

Riding the Bike to a Future Energy Code, Washington, DC-Style



Presenter: David Kaiser

Agenda

- What “Riding the Bike” is
- Framework of Energy and Green Codes
- Implementation
- Leadership
- DCs Successes
- Replicating Success



Photo <http://thecityfix.com/blog/capital-bikeshare-expansion-stunted-in-the-national-mall/>

“Riding the Bike”

- Metaphor for Governance
 - Vision
 - Framework
 - “Rubber meeting the Road”



“Riding the Bike”

- Metaphor for Governance
 - Leadership
 - Laws/ Code
 - Enforcement



ICC publicACCESS™



Paris Climate Agreement



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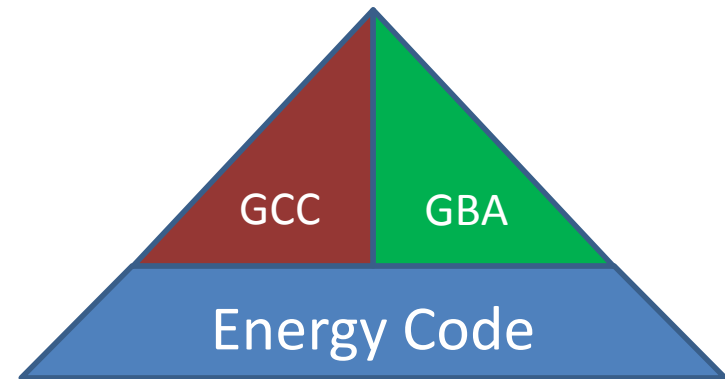
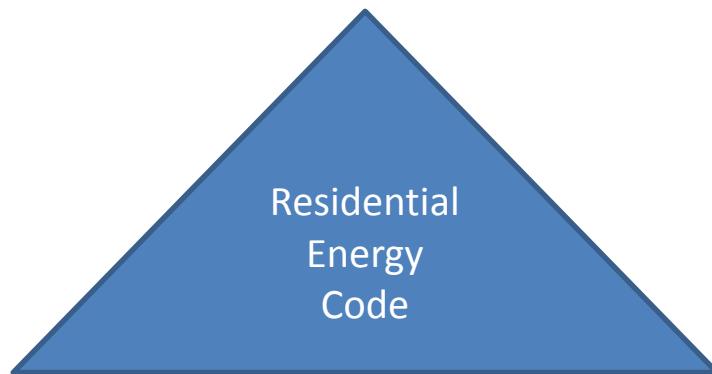


