Advancing Better Building Codes in Washington, DC



WHEN IT COMES TO BEST PRACTICES FOR ADOPTING AND IMPLEMENTING BETTER BUILDING ENERGY CODES,

THERE'S REALLY NO SILVER BULLET. It takes time, due diligence and relationship building to end up with an above-standard code that can get adopted or signed into law and implemented well. That's what we learned by talking with building code experts and advocates, code officials and building policy designers working in cities and states that have some of the most stringent codes on the books.



Dave Epley



Casey Studhalter

One of those cities is Washington, DC, which recently developed and adopted a new energy and green construction code that includes alternative compliance pathways for builders to go for net-zero energy (NZE). The new code is expected to help DC prime the market for broad adoption of NZE construction, which will be mandatory for residential buildings and large commercial and multifamily buildings in 2022 and 2026, respectively, per the Clean Energy DC Plan.

We recently spoke with Dave Epley, Associate Director of the Data & Benchmarking Division at the DC Department of Energy and Environment (DOEE) and former manager of the District's Green Code and Energy Code Program, and Casey Studhalter, Program Analyst in the Urban Sustainability Administration at DOEE, to find out what lessons they learned during the code design process. Casey and Dave, who led the development of the new energy and green codes as members of the DC Construction Code Coordinating Board, shared their tips and recommendations for others seeking to advance better building codes in their jurisdictions. Here's what they had to share, in a nutshell:

DC's New Code Encourages Net-Zero Energy Construction

On May 29, 2020, the District of Columbia adopted a set of amended construction codes that increase the required level of energy efficiency for new construction and renovations of all residential and commercial buildings. The new codes are effective as of May 29, 2020, however there is transitional guidance that allows vested projects to use the old codes. The new energy codes are based on the 2015 model International **Energy Conservation Code for** residential construction and the 2013 ASHRAE Standard 90.1 for commercial construction, with significant amendments to

both to further improve building energy efficiency beyond the base codes.* DC's codes also contain NZE alternative compliance pathways, including a DC-specific pathway for the commercial Energy Code (Appendix Z) and the residential Energy Code. These pathways allow builders to voluntarily pursue **net-zero energy**

<u>construction</u> in lieu of the Energy Code. NZE will be required for the residential market in 2022 and large commercial and multifamily buildings (four stories and up) in 2026.

*It is important to note that model national building codes are updated only every three years, and that the vast majority of states and cities are <u>several code cycles behind</u> the most recently available codes (2018 IECC and 2016 ASHRAE Standard 90.1). This gap in model code adoption reflects the complexity, limited applicability and time-intensive nature of updating local energy codes.





A rendering of Stack 8, an ambitious multifamily project in development by Flywheel Development. Photo courtesy Flywheel Development.

TIP #1 Set a realistic timeline and be committed to the process

It took DC several years–which threw the city off its initial timeline by about a year–to finally get its latest building codes adopted. Casey and Dave both advise their peers that when setting out to update codes–especially when aiming for far-reaching ones like stretch or NZE codes, or having to adopt a significant number of code amendments–to allot an appropriate amount of time and possibly more than you expect to get the job done. A lengthy code adoption process is not necessarily a bad thing–taking the time to build relationships (as we will go into more later), establishing an inclusive process, and giving the industry time to prepare–are all smart tactics that will result in a code that has greater industry support and a better chance at getting adopted.

G Jurisdictions must recognize that adopting and implementing advanced energy and NZE codes is a long-term, ongoing effort requiring consistent dedication and financial investment from the public sector. Success will be a wholesale, fundamental shift across the building industry to an entirely new way of designing and constructing buildings." **–DAVE EPLEY**



TIP #2 Build relationships with stakeholders and give them decision-making power

DC doesn't write its building codes in a vacuum; rather, it creates space for others to develop the codes themselves. The city's <u>Construction Code Coordinating Board</u>–established in 2009–is a public/private voluntary board made up of a broad representation of building industry players, code officials, engineers, architects, energy efficiency advocates and other building and energy experts whose job it is to write and vett proposed code changes before they are brought to the public or City Council for approval. This way, most concerns and objections can be resolved prior to public review and adoption. It was through this Board and its subcommittees that DC's latest code was developed and vetted with local stakeholders. It took many iterations and revisions to get the code to a place where members of the Board and their peers were satisfied, but it was worth it.

