Update: Energy Codes for Buildings & Equipment Efficiency Standards

October 2022

The equipment we buy, the buildings in which we live and work, and the vehicles we drive are all subject to energy codes and efficiency standards. These codes and standards “set the floor” for the efficiency and safety of all new products and buildings.

When codes and standards are technically feasible and economically justified, there are significant net benefits for customers. Energy codes and efficiency standards should be driven by actual customer savings.

Federal Actions Update

INFLATION REDUCTION ACT PROVIDES FEDERAL INCENTIVES FOR HIGH-EFFICIENCY ALL-ELECTRIC HOMES, ZERO-EMISSIONS PORT AND INDUSTRIAL EQUIPMENT, AND ZERO NET ENERGY BUILDING CODES

On August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 into law. Several provisions are related to building energy efficiency and electrification. Among the provisions are the following:

Section 13301 - Extends & Expands the Nonbusiness Energy Property Credit (Section 25C). Extends the federal tax credit to property placed in service at residential buildings before Dec. 31, 2032. It modifies and expands the credit by increasing the percentage of the credit for installing qualified energy efficiency improvements from 10 percent of the cost to 30 percent; changing the $500 lifetime tax credit cap to a $1,200 annual tax credit limitation, except for heat pumps and heat pump water heaters, which qualify for 30 percent up to $2,000; and, expanding the credit to cover the cost of home energy audits to a maximum tax credit of $150.

Section 13303 - Expands Energy Efficient Commercial Buildings Deduction (Section 179D). Increases the maximum federal tax deduction and changes this deduction from a lifetime cap to a 3-year cap. It updates the eligibility requirements so that property must reduce associated energy costs by 25 percent or more in comparison to a building that meets the ASHRAE Standard 90.1-2007 or the most recent version of Standard 90.1 in effect as of four years prior to the date such building is placed into service. There is an increased deduction available to buildings that meet labor standards.

Section 50121 - Home Energy Performance-Based, Whole House Rebates Efficiency Grants. Appropriates $4.3 billion for a State Energy Office rebate program for whole-house energy saving retrofits. Rebate amounts vary depending on the upgrade and energy efficiency improvements. States are encouraged to provide rebates to low- and moderate- income households. States are prohibited from combining these rebates with other federal grants or rebate programs.

Home retrofits that achieve modeled energy savings of 20 to 35 percent are eligible to receive a rebate of...
the lesser of $2,000 or 50 percent of the project cost. Homes that reduce modeled energy savings by at least 35 percent can receive a rebate of the lesser of $4,000 or 50 percent of the project cost. There are also rebates for homes with measured energy savings of at least 15 percent (a payment rate per kWh or Btu saved or 50 percent of the project cost) and for multi-family buildings on a per-unit dwelling basis.

For low to moderate income homes or multi-family buildings, the rebate amounts are doubled ($4,000 for 20 to 35 percent modeled savings or $8,000 for more than 35 percent modeled savings) and the percentage caps are raised from 50 percent to 80 percent of the project cost.

Section 50122 - High-Efficiency Electric Home Rebate Program. This section of the law appropriates $4.275 billion for the U.S. Department of Energy (DOE) to provide homeowners and owners of multifamily buildings rebates for qualifying electrification projects, and $3.8 billion for rebates carried out in tribal communities or for low- or moderate-income households. Qualifying households are defined in the law as individuals or families whose annual incomes are less than 80 percent of the local area median or not greater than 150 percent of the median. The lowest-income households are eligible for point-of-sale rebates covering the full cost of certain electric appliances or efficiency projects. Moderate-income individuals and families can get 50 percent off.

Maximum rebate caps vary by appliance: up to $8,000 heat pumps used for home heating and cooling; $1,750 for heat pump water heaters; $840 for electric induction stoves; and $4,000 for upgrading electric panels. Other covered services are electrical work, with a $2,500 max. The maximum cumulative rebates available to each household total $14,000.

