

# 2017 ACEEE/CEE National Symposium on Market Transformation

*April 3, 2017*

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*Department of Consumer and Regulatory Affairs, District of  
Columbia*



DEPARTMENT OF CONSUMER & REGULATORY AFFAIRS



# DCRA's Green Building Division

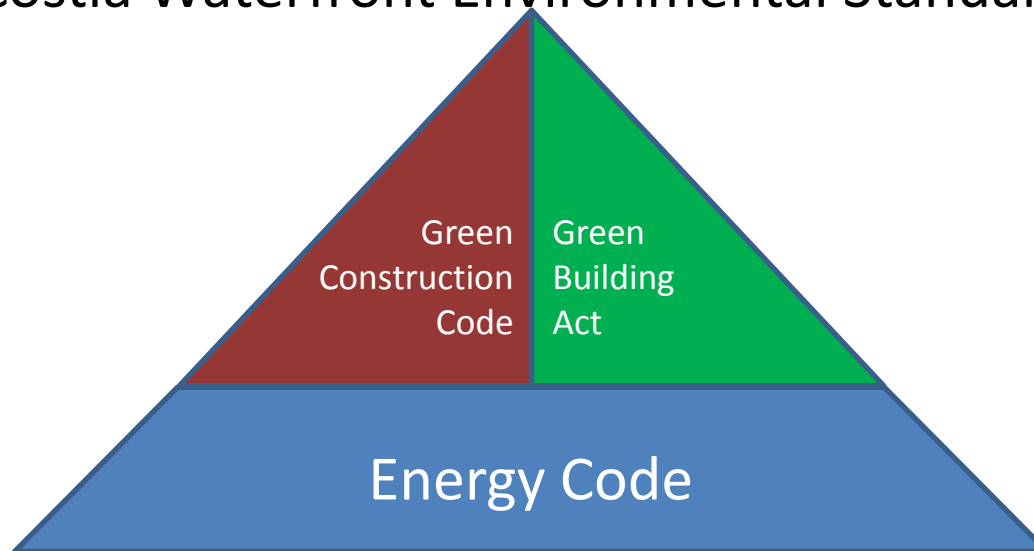
- Operate within the DCRA Building Department
- Conduct design review, plan review, inspections, certificate of occupancy
- Collaborate with the community to further the efforts to build a more sustainable DC
- We are an educator and green technical assistance resource



# DCRA's Green Building Division

The Division Enforces:

- Green Building Act
- Green Construction Code
- Energy Conservation Code
- Anacostia Waterfront Environmental Standards



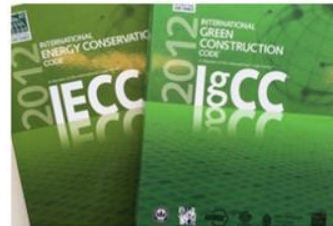
*We are also responsible for shepherding and championing new green technologies*

*Welcome to the*

# GREEN BUILDING DIVISION

*at the Department of Consumer and Regulatory Affairs*

WELCOME TO THE GREEN BUILDING DIVISION AT THE THE DEPARTMENT OF CONSUMER AND REGULATORY AFFAIRS (DCRA). THE GOAL OF THIS WEBSITE IS TO IMPROVE COMPLIANCE WITH THE DISTRICT'S GREEN BUILDING CODES AND LAWS THROUGH GREEN BUILDING TRAININGS, EDUCATIONAL RESOURCES AND INTERACTIVE TOOLS. IF YOU HAVE ANY SUGGESTIONS, PLEASE EMAIL US AT [GREEN.BUILDING@DC.GOV](mailto:GREEN.BUILDING@DC.GOV).



