

Worksession

M E M O R A N D U M

September 15, 2021

TO: Planning, Housing, and Economic Development (PHED) Committee
FROM: Livhu Ndou, Legislative Attorney
SUBJECT: Executive Regulation 12-20, Adoption of the 2018 International Green Construction Code

EXPECTED PARTICIPANTS

Rick Merck, Division Chief, Commercial Building Construction, Department of Permitting Services (DPS)

Bryan Bomer, Sustainability, Energy, and Mechanical Manager, Commercial Building Construction, Department of Permitting Services (DPS)

INTRODUCTION

The County Executive submitted Executive Regulation 12-20, Adoption of the 2018 International Green Construction Code (IgCC) to the Council on March 22, 2021. As a “Method 2” regulation under Sec. 2A-15 of the County Code, the Council has 60 days to approve or disapprove the proposed regulation. The Council may only approve or disapprove, not amend. An extension was approved on May 4, 2021, giving the Council until September 28, 2021, to act on this regulation. If the Council does not approve or disapprove the regulation before the deadline, then it is automatically approved. Full Council worksession and action is scheduled for September 28, 2021.

BACKGROUND

What is the IgCC?

The International Green Construction Code (IgCC) was developed by the International Code Council (ICC) and co-sponsored by the U.S. Green Building Council (USGBC), International Code Council (ICC), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and the Illuminating Engineering Society (IES). It regulates the construction of new and existing buildings by providing criteria for energy efficiency, resource conservation, water safety, land use, site development, indoor environmental quality, and building performance that can be adopted by local jurisdictions. According to the ICC, buildings account for over 12% of water use, 40% of CO₂ emissions, 65% of all waste output, and more than 70% of electricity consumption. By adopting green building design,

construction, and operational techniques, the IgCC aims to decrease energy use and carbon footprints, improve indoor air quality, and preserve natural resources.

The State allows approval of the IgCC. Under Public Safety Article §12-504(a), a local jurisdiction may make local amendments to the IgCC. This state provision is enabling legislation and not a mandatory imposition of the IGCC on local governments. To date, Gaithersburg and Baltimore City have adopted the 2018 IgCC.

2012 vs. 2018 IgCC

Unlike prior editions, the 2018 IgCC combines the technical requirements developed by the ASHRAE Standard 189.1 with the model code administrative provisions of the Code Council. ASHRAE 189.1 is a model code that contains minimum requirements for increasing the environmental and health performance of buildings' sites and structures. Generally, it applies to the design and construction of all types of buildings except single-family homes, multifamily homes with three or fewer stories, and modular and mobile homes. Previously, it was an alternate compliance path for the IgCC; meaning, for jurisdictions that adopted IgCC, a builder had the option to design and construct a building in accordance with the provisions of ASHRAE 189.1 rather than those of IgCC.

Some additional changes the 2018 IgCC makes as compared to the 2012 IgCC are:

- New provisions for vegetated terrace and roofing systems
- New section for plans during construction for site waste management
- Water use moved from prescriptive option to mandatory provisions
- Requirement to track and assess energy consumption
- Lower threshold for duct leakage testing
- Increase lighting reduction for exterior
- Require higher level of indoor moisture control

PUBLIC HEARING AND COMMENTS

Executive Regulation 12-20 was advertised in the September 2020 issue of the Montgomery County Register. A public hearing was held on September 3, 2020, with a deadline of October 5, 2020 for additional written comments. Comments were received from many individuals and organizations, which are attached to this packet. DPS evaluated and responded to the received comments. Those responses are also attached to this packet.

DISCUSSION

The majority of the proposed amendments to the IgCC outlined in Exec. Reg. 12-20 are deletions. Below is a list of the proposed amendments by chapter.

Chapter 1 – Scope and Administration

- 101.3.1 and 101.3.2 Change scope of 2018 IgCC so that it only applies to new buildings greater than 5,000 square feet in gross aggregate area and new portions of buildings exceeding 5,000 square feet
- 108.1 to 108.3 Delete Board of Appeals

The Chapter 1 amendments will exempt most residential buildings, such as single-family homes, townhomes, and duplexes. Group homes not exceeding 16 residents will also be exempt. Lastly, by exempting buildings less than 5,000 square feet in gross area, many small and expanding businesses will be exempt. Other revisions remove the reference to a Board of Appeals deciding issues related to the IgCC, consistent with current County procedures.