Section 50123 - State-Based Home Energy Efficiency Contractor Grants. Appropriates $200 million for states to develop and implement training and education of contractors involved in the installation of home energy efficiency and electrification.

Section 50131 - Assistance for Latest and Zero Building Energy Code Adoption. Appropriates $1 billion in funding for State Energy Program (SEP) grants to assist states and local communities adopting updated building energy codes for residential and commercial buildings: $330 million for the state/local adoption and implementation of the latest building energy codes and $670 million for the state/local adoption and implementation of zero net energy and equivalent stretch codes. This funding is in addition to $225 million in the 2021 Infrastructure Investment and Jobs Act for state/local adoption of the latest building energy codes.

Section 50161 - Advanced Industrial Facilities Deployment Program. Appropriates $5.812 billion for an advanced industrial facilities deployment program to carry out projects to help reduce GHG emissions (which can include equipment to electrify industrial processes).

Section 60102 - Grants to Reduce Air Pollution at Ports. Appropriates $2.25 billion for the purchase and installation of zero-emission technology and equipment at ports, and the development of port climate action plans. $750 million is set aside for non-attainment areas.

The Bottom Line

The Inflation Reduction Act provides significant federal incentives to customers and businesses. The new incentives are significantly higher than the previous incentives, but they do come with more conditions that must be met by home builders and commercial building owners and developers. Many incentives are designed to make residential buildings more efficient and more electric in particular. It also provides incentives to states and localities to make their minimum building codes more stringent or even net-zero.

DOE MAKES AGREEMENT WITH 17 ATTORNEY GENERALS TO FINALIZE 20 APPLIANCE EFFICIENCY STANDARD RULEMAKINGS

On September 20, 2022, a coalition of 17 Attorneys General announced an agreement with DOE committing the agency to a new timetable for updating energy efficiency standards for 20 categories of common consumer products and commercial equipment. The impacted products and equipment range from residential furnaces to distribution transformers.

This agreement resolves a lawsuit that the coalition filed against DOE in October 2020. That complaint alleged DOE failed to comply with deadlines for updating energy efficiency standards for a range of product categories set by the Energy Policy and Conservation Act of 1975.

Under the consent decree, the timetable for final actions by DOE is as follows:

- June 30, 2023: Computer Room Air Conditioners and Pool Heaters
- July 30, 2023: Commercial Water Heaters, Room Air Conditioners
- August 31, 2023: Dedicated Outdoor Air Systems, Microwave Ovens, and Variable Refrigerant Flow Air Conditioners and Heat Pumps
- September 30, 2023: Non-Weatherized and Mobile Home Gas Furnaces
- December 30, 2023: Residential Refrigerators and Freezers
- January 31, 2024: Conventional Cooking Products (residential)
- February 29, 2024: Residential Clothes Dryers and Residential Clothes Washers
- April 30, 2024: Electric Motors and Residential Water Heaters
- June 30, 2024: Distribution Transformers and Residential Dishwashers
- October 31, 2024: Residential Furnace Fans, Oil Furnaces, and Weatherized Gas Furnaces
- November 30, 2024: Commercial Refrigeration Equipment and Walk-in Coolers and Freezers

The Bottom Line
Under this agreement, DOE will have to further accelerate its appliance efficiency standards rulemaking process to meet these deadlines. With some of these products there is the possibility of DOE deciding to keep current standards in place (a “no new standard” final rule). With other rules, if the social cost of carbon and methane are increased, there is a higher likelihood of efficiency standards that are closer to highest efficiency “max tech” standards levels.

ENVIRONMENTAL AND HEALTH GROUPS PETITION U.S. EPA TO REGULATE FOSSIL FUEL APPLIANCES UNDER THE CLEAN AIR ACT

On August 23, 2022, more than 20 environmental and health organizations filed with the U.S. Environmental Protection Agency (EPA) a “Petition for Rulemaking to List Heating Appliances as a Source Category Under Section 111(b)(1)(A) of the Clean Air Act and to Issue New Source Performance Standards for that Category under Section 111(b)(1)(B).”