## Welcome to the 2013 District of Columbia Construction Codes website.

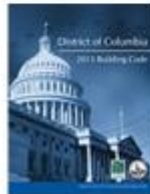
You will be able to view the new 2013 District of Columbia Construction Codes in an Adobe® Reader® format. *This site contains 7 of the District of Columbia Construction Codes.*

You will need to have Adobe® Reader® 10.0 or higher installed to be able to read these files. If you do not have Adobe® Reader® 10.0 or higher you can download it for free at [www.adobe.com](http://www.adobe.com).

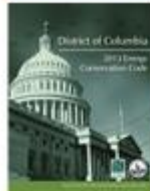
Use your arrow buttons or scroll bar to move between code sections and pages in the document.

For assistance on technical issues with this web site or for accessibility compliant files contact Electronic Media by e-mail: [support@iccsafe.org](mailto:support@iccsafe.org).

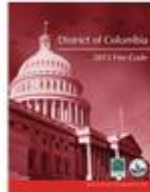
ALL RIGHTS RESERVED. The 2013 District of Columbia Codes contains substantial copyrighted material from the 2012 International Codes which are copyrighted work owned by the International Code Council, Inc. The Codes Code also contains substantial copyrighted material from the District of Columbia Construction Codes Supplement of 2013, Title 12 of the District of Columbia Municipal Regulations (DCMR), which is a copyrighted work owned by the Government of the District of Columbia.



### [2013 District of Columbia Building Code](#)



### [2013 District of Columbia Energy Conservation Code](#)

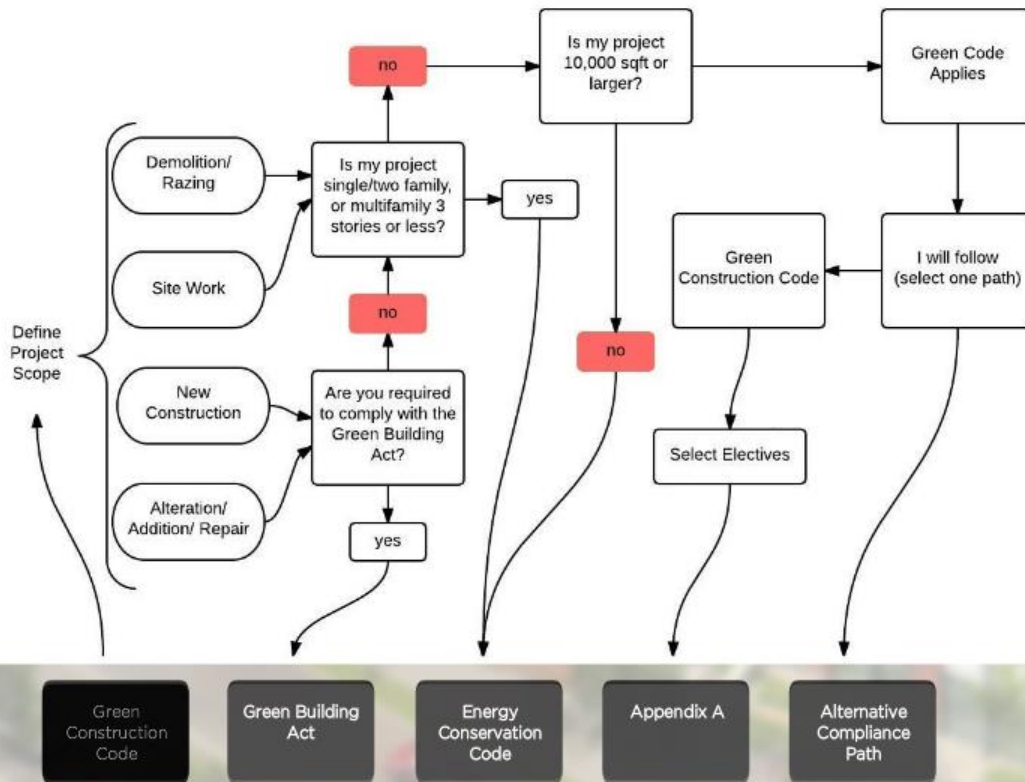


### [2013 District of Columbia Fire Code](#)



### [2013 District of Columbia Green Construction Code](#)





**"The DC Green Construction Code is a groundbreaking policy that imprints sustainability into the blueprint of the city's future."** Department of Consumer and Regulatory Affairs Director Melinda Bolling.

