space with minimum dimensions of 3 feet (914 mm) by 3 feet (914 mm) by 7 feet (2134 mm) high, and
4. The water heater shall be installed in a space with a minimum volume of 700 cubic feet (20,000 L)



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# Demand Response

- Requires demand responsive thermostats
- Requires demand responsive water heating in accordance with ANSI/CTA-2045-B





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# On-site Solar Generation

- Residential: incorporates Appendix RB into main body of text
  - Requires solar ready zone and infrastructure
  - Redirects multifamily (3+ units) to commercial requirement
- Commercial: incorporates language from 90.1-2022 for mandatory on-site solar
  - $0.25\text{W}/\text{ft}^2$  \* gross area of three largest floors
  - Requires documentation of RECS retained or retired

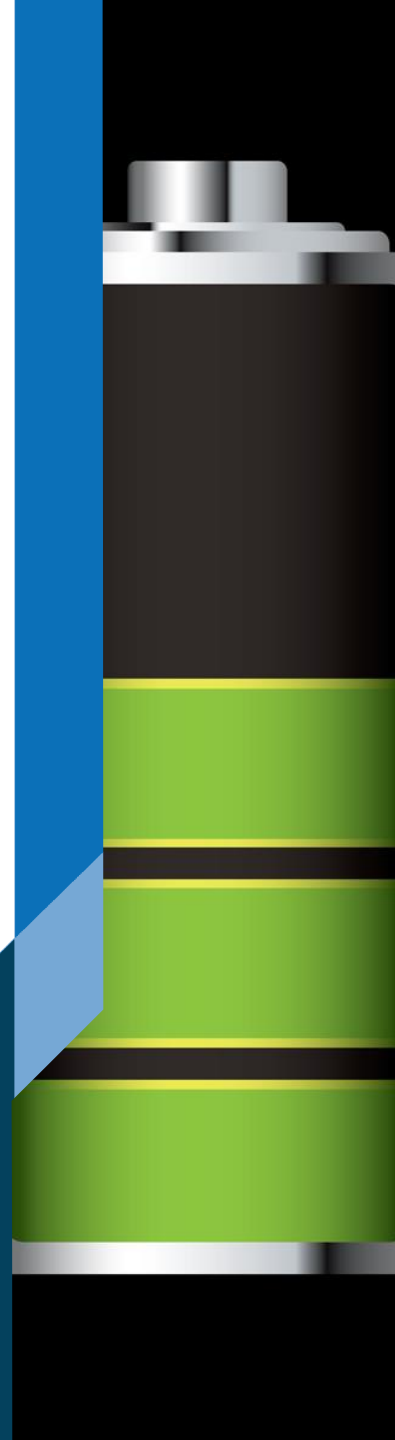
# On-site Solar

- **R404.4.1.1 Solar-ready zone area.** The total solar-ready zone area shall be not less than 300 square feet (28 m<sup>2</sup>) exclusive of mandatory access or set back areas as required by the International Fire Code. Townhouses three stories or less in height above grade plane and with a total floor area less than or equal to 2,000 square feet (186 m<sup>2</sup>) per dwelling shall have a solar-ready zone area of not less than 150 square feet (14 m<sup>2</sup>)...
- **C405.13 On site renewable energy.** Each building site shall have equipment for on-site renewable energy with a rated capacity of not less than 0.25 W/ft<sup>2</sup> (2.7 W/m<sup>2</sup>) multiplied by the sum of the gross conditioned floor area of the three largest floors.

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# Energy Storage Ready

- Commercial Only: incorporates language from Appendix CB into main body of text
  - Requires dedicated space for energy storage
  - Requires reserved space on main electrical panel





# Electric Vehicles

- Residential: One- and two-family dwellings
  - Requires one EV-ready space/dwelling unit
  - Requires minimum capacity of 9.6kVA for charging
  - Redirects multifamily to commercial requirement
- Commercial: incorporates language from 90.1-2022 for mandatory on-site solar
  - EVSE, EV-ready, EV-capable required by occupancy type
  - Allows trading up to meet required percentages
  - Allows ALMS installation to reduce total capacity

# Electric Vehicles

**TABLE C405.14**

**ELECTRIC VEHICLE CHARGING INFRASTRUCTURE REQUIREMENTS**

<u>OCCUPANCY</u>	<u>EVSE SPACES</u>	<u>EV READY SPACES</u>	<u>EV CAPABLE SPACES</u>
<u>Group B Occupancies</u>	<u>15%</u>	<u>NA</u>	<u>40%</u>
<u>Group M Occupancies</u>	<u>25%</u>	<u>NA</u>	<u>40%</u>
<u>R-2 Occupancy</u>	<u>NA</u>	<u>100%<sup>a</sup></u>	<u>NA</u>
<u>All other Occupancies</u>	<u>10%</u>	<u>NA</u>	<u>40%</u>



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# Questions?

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