C Developing codes through a board like ours requires a lot of time and effort, but it's worth it to get a code that everyone is okay with, plus helps the city develop deeper relationships with the building industry." **-CASEY STUDHALTER**

TIP #3 Offer (lots of) carrots before sticks

DC didn't just spring a mandatory NZE code on builders and expect them to comply right away. The NZE provisions of DC's code are voluntary, and the city and its partners are offering lots of support and assistance to make it easier for developers to make their buildings super efficient or go for NZE before it becomes mandatory. Programs include the:

- **DC Green Bank:** Open for residents and business owners to apply for loans and other financial assistance to pursue clean energy projects and building renovations.
- **Sustainable Energy Utility:** A District-funded organization that facilitates utility investments in residential and commercial clean energy and energy efficiency projects.
- **High Performance Building Hub:** A new project in the works at DC-based Institute for Market Transformation that will provide a hub for peer exchange and learning among DC's builders and developers to acheive ambitious climate goals.
- **DC's NZE Project Design Assistance Grants:** The city is awarding grants of up to \$20,000 to provide design assistance for builders committed to pursuing net-zero energy in their future projects. As of May 2020, the program had awarded \$137,995 to seven developers, including <u>Wesley Housing</u> and <u>Neighborhood Development Company</u>, which are planning to break ground on two affordable NZE multifamily housing projects before the end of 2021.
- **DC's NZE Rebate Program:** The city is partnering with the Sustainable Energy Utility to assist homeowners and building owners pursuing NZE projects by offering both technical and financial assistance (\$10,000 rebates targeted at homeowners and small business) and expedited permitting.

G By introducing a voluntary, incentivized NZE code first, it sends a clear signal to the market on the direction the city is headed, giving the market a chance to prepare, respond and try it on for size before builders are held accountable to meeting the code. In this way, we start to build capacity within the building industry, so by the time we arrive at a mandatory NZE code in 2022 and 2026, we will have an experienced and mature building industry able to deliver what we need." **–DAVE EPLEY**





A rendering of the American Geophysical Union building showcasing the solar photovoltaic array, which will generate the building's energy. Photo courtesy AGU.

TIP #4 Invest in code implementation and enforcement

A city or state could have the most advanced energy codes on the books, but if it hasn't invested in staff and programs to enforce the codes, it's just wishful thinking. Code officials are increasingly juggling more complex and complicated codes. Expecting them to take on holistic, stretch energy codes that require significant program design, education and training, outreach, and enforcement to be successful is unrealistic. To ensure its energy codes are being continuously improved and enforced, DC created the <u>Green Building Division</u> in its Building Department of the DC Department of Consumer and Regulatory Affairs (DCRA). The team consists of energy and green code specialists, plan reviewers and inspectors, and is funded through an additional "green building fee" assessed on building permit applications (the DC Green Building Fund). Every developer that applies for a construction permit pays a small fee to the fund. The fund brings in nearly \$2 million annually to support the Division's 15 staff members, as well as other green building efforts throughout the city.

You have to hire and invest in code officials if you are serious about the success of your energy and green codes. Otherwise it is just a good intention that sits on the shelf, like in many places around the country. The District's Green and Energy Code Program (DCRA Green Building Division) had a significant budget that allowed us to invest in hiring talented code officials, train existing staff, develop a robust implementation program, support new code development, and support the building industry through training, outreach and technical assistance. None of this would have been possible without the dedicated annual funding provided to us through the Green Building Fund." –DAVE EPLEY



TIP #5

Lay the groundwork in climate plans and studies

Before getting to work with the Board on penning the new code, DC had already established the justification for stronger energy codes. The city's <u>Clean Energy DC Plan</u> (more on that later)–released in 2018–called for better energy codes to help achieve the city's greenhouse gas emissions reduction goals. In preparation for that plan, the city also commissioned an <u>independent study</u> that showed how much energy and carbon reduction would come from stronger codes. Both having codes written into its citywide plan and having a study to back up the need for codes helped lay the groundwork for code adoption.

G Having an independent analysis on the GHG reduction benefits of better energy codes was super helpful. It brought the Sierra Club and a variety of other climate activists to support energy codes, broadening the base of energy code advocates. Also, being able to tie the need for code changes back to specific city goals and independent analysis helped ground the proposed changes and demonstrate their importance." **–CASEY STUDHALTER**

TIP #6

Communicate and engage with the building industry early and often

Throughout the entire code development process, DC worked diligently to involve and inform the local building industry–from including the industry's biggest players on its Construction Code Coordinating Board, to hosting workshops, seminars and trainings, and developing case studies of high-efficiency and NZE buildings. Involving the building industry early and often helped DC head off opposition. Some of the tactics DC used included:

- **Holding in-person meetings** with building industry organizations to explain proposed code changes, how they could be applied, and to get industry feedback on aspects of the code that were problematic and needed to be adjusted.
- **Hosting trainings and seminars** on NZE construction in partnership with the local chapter of the U.S. Green Building Council.
- **Hosting tours of green and NZE buildings** for building industry professionals so they could see first hand how the buildings were designed and how they work.
- **Developing case studies** of builders that are already pursuing or have completed ultra-efficient or NZE projects, as well as case studies of public buildings (such as schools and recreation centers) that are going green to show city leadership.
- **Kick-starting a regional peer-exchange network** (the <u>DMV Net-Zero Energy Coalition</u>) that promotes and builds capacity for net-zero energy buildings and technologies throughout the greater Washington region.
- Inviting public comments after adequate engagement with the building industry so that most concerns had already been addressed beforehand. DC only had to hold two public comment periods and no opposition was raised during its City Council review. The Council also chose not to host a public hearing because they felt the city had already done enough due diligence with the local building industry.
- **Hosting a road show** during the public comment period to educate, get feedback and answer questions about the proposed code changes.
- Hosting a local green building awards program each year.

• Not airing issues publicly via the media—both the city and building industry handled airing their concerns about code changes directly with each other, rather than using the local media as an outlet for discourse. Neither sought or pushed for local media coverage on codes. DC is a relatively small and close-knit city and if a developer or building industry organization had an issue with something about the codes, they were more apt to pick up the phone or walk into the office and talk to a city staffer or council member directly, rather than involve the media.

G By proactively reaching out to a diverse group of stakeholders across the building industry, including them in the process and keeping lines of communications open throughout, you can effectively work through most challenges, and often come away with a better code." –**DAVE EPLEY**

TIP #7

Be aware of your home advantages (and disadvantages)

Every city and state has its own set of pre-existing conditions that can impact how successful it will be in pursuing better energy codes. Some cities don't have the legal authority to change their codes, requiring them to encourage energy efficient and green buildings through incentives such as favorable zoning adustments, accelerated permitting rules, and financial incentives. Others may have complete authority to set their own codes, but lack political support. It is important for city and state staff to fully examine the potential path to better codes in light of their own jurisdiction's unique circumstances. In DC's case, the city had several things going for it:

- As its own city-state, the District has the authority to adopt its own building codes.
- DC has a relatively small and connected building industry that has prided itself on being a leader in green building for more than a decade.
- The city already has several green building policies on the books-so pursuing more stringent and NZE codes isn't as big a stretch as it might be for other jurisdictions where the market isn't already moving in that direction.
- DC has a robust real estate market, so developers can generally get top dollar for their buildings, making investments in energy efficiency and NZE projects pencil out faster.
- Most important of all, DC already had a supportive Mayor and City Council, which had already included the goal of adopting better building codes as part of the city's <u>Clean Energy DC Plan</u>.

Challenges the city faced included:

- A long development and review process, making the codes outdated before they could be adopted.
- A federal building height limit, hindering DC's ability to provide density bonuses for above-code projects.

G Having the Mayor's buy-in and support and endorsement for the bigger picture goals has quieted a lot of challenges. The Clean Energy DC plan is signed by the Mayor and everything in there has her backing. That opened doors and changed the tenor of the conversation around codes." **-CASEY STUDHALTER**



Private residence in Northwest DC built to be net-zero energy. Features include: triple pane windows, a 13kW solar photovoltaic system, and electric heat pumps. Photo courtesy DMV NZE Coalition.

WHILE THERE IS NO SILVER BULLET, these general rules of thumb should help any jurisdiction lay the groundwork for advancing and enforcing better energy codes. We recommend city and state building code planners and staff look to these additional resources for more information:

- New Buildings Institute:
 - Stretch Codes in Action bit.ly/NBI_StretchCodes
 - > Zero Energy Communications Toolkit bit.ly/NBI_ZNECommsToolkit
 - > Moving Energy Codes Forward: A Guide for Cities and States bit.ly/NBI_CodesGuide
- Architecture2030: <u>Zero Code</u> architecture2030.org/zero-code/
- Building Codes Assistance Project: <u>Policy Action Toolkit</u> <u>bit.ly/BCAP_Toolkit</u>
- US Dept. of Energy:
 - > Building Energy Codes Program website www.energycodes.gov
 - > Building Energy Codes Resource Guide for Policymakers bit.ly/DOE_CodesGuide
- Building Safety Journal: <u>Building a green code program from the ground up</u> <u>bit.ly/BuildingSafetyJournal</u>
- DC Dept. of Consumer and Regulatory Affairs: <u>Green Building Program</u> <u>bit.ly/DC_GreenBuildingProgram</u>

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