The 2013 District of Columbia Green Construction Code (GCC) consists of the 2012 edition of the International Green Construction Code (IgCC) amended with the 2013 District Construction Codes Supplement. The GCC is a set of minimum green requirements to be met when building or altering any commercial structure over 10,000 square feet or residential building that's more than three stories tall.

The requirements apply to the entire construction project plus its site and provide an approach to design and construction that conserves resources, including energy, materials and water, and produces a healthier indoor environment.

**Meeting the DC Green Construction Code - What's next?**

**DCRA RESOURCES**

[Preliminary Design Review Meeting - DCRA offers Preliminary Design Review Meetings](#)



Review the DC Green Construction Code Chapters with the buttons below.

- [Chapter 4- Site Development and Land Use](#)
- [Chapter 5- Material Resource Conservation...](#)
- [Chapter 6- Energy Conservation, Efficiency...](#)
- [Chapter 7- Water Resource Conservation](#)
- [Chapter 8- Indoor Environmental Quality](#)
- [Chapter 9- Commissioning](#)

- Green Construction Code
- Green Building Act
- Energy Conservation Code
- Appendix A
- Alternative Compliance Path

Select a chapter below to learn more about the DC Green Construction Code


CHAPTER 4 

CHAPTER 5 

CHAPTER 6 

CHAPTER 7 

CHAPTER 8 

CHAPTER 9 

## SITE DEVELOPMENT AND LAND USE

### Intent:

Address actions related to limiting the negative effects of building on a site, as well as protecting, restoring and enhancing the natural features of the building site and the surrounding environment.

### Key Requirements:

#### • Native and Invasive species

- No invasive species planted on site
- Mgmt plan for containment and removal of existing invasives prepared by qualified professional
- 50% of newly landscaped area planted with native species

#### • Site Waste Management

- 75% land clearing debris and excavated soils diverted/recycled
- Includes rocks, trees, stumps, vegetation
- Documentation due before CoO

#### • Heat Island Mitigation

- 50% site hardscape comply with: reflective materials, pervious and permeable materials, shading by structures, shading by trees

#### • Site lighting

- Light pollution control: uplight, light trespass and glare are limited

#### • Appendix A has additional increases over these baselines

- Wildlife corridor
- Infill site selection
- Brownfield site selection
- Site restoration
- Mixed use development
- Changing and Shower Facilities



Drag and scroll to read more



GREEN CODE SPECIFICS



VIEW CODE IN ACTION

CODE OVERVIEW

GREEN CODE

GREEN DC MAP

GREEN DESIGN 101

PERMIT PATHWAY

BUILD SMART

# Timeline

Design

Permit

Inspection

C of O

Post  
C of O







# Design (pre-permitting)

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- Determine what regulations apply to your project
- Select a capable design team
- Resources available through DCRA:
  - Self-selection Guides
  - Preliminary Green Review Meeting
  - Preliminary Design Review Meeting
  - Technical questions to [green.building@dc.gov](mailto:green.building@dc.gov)
  - Bi-weekly residential workshops
  - Walk-in office hours from 1-2PM everyday
  - Additional Educational Resources