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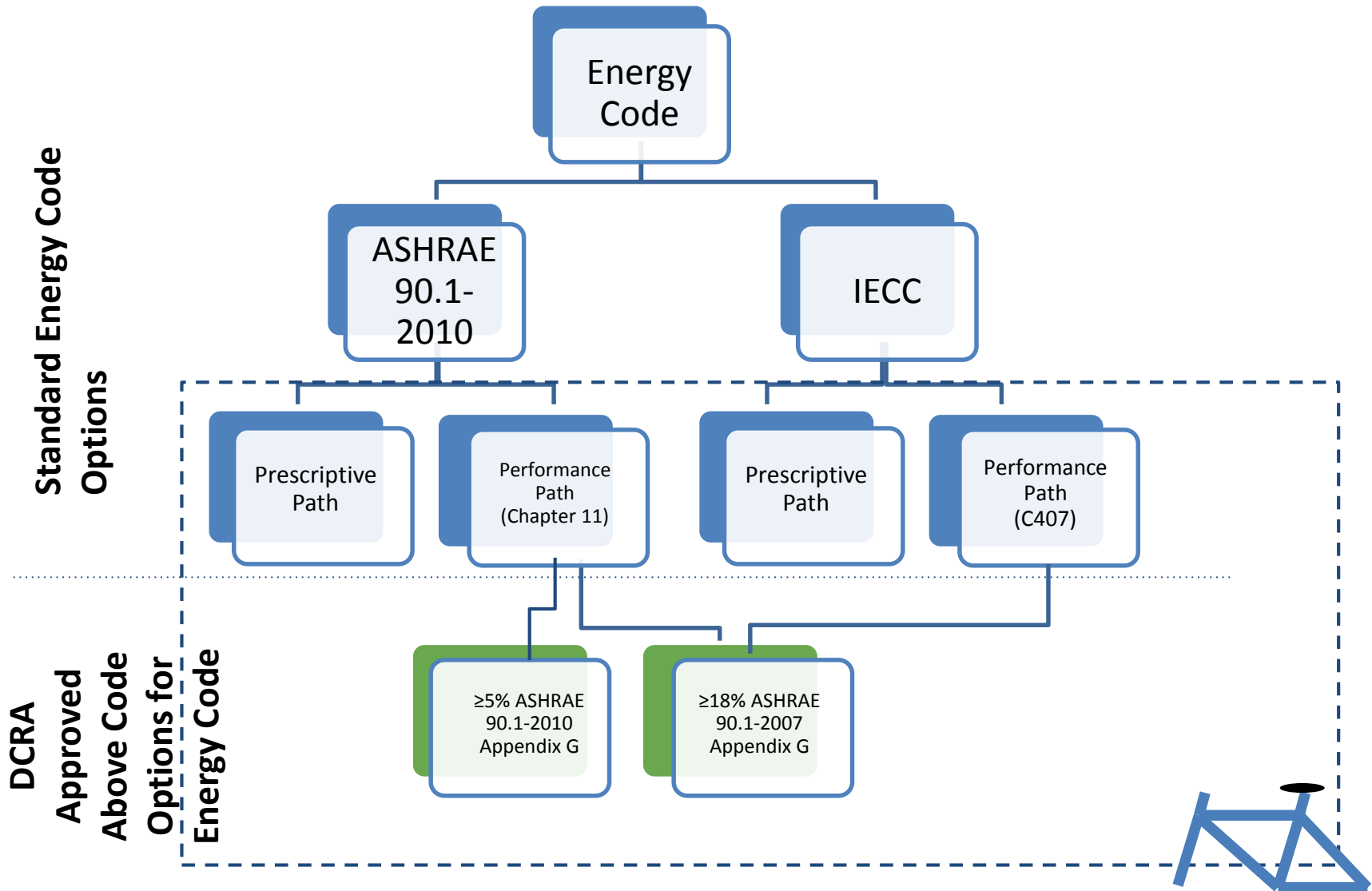
DCRA's Green Building Division

The Division Enforces:

- Energy Conservation Code
- Green Construction Code
- Green Building Act



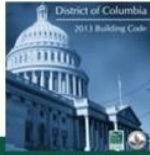
Commercial Energy Code Pathways



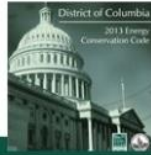
District of Columbia

2013

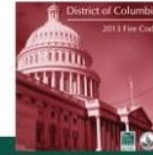
2013 District of Columbia Building Code
(1st Printing)



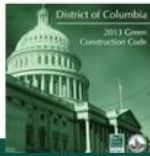
2013 District of Columbia Energy Code
(1st Printing)



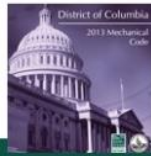
2013 District of Columbia Fire Code
(2nd Printing)



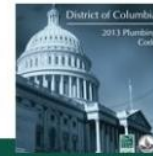
2013 District of Columbia Green Code
(1st Printing)



2013 District of Columbia Mechanical Code
(1st Printing)



2013 District of Columbia Plumbing Code
(1st Printing)



<https://www.buildgreendc.org/educationalresources/>



Applicability

- The GCC is applicable to multifamily and **commercial projects $\geq 10,000\text{sf}$** that are not subject to the Green Building Act.
- The GCC is applicable to the entire scope of work. (alterations and new)



Source: [washingtonpost.com](http://www.washingtonpost.com)



Green Construction Code Alternatives

- LEED
- ASHRAE 189.1-2011
- Enterprise Green Communities
- ICC-700 with ENERGY STAR



Source: [washingtonpost.com](http://www.washingtonpost.com)



Green Construction Code Key Measures

- Automatic Daylighting Control
- Construction Waste Management
- Indoor Air Quality
- Commissioning
- 15 Electives (new construction)
- Hot water pipe line length



Source: washingtonpost.com



Green Building Act

- The GBA is applicable Publicly financed buildings including multifamily
- Requires LEED/ EGC
- **Commercial projects $\geq 50,000$ sf**