Chapter 2 – Reserved*

Chapter 3 – Definitions, Abbreviations, and Acronyms

- 301.2 Add a definition for “gross aggregate area” and amend the definition for “Owner’s Project Requirements (OPR)”

This revision clarified terms that have unique definitions.

Chapter 4 – Reserved*

Chapter 5 – Site Sustainability

The following sections are deleted:

- 501.3.1.2 prohibited development activity
- 501.3.2 pre-design site inventory and assessment
- 501.3.3 plants and invasive plants
- 501.3.4 stormwater management
- 501.3.6 reduction of light pollution
- 501.3.7 mitigation of transportation impacts
- 501.3.8 building site waste management

These sections are mitigated by Planning Department requirements, but at different thresholds based on the scope of a project. In addition, the County has a robust Storm Water Management Policy and Program required by the State and the Federal Emergency Management Agency (FEMA). Lastly, the building site waste management plan in the IgCC is designed to limit land-cleared debris from entering a landfill; site-cleared debris in the County can go to a landfill. The intent is to have it recycled; which for land-clearing can be rubble or vegetation, which can be chipped, shredded, etc.

Chapter 6 – Water Use Efficiency

Chapter 6 is deleted because WSSC is the authority for the County’s municipal water supply and plumbing code, not DPS.

Chapter 7 – Energy Efficiency

- 701.4.1.1.1 Require all Renewable Energy Credits (RECS) obtained to be sourced within the PJM Interconnection region
- 701.5.1 Replace annual energy cost formulas with language regarding performance-based energy compliance path
- 701.5.2. Replace tables of energy cost and CO₂e Building Performance Factors (BPF) as well as CO₂e emission factors

REC's represent the energy generated by renewable energy sources, such as solar or wind power facilities. PJM Interconnection is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states including Maryland and DC.

Exec. Reg. 12-20 proposes new energy performance modeling based on the Zero Energy Performance Index (zEPI) and building type. Energy use modeling includes all energy used for building and site functions and anticipated occupancy. Since the 2018 IgCC was published in 2017, and the numbers are updated annually, they have been changed to reflect current values.

Chapter 8 – Indoor Environmental Quality (IEQ)

The following sections are deleted:

- 801.3.1.7 environmental tobacco smoke
- 801.3.3.5 property line sound levels

Tobacco smoke is mitigated by Department of the Environment (DEP) regulations, not DPS. Property sound level issues are also managed by DEP, but an attempt to improve soundproofing at time of design and construction is not within DEP scope.

Chapter 9 – Materials and Resources

- 901.3.1. Construction waste management section is deleted

The County's green code has no requirements to divert construction waste from the landfill.

Chapter 10 – Construction and Plans for Operation

- 1001.3.1.1.1.2.c and 1001.3.1.1.1.3 Amended to add the Authority Having Jurisdiction (AHJ) to the list of entities who should be provided with operation and maintenance (O&M) and functional and performance testing (FPT) documentation
- The following sections are deleted:
 - 1001.3.1.1.2.1.3 property line sound testing
 - 1001.3.1.4 final commissioning report to owner
 - 1001.3.1.7 construction activity pollution prevention: idling of construction vehicles
 - 1001.3.1.9 soil-gas control (radon)
 - 1001.3.1.10 construction waste management
 - 1001.3.2.1.2 water use efficiency tracking and reporting
 - 1001.3.2.1.5 indoor environmental quality survey
 - 1001.3.2.4 transportation management plan
- 1001.3.2.1.3 Delete certain provisions regarding energy efficiency, and require plans to describe the procedures needed to use the energy measurement devices and collection/storage infrastructure, and the procedures for tracking and assessing energy consumption
- 1001.3.2.1.4 Replace indoor air quality (IAQ) provisions with requirement that an IAQ plan describe the procedures needed to implement a regular outdoor airflow monitoring program after building occupancy; the procedures for operating ventilation systems during occupancy; the procedures needed for maintaining and monitoring IAQ after building occupancy; a green cleaning plan; and the procedures for implementing a regular humidity sensor monitoring program after building occupancy

The proposed amendment to Chapter 10 delete unenforceable sections while keeping intact and clarifying sections intended to inform the owner and operators of a building.