# Permitting

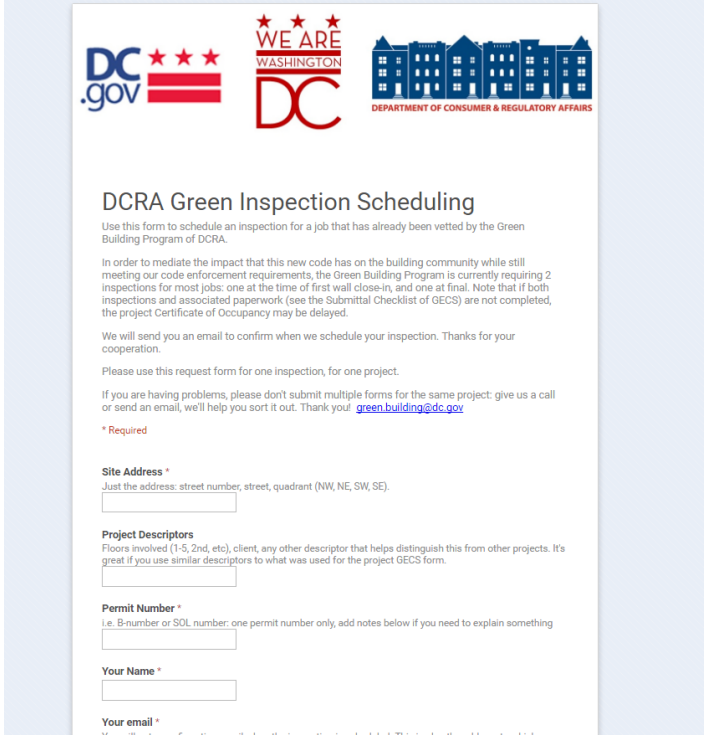

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- Projects will be flagged for “green review” and “energy review” in permitting workflow by a specific reviewer
- Energy Code Documentation
  - Energy Verification Sheet (communication tool)
  - Supplemental documentation as determined by the scope (e.g. HVAC sizing, energy model calcs, COMcheck/REScheck)
- Multiple re-reviews are common. Most project teams are not used to documentation and many don't understand basic concepts and who's responsible



# Inspections

- Energy Code inspections throughout typical building code inspections, except for insulation inspections and energy final inspection.
- Green Code inspections
  - Green Rough-in
  - Green Final



The screenshot shows the DCRA Green Inspection Scheduling form. At the top, there are logos for DC.gov, WE ARE WASHINGTON DC, and the Department of Consumer & Regulatory Affairs. The title is "DCRA Green Inspection Scheduling". Below the title, there is a paragraph explaining the form's purpose: "Use this form to schedule an inspection for a job that has already been vetted by the Green Building Program of DCRA." Another paragraph explains the impact of the new code: "In order to mediate the impact that this new code has on the building community while still meeting our code enforcement requirements, the Green Building Program is currently requiring 2 inspections for most jobs: one at the time of first wall close-in, and one at final. Note that if both inspections and associated paperwork (see the Submittal Checklist of GECS) are not completed, the project Certificate of Occupancy may be delayed." A third paragraph states: "We will send you an email to confirm when we schedule your inspection. Thanks for your cooperation." A fourth paragraph says: "Please use this request form for one inspection, for one project." A fifth paragraph provides contact information: "If you are having problems, please don't submit multiple forms for the same project: give us a call or send an email, we'll help you sort it out. Thank you! [green\\_building@dc.gov](mailto:green_building@dc.gov)". Below this, there is a section for "Site Address" with a text input field. The next section is "Project Descriptors" with a text input field. The "Permit Number" section has a text input field. The "Your Name" section has a text input field. The "Your email" section has a text input field.

**DCRA Green Inspection Scheduling**

Use this form to schedule an inspection for a job that has already been vetted by the Green Building Program of DCRA.

In order to mediate the impact that this new code has on the building community while still meeting our code enforcement requirements, the Green Building Program is currently requiring 2 inspections for most jobs: one at the time of first wall close-in, and one at final. Note that if both inspections and associated paperwork (see the Submittal Checklist of GECS) are not completed, the project Certificate of Occupancy may be delayed.

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\* Required

**Site Address \***  
Just the address: street number, street, quadrant (NW, NE, SW, SE).

**Project Descriptors**  
Floors involved (1-5, 2nd, etc), client, any other descriptor that helps distinguish this from other projects. It's great if you use similar descriptors to what was used for the project GECS form.