The petition calls on the agency to limit greenhouse gas pollution from fossil-fuel-fired household appliances, such as furnaces and water heaters, by listing them as subject to regulation under the Clean Air Act.

The petition alleges that the lack of emissions standards for the appliances, which contribute to smog, is a dangerous oversight in federal law that could not only threaten air quality but also increase risks to public health by causing cardiovascular and lung illnesses. The groups cite a provision within the Clean Air Act that says that the EPA is required to list any source that “cause[s], or contribute[s] significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare,” and to issue rules for those within one year of the listing.

The petition seeks that within one year of listing heating appliance as a CAA Section 111 source category, EPA issue new source standards of performance for water heaters and furnaces in the source category. The petitions also states that electric heat pumps are the best system of emission reductions (BSER).

Finally, the petition asks that “EPA Should Set a Zero-Nox Emission Performance Standard for New Water Heaters and Furnaces by 2030.”

The appliances discussed in the petition are already “covered products” under DOE’s Appliance Efficiency Standards regulations. If the petition were successful, then many fossil fuel appliances would be regulated separately by DOE for energy efficiency and EPA for emissions.

The Bottom Line
If EPA were to grant this petition, multiple residential and commercial products that use fossil fuels could be regulated by DOE for minimum efficiency and EPA for maximum allowable emissions.

U.S. SENATE RATIFIES KIGALI AMENDMENT; HFC REFRIGERANT USE TO BE PHASED OUT

On September 21, 2022, the U.S. Senate passed the Kigali Amendment to the Montreal Protocol by a vote of 69-27. In December 2020, Congress had passed legislation, the American Innovation and Manufacturing (AIM) Act, which requires a 15-year phasedown of hydrofluorocarbons (HFCs) in the United States.

The Kigali Amendment to the 1987 Montreal Protocol on ozone pollution requires participating nations to phase down production and use of hydrofluorocarbons, also known as HFCs, by 85 percent over the next 14 years. In 2021, EPA issued a final regulation capping the United States’ HFC usage and ramping it down over the next 15 years in line with the Kigali Amendment’s timeline. EPA will provide annual allowances to companies, which can then be traded or sold. That regulation attracted some narrow legal challenges, particularly over EPA’s ban on the use of disposable HFC canisters, which the agency said is a key part of its enforcement efforts. EPA is also considering petitions filed by states, environmentalists, and industry groups seeking specific end-use restrictions on certain HFC substances in various products.

In addition, EPA is also planning to restore a 2016 rule
requiring HFC leak inspections and repairs for existing industrial and commercial refrigeration systems that was modified and revised in 2020, though final action on that rule isn’t expected until 2024.

The timetable for allowable production and consumption of HFC’s (compared to the baseline values of 382,554,619 metric tons of production and 303,887,017 metric tons of consumption) are as follows:

2022-2023: 90 percent of baseline production and consumption
2024-2028: 60 percent of baseline production and consumption
2029-2033: 30 percent of baseline production and consumption
2034-2035: 20 percent of baseline production and consumption
2036 and after: 15 percent of baseline production and consumption

The Bottom Line
As they did in the 1990’s with the phaseout of CFC and HCFC refrigerants, customers and electric companies will need to find alternatives to HFC refrigerants to use in air conditioners, heat pumps, refrigerators, freezers, and other equipment using refrigerants over the next 14 years.

SIGNIFICANT UPDATES IN MINIMUM BUILDING ENERGY CODES
The International Code Council (ICC) and ASHRAE are working on the next versions of minimum building energy standards and codes (ASHRAE for 90.1-2022 for commercial buildings and ICC for IECC 2024 for residential and commercial buildings).