Issues

Compatibility with other legislation

The IgCC is not designed to compete with other codes or standards, but to coordinate or integrate with existing International Codes to provide minimum regulations for buildings and systems using prescriptive and performance-related provisions. It is intended to be compatible with all International Codes published by the International Code Council, such as the International Building Code, International Mechanical Code, etc. Similarly, Exec. Reg. 12-20 is compatible with other Montgomery County initiatives. For example, it complements Bill 16-21, Environmental Sustainability - Building Energy Use Benchmarking and Performance Standards – Amendments, a pending Department of the Environment building performance bill. In addition, Montgomery County’s Climate Action Plan is a strategic plan to cut greenhouse gas emissions 80% by 2027 and 100% by 2035. Exec. Reg. 12-20 is complementary to the Climate Action Plan because it establishes many of the thresholds that will be used to achieve those goals.

Response to Comments

Several comments pushed for additional studies. These requests included: a study which includes greenhouse gas emission reductions due to trip generation and the predicted mode of transit; a climate analysis of the IgCC regulations; and a request for language about ozone air cleaning devices or filtering components and embodied building emissions. DPS responded that it does not have the resources to run independent research on these issues, but that this regulation integrates well with the Climate Action Plan. DPS recommended that these issues be brought up with the governing body, ICC, for consideration.

Stakeholders also disagreed over allowing an Alternative Compliance Path (ACP), either believing it weakened the IgCC or that it was necessary to provide builders with flexibility. DPS responded that it has a robust and thorough ACP process, specifically designed to prevent weakening of the IgCC. DPS worked closely with the New Buildings Institute (NBI), who developed the Zero Energy Performance Index (zEPI) to create an accurate and updated rubric for the County. Those amendments are reflected in Exec. Reg. 12-20, and an overview of the ACP process is included in this packet.

WSSC expressed concerns regarding the resources needed to comply with this regulation. However, the removal of chapter 6 reduces the impact on WSSC, and the remaining water use provisions require review by DPS with no additional resources being required of WSSC.

Lastly, the majority of the amendments being made to the 2018 IgCC are deletions. The reason for this is that under the County Code, DPS does not have the authority to enforce certain provisions in the IgCC.

Council Staff recommends approval of Exec. Reg. 12-20.

This packet contains:
Exec. Reg. 12-20

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OFFICES OF THE COUNTY EXECUTIVE

Marc Elrich
County Executive

MEMORANDUM

March 22, 2021

TO: Tom Hucker, Council President

FROM: Marc Elrich, County Executive

SUBJECT: Executive Regulation 12-20 Adoption of the 2018 International Green Construction Code - Method 2

Attached for the Council's consideration is the executive regulation which would adopt the amended 2018 edition of the International Green Construction Code (IgCC). It governs all new buildings over 5,000 square feet within Montgomery County.

The proposed regulation was advertised in the September 2020 issue of the Montgomery County Register 37 with the comment deadline October 05, 2020. Comments were received from various individuals and organizations. As a result, revisions were made to the proposed regulation within the energy section. Copies of the comments and the Department of Permitting Service's responses to the comments, copies (clean and marked up) of the executive regulation, and guidance on methods for approving alternative compliance paths to the code are attached. A copy of the fiscal impact statement will be provided under separate cover.

This proposed regulation is being promulgated under Method 2 of Section 8-13 and 8-14 of the Montgomery County Code.

Thank you for your attention to this request. If you have any questions, please contact Mitra Pedoeem, Director of Permitting Services, at mitra.pedoeem@montgomerycountymd.gov or Bryan Bomer, Sustainability, Energy, and Mechanical Manager, at bryan.bomer@montgomerycountymd.gov.

Attachments:

Executive Regulation 12-20 Clean
Executive Regulation 12-20 Mark Up
Public Comment Summary
Alternative Compliance Pathway Process

CLEAN COPY



MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive. 101 Monroe Street. Rockville, Maryland 20850

Subject: International Green Construction Code (IGCC) 2018	Number: 12-20
Originating Department: Department of Permitting Services	Effective Date:

Montgomery County Regulation on:

COMCOR 08.00.03 ADOPTION OF THE 2018 INTERNATIONAL GREEN CONSTRUCTION CODE

DEPARTMENT OF PERMITTING SERVICES

Issued by: County Executive
Regulation No. 12-20

Authority: Code Sections 8-13 and 8-14
Supersedes: Executive Regulation 21-15AMII
Council Review: Method 2
Register Vol. 37 Issue 8
Comment deadline: October 5, 2020
Effective date:
Sunset date: None

SUMMARY: This regulation adopts the 2018 International Green Construction Code (IGCC), with amendments, and supersedes Executive Regulation 21-15AMII.