**Permit Number \***  
i.e. B-number or SOL number; one permit number only; add notes below if you need to explain something

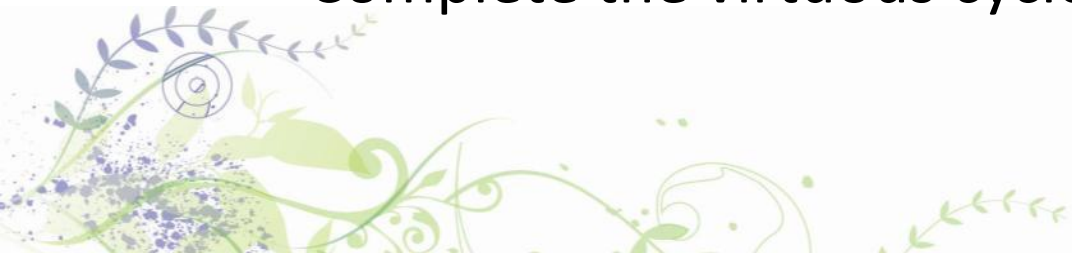
**Your Name \***

**Your email \***  
You will get a confirmation email when the inspection is scheduled. This is also the address to which

# Certificate of Occupancy / Post

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- Green Code
  - Review inspections
  - Collect documentation
- LEED, EGC, etc. - Check to make sure the accounts are active and projects are following appropriate steps
- GBA Private projects – Complete financial security requirement
- We track for 1-2 years
- Handoff information to benchmarking team.  
Complete the virtuous cycle.



# Enforcement Mechanisms

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- Permitting
  - Hold for comments
  - Approve with comments
- Inspections
  - Fail inspection
  - Notice of Infraction (fines)
- Certificate of Occupancy and Post CofO
  - Don't issue it or issue a temporary, conditional certificate of occupancy
  - Financial Security
  - Fines and penalties



# Challenges

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- Not all project teams will rise to the occasion
- And the Owner needed their permit yesterday
- Codes are hard, really hard. And very complex.
- Flexibility is great for PHD students and national energy policy wonks but not always helpful for code officials (not everyone will be Denmark, yet)
- Transfer of information from plan reviewer to inspector and from permit team to construction team
- Complex regulatory landscape
- Who's responsible for what part of compliance?
- Chicken and egg. Zero to hero.



File Edit View Insert Format Data Tools Add-ons Help GECS Update Menu Last edited on October 14, 2016 by

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Washington DC Green Code Compliance Sheet (GCCS)

**DUE AT PERMIT SUBMITTAL**

Name	Example -- Tenant Fit-Out Flrs 2-5
Address	1100 4th St. SW 20024
Date	6/15/2015
Permit #	BNumber

Code Citation	Status	Plan Page	Compliance Notes (Optional)	Review Notes
4 401.2 Predesign site inventory	Applicab			
4 405.1.4 Soil reuse and restoration.	Applicab			
4 405.1.4.1 Preparation.	Applicab			
4 405.1.4.2 Restoration.	Applicab			
4 405.1.5 Engineered growing media.	Applicab			
4 405.1.6 Documentation.	Applicab			
4 405.2 Invasive plant species.	Applicab			
4 405.3 Native plant landscaping	Applicab			
4 406.1 Building site waste management	Applicab			
4 406.3 Verification: Site Waste Management	Applicab			
4 408.2 Site hardscape.	Applicab			
4 408.2.1 Site hardscape materials.	Applicab			
4 408.2.2 Shading by structures.	Applicab			
4 408.2.3 Shading by trees.	Applicab			
4 408.2.4 PerVIOUS and permeable pavement.	Applicab			
4 409.2 Exterior: Uplight.	Applicab			
4 409.3 Exterior: Light trespass and glare	Applicab			
5 502.1.2 Construction phase moisture control.	Applicab			
5 503.1 Construction waste management	Applicab			
5 503.2 Verification: Construction Waste Mgmt	Applicab			
5 505.1 Material selection and properties.	Applicab			
5 505.1.1 Whole building life cycle assessment	Applicab			
5 505.2 Material selection.	Applicab			
5 505.2.1 Used materials and components	Applicab			
5 505.2.2 Recycled content building materials.	Applicab			
5 505.2.3 Recyclable building materials	Applicab			
5 505.2.4 Bio-based materials.	Applicab			
5 505.2.5 Indigenous (regional) materials.	Applicab			
5 505.3 Verification -- Mat. Sel./WBLCA	Applicab			
5 506.2 Straight fluorescent lamps.	Applicab			
5 506.3 Compact fluorescent lamps.	Applicab			
5 507.1 Moisture control	Applicab			