For ASHRAE, the next version of 90.1-2022 is scheduled to be published by late November of 2022. Along with updates to traditional energy efficiency requirements, such as lighting power density and mechanical equipment efficiency tables, 90.1-2022 will contain new language related to the following building features:

- Requirements for on-site solar PV systems based on building size.
- Requirements for additional energy efficiency “credits” based on building type and climate zone.
- Thermal bridging requirements for buildings with balconies or other exterior extensions.
- An optional “total system performance ratio” for mechanical equipment.

For the IECC, the entire commercial version (2021 language and approved changes) was out for public review until October 21, 2022. The entire residential version will be out for public review from October 31 to December 15, 2022. Along with proposed changes similar to those that will be in ASHRAE 90.1-2022, the public drafts of the IECC will also contain new language related to the following building features:

- EV charging infrastructure in single-family and multifamily residential buildings.
- EV charging infrastructure in commercial buildings based on building type.
- “Electric ready” infrastructure requirements in residential buildings.
- Requirements for energy storage systems or energy storage ready areas.
- Requirements for grid-interactive thermostats.
- Requirements for demand responsive lighting and electric water heaters.
- Net-zero energy voluntary appendix that jurisdictions can adopt.

In terms of process, after the public review periods, the ICC Residential and Commercial Consensus Committees (and the subcommittees) will review all of the public comments and decide on whether to make changes. If changes are made, the IECC Residential and Commercial draft documents will go out for one more public review, where the public can only provide comments on the changes that are made.

STATE AND LOCAL UPDATE

CALIFORNIA PUBLIC UTILITIES COMMISSION ELIMINATES GAS LINE SUBSIDIES FOR NEW RESIDENTIAL BUILDINGS; Restricts Subsidies To Commercial Buildings

On August 8, 2022, Commissioner Clifford Rechtschaffen of the California Public Utilities Commission (CPUC) released a proposed decision that would significantly change customer eligibility and filing requirements for gas line extension allowances. As approved, allowances
for residential customers will be eliminated and allowances for non-residential buildings will be limited and subject to new evaluation criteria on a case-by-case basis, effective on July 1, 2023. The proposed decision was unanimously approved at the CPUC’s September 15, 2022 Business Meeting. For non-residential buildings, the CPUC decided as follows:

Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Gas Company, and Southwest Gas Corporation (collectively, the gas utilities) may request approval from the California PUC by an annual application for a gas line extension allowance, a 10-year refundable payment option, or a 50 percent discount payment option (gas line subsidy) for specific, unique non-residential projects meeting the criteria established in this decision. For those eligible projects, the gas utility shall file an application with the Commission, on behalf of the applicant(s), for approval of a gas line subsidy, by July 1 of each year starting in 2023. In its annual filing, each investor-owned gas utility shall include an update to the non-residential gas line extension allowance calculations based on the current methodology (including all inputs used, e.g., cost of service factor). The criteria are:

(a) The project shows a demonstrable reduction in greenhouse gas emissions.

(b) The project’s gas line extension is consistent with California’s climate goals, including those articulated in SB 32.

(c) The project demonstrates that it has no feasible alternatives to the use of natural gas, including electrification.

CALIFORNIA AIR RESOURCES BOARD TO PROPOSE RULE TO BAN FOSSIL FUEL HEATING AND WATER HEATING EQUIPMENT SALES IN STATE BY 2030

On September 22, 2022, the California Air Resources Board (CARB) approved a statewide plan for attaining the federal health-based standard for ozone, typically experienced as smog. The 2022 State Implementation Plan Strategy identifies the state’s control strategy for meeting the federal 70 parts per billion, 8-hour ozone standard over the next 15 years.

As part of the strategy, CARB will develop and propose zero-emission standards for space and water heaters sold in California using its regulatory authority for GHGs (which includes consideration of related criteria pollutant reduction benefits). The rulemaking would start in 2025 and be effective in 2030. The requirement would apply to new and existing buildings.

In addition, CARB is considering regional SIPs for seven nonattainment areas needing additional emission reductions beyond those defined in the 2022 State SIP Strategy. The regional SIPs will identify local actions that will complement the state, federal, and international measures identified in the 2022 State SIP Strategy.