Green Building Act

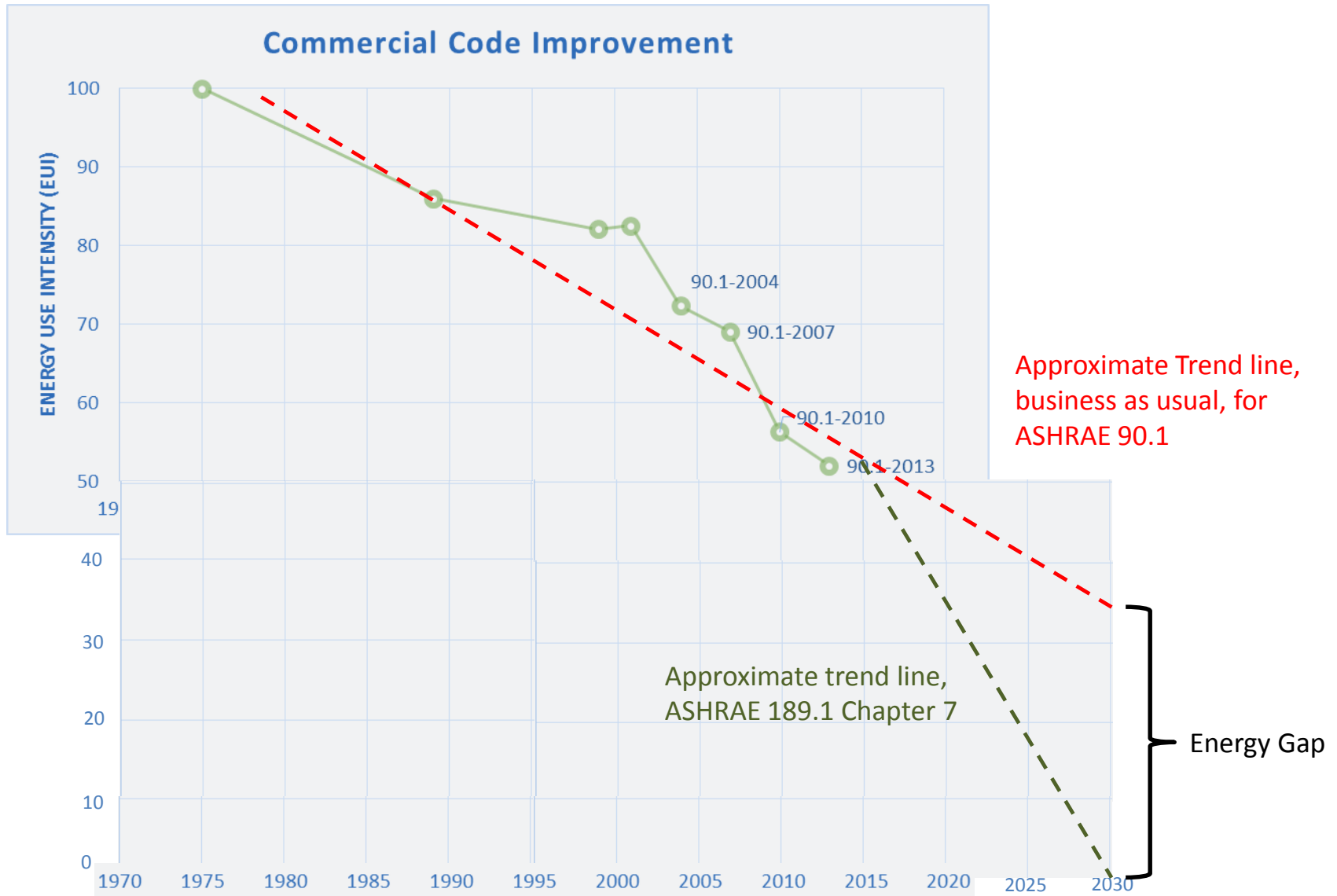
- GBA Establishes Green Fund for the Green Building Program
 - \$0.002 per square foot new construction
 - 0.13% construction value for renovations
- Green Building Advisory Council