+ | Instructions Project Overview Submittal Checklist GCCS CWM - GCC

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**CONSTRUCTION WASTE MGMT GCC**

Project Name: Example -- Tenant Fit-Out pDate: 6/15/2015  
Project Address: 1100 4th St. SW 20024 Building Permit #: BNumber

REQUIREMENTS

**DUE BEFORE CoFo ISSUANCE**

Enter a line for each removal of construction waste from the site (removal of dumpster, salvaged materials, etc).

Not less than 50% of nonhazardous construction waste shall be diverted from disposal. Work to include:

- Percentage of materials to be diverted shall be specified and calculated by weight or volume, but not both.
- Receipts or other documentation related to diversion shall be maintained throughout the course of construction.
- When requested by the code official, evidence of diversion shall be provided.

Material Description	Diversion/Recycling Hauler or Location	Amount to Landfill (tons)	Amount Diverted (tons)	% Diverted

+ | Instructions Project Overview Submittal Checklist GCCS CWM

5.5.4.4.2 SR	Skylight Fenestration - SHGC	Roof SHGC				
	Skylight w/curb, Glass:	0-2%, 0.49				
	Skylight w/curb, Plastic:	2-5%, 0.39				
	Skylight w/OUT curb, All:	0-2%, 0.65				
5.8.2.1 S	Fenestration products rated in accordance with NFRC.	N/A				
5.8.2.2 SR	Fenestration products are certified as to the performance labels or certificates.	N/A				
5.8.2.3, 5.8.3.6 S	U-factor of opaque doors associated with the building thermal envelope meets requirements.	Swinging: U=0.70 Non-Swinging: U=1.50				

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# DCRA Energy Verification Sheet

ASHRAE 90.1-2010 Non-Residential

Version 1.0\_2014

This Energ or ASHRA of any one  
Directions: should fill e responsible shows how measures. Performan teams from the row be sheets mu



# (Good) Ideas

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- Dedicated funding source
- Dedicated staff (plan reviewers, inspectors)
- Alternative compliance pathways
- Collaborative adoption process with private sector
- Amending the model codes for local, specific application
- Use the carrot and the stick



# Policy Roadmap

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- DC has net-zero targets for 2032
- Building Types and Codes are
- National Energy/Green Codes
  - IECC, ASHRAE 90.1, ASHRAE 189.1 / IGCC
- DC Modified Energy and Green Code
- Appendix Z (our roadmap to net zero)



# Appendix Z

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- DC is planning to adopt a voluntary net-zero energy alternative compliance pathway
- Appendix Z...
  - Allows for projects to pursue net zero targets in a clear framework
  - Allows for incentivizing those pathways
  - Allows for Building Department to administer
- Points the way forward and helps industry become comfortable with where we are heading