CARB projects the 2022 State SIP Strategy will achieve more than 200 tons per day of NOx and 40 tons per day of reactive organic gases (ROG) emissions reductions statewide in 2037. The total net cost of the 2022 State SIP Strategy is estimated as $96.2 billion, which includes $33.8 billion in CARB measures and $62.3 billion in measures that require federal actions between 2023 and 2037.

The Bottom Line

Along with actions being taken by the California Energy Commission (CEC) on Title 24 building energy codes, the actions by the CARB and the CPUC are combining with the actions of the CEC towards electrification of end-uses to meet state goals and laws regarding various emissions.

STATES AND NATIONS BAN VARIOUS TYPES OF FLOURESCENT LIGHTING

In December 2021, the European Union banned the sale of almost all mercury-containing fluorescent lamps by September 2023, citing the availability of mercury-free LED lamps and fixtures.

In February 2022, the Vermont Agency of Natural Resources issued a regulation that “screw-based mercury containing compact fluorescent lamps (CFLs) shall not be sold, offered for sale, or delivered to a retailer for subsequent sale in the state of Vermont. This restriction on sale will begin one year from this date, no later than February 17, 2023.”

In March 2022, 137 countries voted to phase out the manufacture and sales of CFLs by 2025 through the Minamata Convention on Mercury.

On May 19, 2022, Vermont Governor Phil Scott signed a law that bans the sale of 4-foot linear fluorescent light bulbs, the most common type of fluorescent bulb covering about 90 percent of fluorescent installations, starting on January 1, 2024.

On September 18, 2022, California Governor Gavin Newsom signed AB 2208 into law. This new law bans the sale or distribution of all screw-based or pin-based compact fluorescent lamps (CFLs) starting on January 1, 2024, and linear fluorescent lamps (LFLs) starting on January 1, 2025. For linear fluorescent lamps, the ban includes all tube diameters, including, but not limited to,
T5, T8, T10, and T12. It also includes all tube lengths from 0.5 to 8.0 feet, and all lamp shapes, including, but not limited to, linear, U-bend, and circular. There are exceptions for niche applications such as germicidal lighting, medical appliance lighting, sunlamps, and photograph/video appliances.

**The Bottom Line**

Even though some fluorescent lighting products are as efficient or even more efficient than some LED lighting products, they are being banned due to their mercury content and the issues of lamp breakage and lamp disposal.

**MASSACHUSETTS RELEASES FINAL STATE ENERGY CODE LANGUAGE**

On September 27, 2022, the Massachusetts Department of Energy Resources (DOER) published final code language for the updated Stretch Energy Code and new Specialized Municipal Opt-in Code. Following review by the Massachusetts state legislature’s Joint Committee on Telecommunications, Utilities, and Energy, the regulations will be filed with the Secretary of State in December 2022 for final promulgation. The DOER also released a summary document explaining the changes.

Historically, about 85 percent of the towns and cities in the state have adopted and enforced the stretch energy code. Next year, towns and cities will have a choice to adopt one of the following:

- **Updated Base Energy Code:** The IECC 2021 with state amendments
- **Updated Stretch Code:** The IECC 2021 with state amendments + Stretch Code amendments
- **Specialized Opt-In Code:** The IECC 2021 with state amendments + Stretch Code amendments + Specialized Code appendices

In the current code, residential buildings must achieve a HERS score of 55-60. In the new codes, gas homes will be required to achieve a lower HERS score (42) than all-electric homes (45). For homes with gas, achieving a HERS score of 42 in buildings with gas hookups will likely require developers to include additional energy efficiency and on-site renewable energy systems.

Residential buildings can also achieve compliance by building to passive house standards, a design approach that prioritizes rigorous efficiency, a tight building envelope, and other principles to drive down heating and cooling needs.