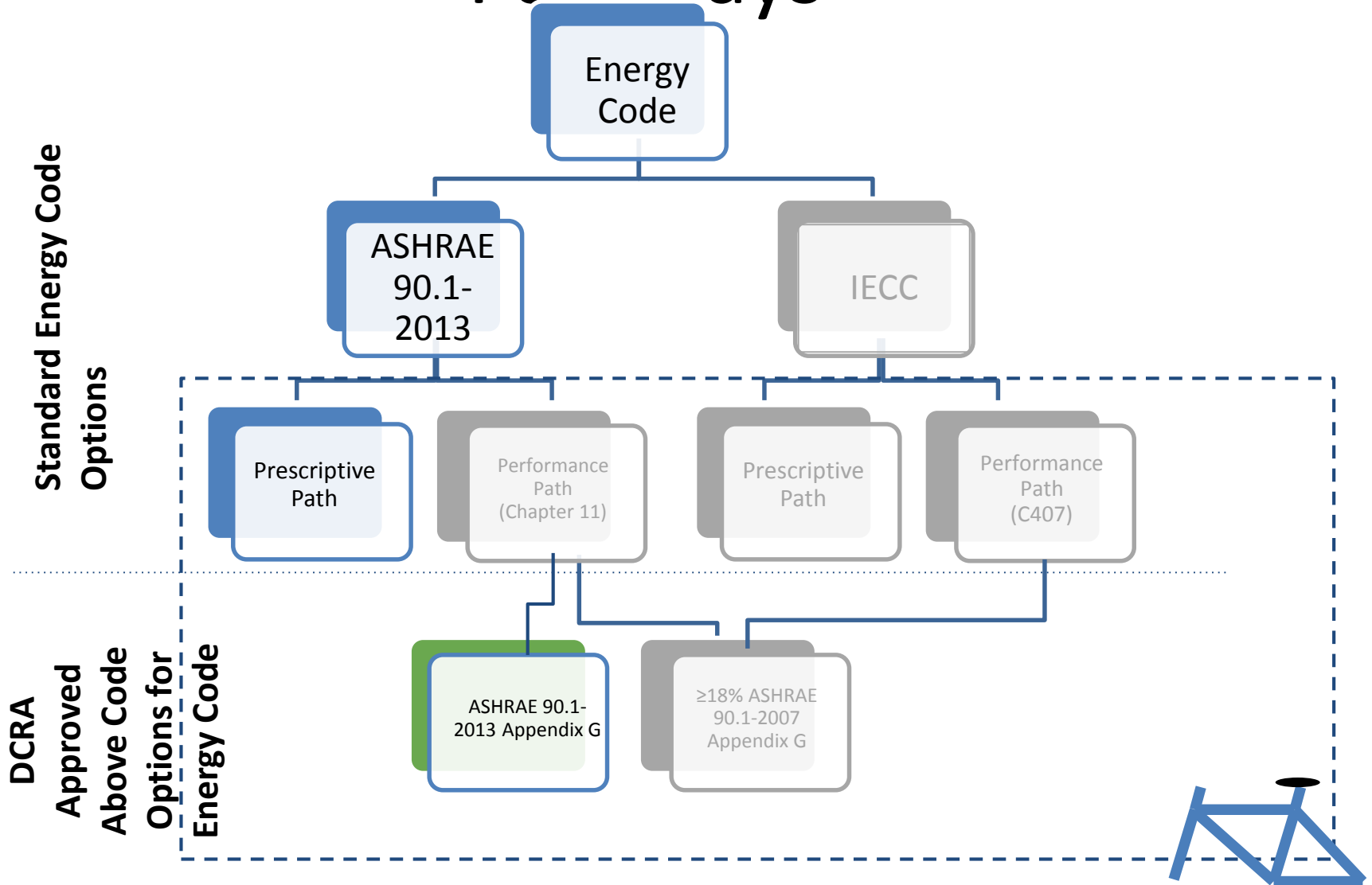
Source: <https://clipartxtras.com/>



The Energy Code Gap



Future Commercial Energy Code Pathways



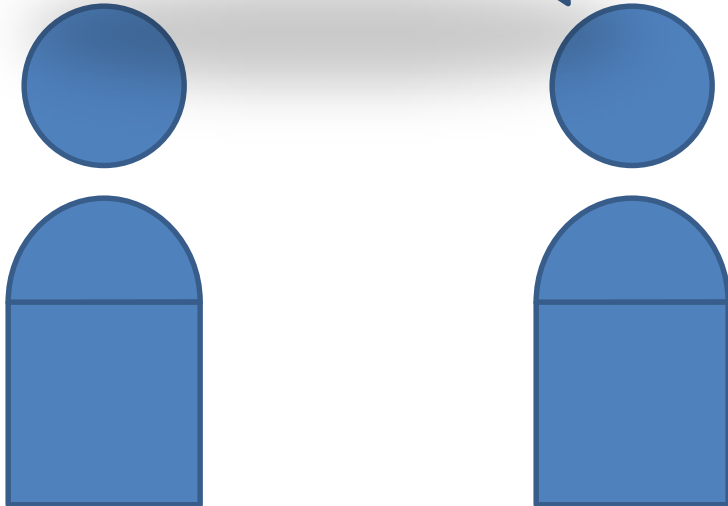
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The Talk



<https://bangordailynews.com/2010/09/05/news/noted-bicyclist-to-ride-in-maines-dempsey-challenge/?ref=relatedBox>

Reality



<http://thelincolnite.co.uk/2014/01/thieves-steal-bike-wheels-lincoln/>

“The only law that exists is the one that is enforced.”



Enforcement

DCRA's Green Building Division

- Operate within DCRA's **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 educators and a **green technical assistance resource**

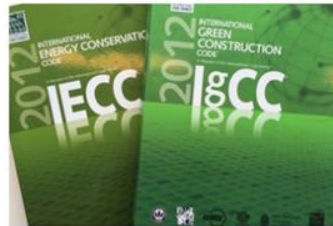


Welcome to the

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.



Kaiser's Daily Activities

- Review ~ 6 plans a day on Green and Energy topics in digital plan review
- Field Phone Calls/ Questions
- Be present for walk-in hours
- Attend pre-review meetings
- Conduct Quality Assurance on Third Party Plan Reviews
- Develop Trainings
- Help Develop new code



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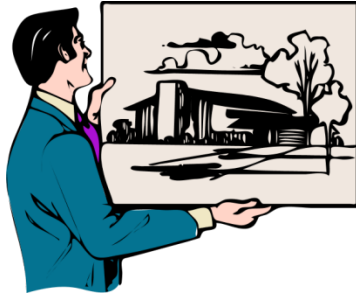


"I'm here about the details."

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The Building Process



Design Team

- Owner
- Architect
- Engineering
- Trades Design
- Other



Plan Review

- DCRA
- 3rd Party



Build Team

- GC
- Trades
- Other



Inspections

- DCRA
- 3rd Party



Tools: Online Compliance Table of Contents

| | A | B | C | D | E | F | G | H | I |
|----|---|---|-----|--|-----------|------------------------------------|--|--------------|------------|
| 10 | | | Cha | Code Citation | Status | Plan Pages | Compliance Notes (Optional) | Review Notes | Inspection |
| 11 | | 4 | | 401.2 Predesign site inventory | Applicab | CIV002, L1.00, Geotechnical Report | | | PlanRev |
| 12 | | 4 | | 405.1.4 Soil reuse and restoration. | Applicab | CIV004,CIV005 | | | PlanRev |
| 13 | | 4 | | 405.1.4.1 Preparation. | Applicab | CIV003,CIV004,CIV005 | | | PlanRev |