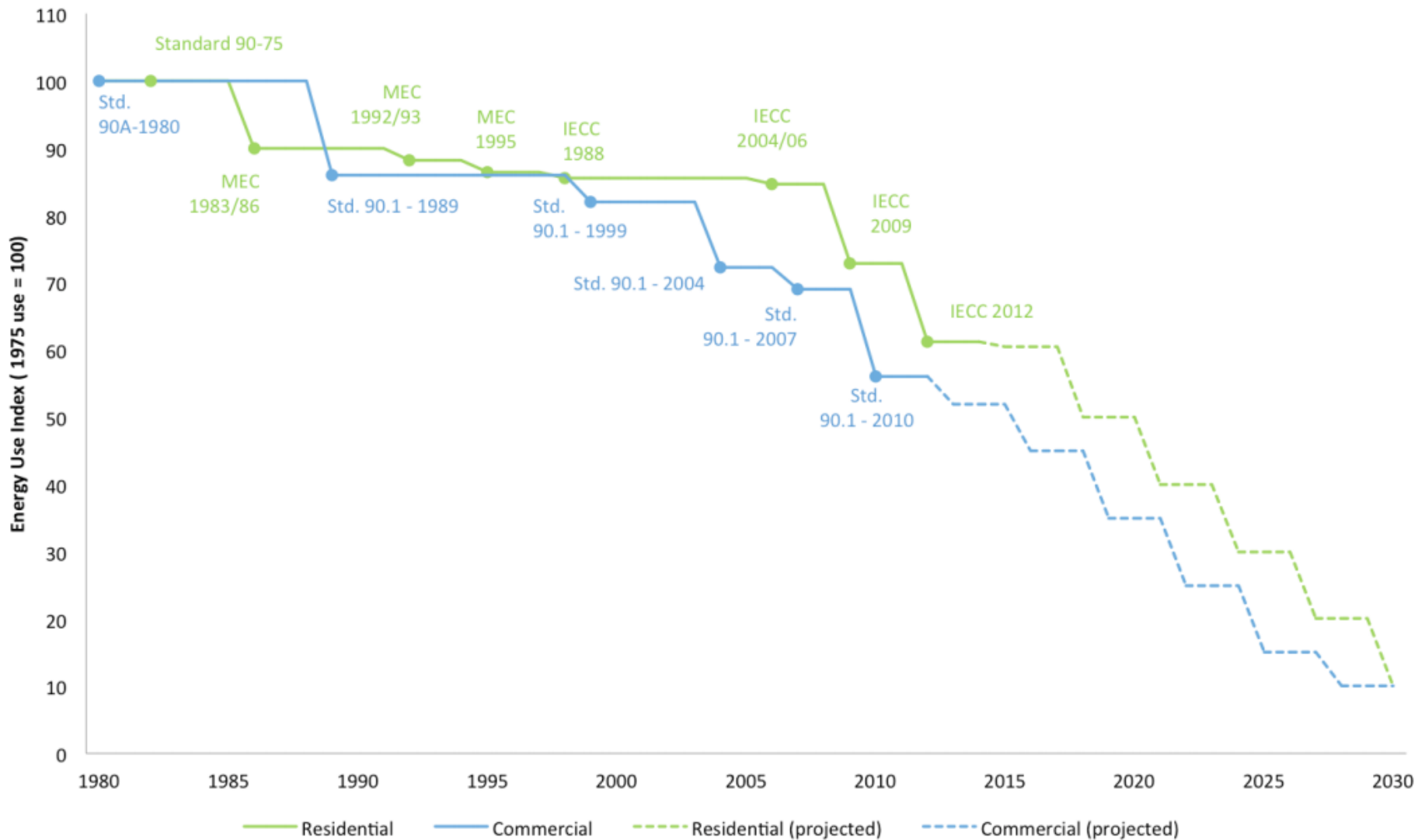
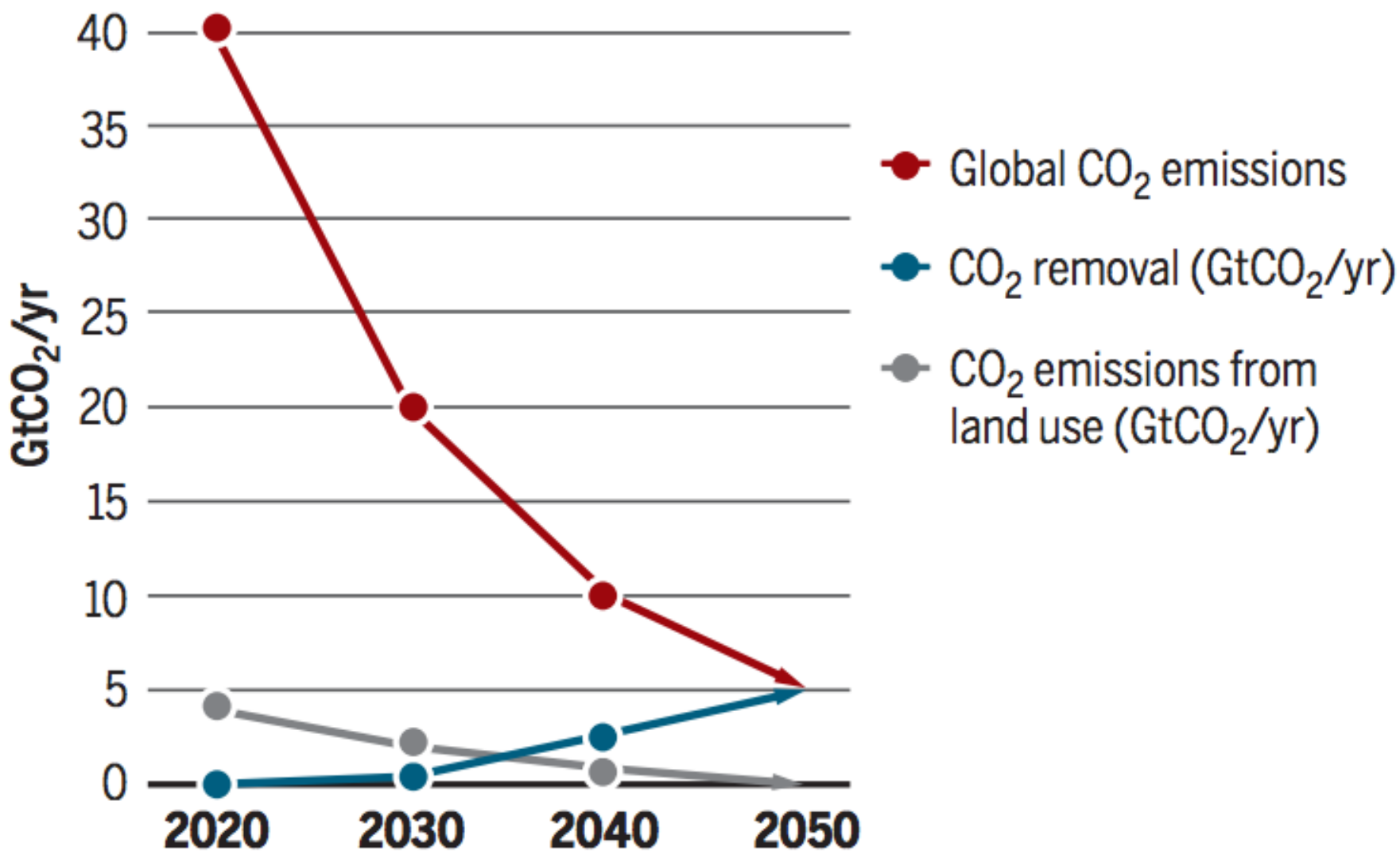


Figure ES1. History of U.S. building codes, 1980–2012. *Source:* Data from U.S. DOE Building Codes Program.

## Global carbon law guiding decadal pathways





*Mountains beyond mountains...*



# Questions?

Visit our website at  
[BuildGreenDC.org](http://BuildGreenDC.org)  
[Green.Building@dc.gov](mailto:Green.Building@dc.gov)