Commercial buildings will have five pathways for reaching compliance with the stretch energy code and requires partial or fully electric space heating in buildings with certain ventilation and architectural features. Offices, multi-family buildings, and schools over 20,000 square feet are required to use a new Thermal Energy Demand Intensity (TEDI) Pathway in the updated stretch codes.

The most stringent code is the specialized opt-in stretch energy code, which is designed to assure that residential and commercial builders achieve Massachusetts’ greenhouse gas emission limits and sub-limits, helping to achieve a net-zero state economy by 2050. The main levers in the specialized code are deep energy efficiency, reduced heating loads, and efficient electrification.

New homes can achieve compliance with the specialized opt-in code by building all-electric. In a second pathway, they can include fossil fuel hookups but must also be “electric ready” with wiring for future conversion to electric equipment and solar panels. The third option is to build a net-zero energy building, which consumes less energy than it produces over the course of a year. New homes up to 4,000 square feet can follow any of the options, while residences above that threshold can only follow the all-electric or net-zero energy pathway.

New commercial construction can achieve compliance with the specialized opt-in code via all-electric construction, or net-zero energy construction, or a modified pathway for buildings with fossil-fuel equipment that utilizes additional energy efficiency and on-site solar requirements.

**TEN CITIES IN MASSACHUSETTS APPLY TO REQUIRE ALL ELECTRIC NEW CONSTRUCTION AND MAJOR RENOVATIONS**

Included in the ‘Act Driving Clean Energy and Offshore Wind’ legislation (H5060) was a provision allowing up to 10 municipalities to require all-electric construction for new residential and commercial buildings. Governor Charlie Baker had voiced concerns about how this provision would affect housing prices and availability, and provided amendments in an early draft, which were ignored by the legislature. The bill was signed into law on August 11, 2022.

Under the legislation, only cities and towns that have met the state’s 10 percent affordable housing target can qualify, and the requirements won’t apply to health care facilities and science labs. DOER is the regulatory body with authority to approve the applications and participating municipalities must collect and report data on emissions reductions, construction costs, and utility bills.
As of late August, ten localities had submitted applications: Acton, Aquinnah, Arlington, Brookline, Cambridge, Concord, Lexington, Lincoln, Newton, and West Tisbury. In late September, Boston filed a petition to join the pilot program. In early October, West Tisbury formally requested to withdraw from the pilot program, which may allow Boston to join the pilot program.

NEW WASHINGTON, D.C. LAW REQUIRES NEW MULTI-FAMILY AND COMMERCIAL BUILDINGS TO BE NET-ZERO ENERGY AND ALL-ELECTRIC STARTING ON JANUARY 1, 2027

On July 21, the Washington, D.C. City Council unanimously approved the Clean Energy D.C. Building Code Amendment Act of 2022 requiring the mayor to issue final regulations by December 31, 2026, mandating all new commercial and multi-family building construction (or substantial renovations of existing buildings) be constructed to a net-zero energy standard. As part of the net-zero energy code, on-site combustion of fossil fuels for thermal energy purposes is not allowed, except for backup power generation in facilities that are “essential to protecting public health and safety.”

Mayor Muriel Bowser signed the legislation into law as Act Number A24-0528 on July 27, 2022. As with all laws passed in Washington, D.C., it was sent to the U.S. Congress for a final 30-day review on August 9, 2022. The review period was completed with no revisions, and the law became effective on September 21, 2022.

In addition, the law contains the following provisions:

- It requires the Washington, D.C. government to reach carbon neutrality for emissions associated with government operations by 2040.
- It prohibits the Washington, D.C. government from installing fossil fuel-burning space- or water-heating appliances beginning on January 1, 2025.
- It requires the mayor to adopt policies to reduce greenhouse gas emissions by no less than 60 percent relative to 2006 levels by 2030 and to reach carbon neutrality by 2045 (current D.C. law is 50 percent by 2032 and carbon neutral by 2050). It also requires D.C. to achieve certain interim targets for reductions in greenhouse gas emissions between 2025 and 2045.