| 14 | | 4 | | 405.1.4.2 Restoration. | Applicab | L1.00, L6.01, L6.02 | | | PlanRev |
| 15 | | 4 | | 405.1.5 Engineered growing media. | Applicab | L1.00, L6.01, L6.02 | | | PlanRev |
| 16 | | 4 | | 405.1.6 Documentation. | Applicab | Spec 018113 | | | Final-CoO |
| 17 | | 4 | | 405.2 Invasive plant species. | Applicab | L1.00, L2.01, L2.02 | | | PlanRev |
| 18 | | 4 | | 405.3 Native plant landscaping | Applicab | L1.00, L2.01, L2.02 | | | PlanRev |
| 19 | | 4 | | 406.1 Building site waste management | Applicab | spec 017419 | added spec | | Rough-in |
| 20 | | 4 | | 406.3 Verification: Site Waste Management | Applicab | spec 017419 | added spec | | Rough-in |
| 21 | | 4 | | 408.2 Site hardscape. | Applicab | L6.01 | LANDSCAPE | | Final-CoO |
| 22 | | 4 | | 408.2.1 Site hardscape materials. | Applicab | L6.01 | LANDSCAPE | | PlanRev |
| 23 | | 4 | | 408.2.2 Shading by structures. | Not Appl | | | | PlanRev |
| 24 | | 4 | | 408.2.3 Shading by trees. | Applicab | L2.01, L2.02 | | | Final-CoO |
| 25 | | 4 | | 408.2.4 Pervious and permeable pavement. | Applicab | CIV020 | | | Final-CoO |
| 26 | | 4 | | 409.2 Exterior: Uplight. | Applicab | E0401 | All scheduled exterior fixtures have U0 rating. | | Final-CoO |
| 27 | | | | | | E0105/E0401 | No fixtures' backlight is oriented toward building. Therefore only Table 409.3(2) is applicable. All fixtures are mounted such that $0.5\text{hm} < \text{Hlb} < \text{hm}$, and have maximum ratings of B2 and G2. | | PlanRev |
| 28 | | 5 | | 502.1.2 Construction phase moisture control. | Applicab | Specification 018113 | added spec | | Rough-in |
| 29 | | 5 | | 503.1 Construction waste management | Flagged I | Specification 017419 | added spec | | Rough-in |
| 30 | | 5 | | 503.2 Verification: Construction Waste Mgmt | Applicab | Specification 017419 | added spec | | Final-CoO |
| 31 | | 5 | | 505.1 Material selection and properties. | Applicab | Specification 018113 | added spec | | PlanRev |
| 32 | | 5 | | 505.1.1 Whole building life cycle assessment | Not Appl | | | | PlanRev |
| 33 | | 5 | | 505.2 Material selection. | Applicab | Specification 018113 | added spec | | PlanRev |



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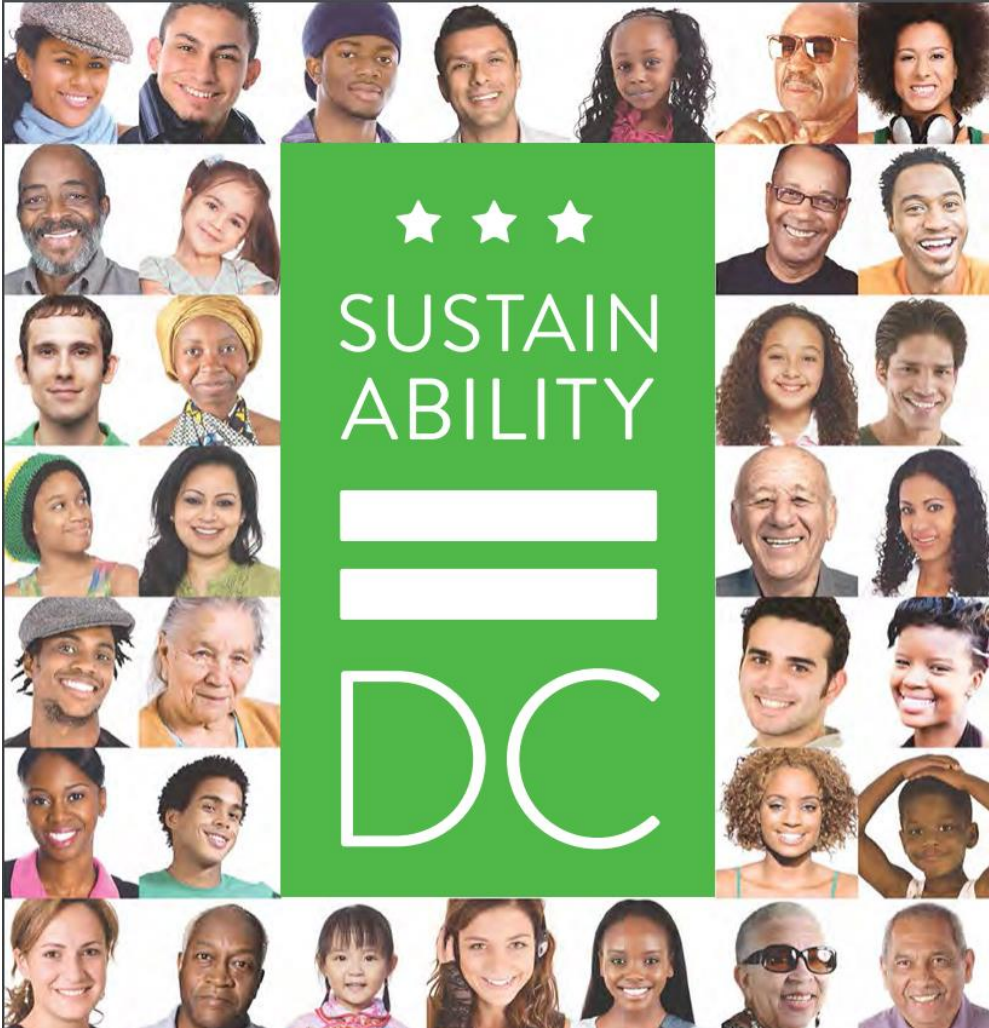
Leadership – Goal Setting