Also, as another backstop, if the Mayor does not issue final regulations by December 31, 2026, then all building permit applications submitted after December 31, 2026 are required to comply with the most recent version of the (currently) voluntary net-zero energy code, Appendix Z of the D.C. Energy Conservation Code – Commercial.

WASHINGTON, D.C. CODE AGENCY DECIDES AGAINST REQUIRING ALL-ELECTRIC CONSTRUCTION FOR NEW COMMERCIAL BUILDINGS

By a 6-4 vote at its October 20, 2022 meeting, Washington, D.C.’s Construction Codes Coordinating Board (CCCB) disapproved a proposal to prohibit fuel oil and gas hookups in new commercial buildings and multi-family apartment complexes. Building and restaurant groups and other stakeholders had sought broader carve-outs for certain end uses, while code developers had tried to limit exemptions.

In May 2022, the CCCB voted to require all-electric construction in residential buildings with three floors or fewer, part of a package of code updates aimed at decarbonizing new homes. As part of the new code, homes are also required to have thermostats and water heaters that are demand responsive, have “EV ready” infrastructure in garages or dedicated parking spots, and be solar PV ready on the roofs (if not shaded or blocked from the sun). This code update passed on a narrow 6-5 vote.

After the CCCB finishes amending the entire building energy code (residential and commercial), it will face an up-or-down vote at the Washington, D.C. City Council, which unanimously approved the Clean Energy D.C. Building Code Amendment Act of 2022 in July.

CHICAGO’S NEW BUILDING CODE REQUIRES ELECTRIC READY PROVISIONS IN HOMES AND APARTMENTS

On September 21, 2022, the Chicago City Council passed Mayor Lori Lightfoot’s 2022 Chicago Energy Transformation Code on a vote of 48-0. This vote made Chicago one of the first major U.S. cities and the first city in Illinois to adopt and exceed the 2021 edition of the International Energy Conservation Code (IECC). Most requirements will apply to building permits applied for on or after November 1, 2022, with additional requirements taking effect on January 1, 2023.

Chicago’s Energy Transformation Code exceeds the 2021 IECC baseline in several ways:

- Requires placement of windows in new buildings to minimize energy demands due to solar heat gain in the summer.
- Requires new homes and apartments with gas-fired cooking, clothes dryers, and water heating appliances to be built “electric ready” with electrical...
capacity and wiring necessary to switch to electric appliances in the future without opening walls or upgrading the electrical service.

- Requires new low-rise commercial buildings over 7,500 square feet and less than 60 feet in height with low-sloped roofs (such as warehouses), to be designed so roofs can support the future installation of solar panels.

- Incentivizes the use of smart heating, cooling, and hot water equipment that is integrated with the energy grid to reduce demand during peak usage.

- Prohibits new decorative gas lighting.

- Requires improved insulation to reduce heat loss through the exterior walls of buildings with projecting balconies or parapets (also known as “thermal bridging”).

- Requires indoor plant-growing and agriculture facilities to use energy-efficient lighting.

- Recognizes two “green” building certification programs as alternative ways to comply: the 2021 Phius standard and the 2020 National Green Building Standard (NGBS) gold and emerald certification levels.

Most recently, Chicago adopted requirements based on the 2018 IECC in April 2019.

In addition, by being among the first to adopt requirements based on the 2021 IECC, Chicago plans to “be at the front of the line to apply for $1 billion in federal financial assistance” in a reference to the funding appropriated for DOE to provide to localities that update building energy codes in the recently passed Inflation Reduction Act.

**The Bottom Line**

There is a trend of larger cities and states taking regulatory and legislative actions to make residential and commercial buildings more energy efficient and more electrified in order to reduce their carbon emissions. These actions will have significant impacts on new and/or existing buildings along with energy companies over the next several years.

**Comments or Questions?**

For questions or more information, please contact Steve Rosenstock at srosenstock@eei.org.