<https://www.neh.gov/explore/the-american-revolution>



Leadership – Goal Setting



Leadership – Goal Setting

2032 GOALS & TARGETS

CHALLENGES



JOBS & THE ECONOMY

GOALS

Grow and diversify DC's business sectors for sustained economic prosperity.

Expand the number and range of jobs available to District residents and ensure access to new jobs through appropriate skills training.

TARGETS

Develop 3 times as many small District-based businesses.

Cut citywide unemployment by 50% and increase by 5 times the number of jobs providing green goods and services.



HEALTH & WELLNESS

GOALS

Inspire healthy, active lifestyles for all residents, regardless of income, ability, or employment.

Create safe environments that are conducive to healthy living.

TARGETS

Cut the citywide obesity rate by 50%

Require all new housing projects in the District to meet "Healthy by Design" standards.



EQUITY & DIVERSITY

GOALS

Ensure that all school-age children in the District are educated in sustainability and prepared for a changing green economy.

Ensure transparency in the District's sustainability agenda including future plans and past progress.

TARGETS

Teach at least 50% of children in the District about sustainability concepts.

Expose 100% of District residents to Sustainable DC events and initiatives in their neighborhood.



CLIMATE & ENVIRONMENT

GOALS

Minimize the generation of greenhouse gas emissions from all sources.

Advance physical adaptation and human preparedness to increase the District's resilience to future climate change.

TARGETS

Reduce greenhouse gas emissions by 50%.

Require all new building and major infrastructure projects to undergo climate change impact assessment as part of the regulatory planning process.



Setting Expectations

- We are working to make the District of Columbia the **most sustainable city** in the world
- Paris Climate Agreement



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DCRA FEATURED IN INSTITUTE FOR MARKET TRANSFORMATION BLOG

The screenshot shows the website of the Institute for Market Transformation (IMT). The header includes the IMT logo, the tagline "Promoting energy efficiency in buildings", and navigation links for "Contact Us", "Blog", and "RSS". A search bar is also present. The main navigation menu includes "About", "Codes", "Policy", "Real Estate & Finance", "News", and "Resources". The "News" menu is expanded to show "The Current", "In The News", and "For the Press". Below this, there are sub-links for "Press Releases", "Announcements", and "Blog Posts".

On the left side, there is a "Stay Connected" section with a sign-up form for the IMT email newsletter and social media icons for Facebook and Twitter. Below that is a "What Is Market Transformation?" section.

The main content area features a breadcrumb trail: "Home > News > The Current > District of Columbia Milestone". The article title is "District of Columbia's Building Department Achieves First-of-its-Kind Milestone", published on "MAR 14, 2017".

The article text begins: "The District of Columbia's Department of Consumer and Regulatory Affairs (DCRA) recently achieved a milestone no other building department has. In 2016, the department completed the second of two assessments evaluating its effectiveness at enforcing the District's Energy Conservation Code. The findings presented a significant..."

Three blue callout boxes are overlaid on the image, containing the following text:

- "significant improvement"
- "key to success was supportive leadership"
- "many compliance improvement activities undertaken"

Meres, Ryan "District of Columbia's Building Department Achieves First-of-its-Kind Milestone" Institute for Market Transformation, March 14th, 2017

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Leadership



<https://www.neh.gov/explore/the-american-revolution>

Framework



<http://comingthru.com/2010/09/for-dummies-how-to-build-a-bicycle/>

Financing



Source: <https://clipartxtras.com/>

Implementation



When all assembled together you can....

Jump the Energy Code Gap!