ADDRESSES: Department of Permitting Services
2425 Reedie Drive, 7th Floor
Wheaton, Maryland 20902

STAFF CONTACT: Bryan Bommer, Manager
Commercial Green Building Review
240-777-6230
Rick Merck, Division Chief
Division of Commercial Construction
Department of Permitting Services
240-777-6216



MONTGOMERY COUNTY EXECUTIVE REGULATION

Offices of the County Executive. 101 Monroe Street. Rockville, Maryland 20850

Subject: International Green Construction Code (IGCC) 2018	Number: 12-20
Originating Department: Department of Permitting Services	Effective Date:

BACKGROUND INFORMATION: The Montgomery County Department of Permitting Services (DPS) enforces Chapter 8 (Buildings) of the Montgomery County Code. This regulation is adopted under Sections 8-13 and 8-14 of the Montgomery County Code. It supersedes Executive Regulation 21-15AMII by replacing the 2012 International Green Construction Code (IgCC), with amendments, with the 2018 IgCC, with amendments. This regulation is recommended by DPS after a coordinated effort spearheaded by the County Executive’s Assistant Chief Administrative Officer and Climate Change Coordinator, which was supported by the Montgomery County Departments of Environmental Protection and Transportation, the Montgomery County Public Schools, the Washington Suburban Sanitation Commission (WSSC), Montgomery County Planning Department of the Maryland-National Capital Park and Planning Commission, and public stakeholders, who are all committed to achieve net-zero carbon emissions by the year 2030 in Montgomery County.

COMCOR 08.00.03 Buildings – Energy Conservation and Sustainable Building Design.

08.00.03.01 PURPOSE

This regulation adopts the 2018 International Green Construction Code (IGCC), with amendments, and establishes:

- (a) a process to verify that certain new construction and additions comply with the applicable standard;
- (b) standards and procedures under which the Director may approve waivers or modifications of the IGCC, when compliance would be impracticable or unduly burdensome and the public interest would be served by the waiver or modification; and
- (c) standards and procedures for any enforcement mechanism that the Department finds necessary to accomplish the purposes of the energy conservation and sustainable building design standard adopted in this regulation.

AMENDMENTS TO THE 2018 INTERNATIONAL GREEN CONSTRUCTION CODE (IgCC)

08.00.03.02 Section 101.1. Delete the brackets and replace the phrase within the brackets with “Montgomery County, Maryland”.

08.00.03.03 Section 101.3.1. Delete items (1) through (4) and replace with the following:

1. New buildings greater than 5,000 square feet in gross aggregate area and their systems.



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2. New portions of buildings exceeding 5,000 square feet in gross aggregate square area and their systems.

08.00.03.04 Section 101.3.2. Add the following item:

6. Group R-4 occupancy buildings not exceeding 16 residents.

08.00.03.05 Section 102.6. Existing Structures. Delete.

08.00.03.06 Section 108. Board of Appeals. Delete.

08.00.03.07 Section 301.2. Definitions.

Add the following definition:

Gross Aggregate Area means the sum of the floor areas of all the spaces within the building with no deductions for floor penetrations. *Gross Aggregate Area* is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings. *Gross Aggregate Area* includes covered walkways, open roofed-over areas, porches and similar spaces, exterior terraces or steps, roof overhangs, parking garages, surface parking, and similar features.

Amend the definition of *Owner's Project Requirements (OPR)* to add the following sentence at the end: "All information in the *OPR* document shall certify that the items identified in the plans are constructed, installed and operate as intended in the approved plans and specifications."

08.00.03.08 Subsection 501.3.1.2. Prohibited Development Activity. Delete.

08.00.03.09 Sections 501.3.2, 501.3.3, 501.3.4, 501.3.6, 501.3.7, and 501.3.8. Delete.

08.00.03.10 Section 601.3. Delete.

08.00.03.11 Section 701.4.1.1.1. Add the following sentence at the end: "All RECs obtained must be sourced within the PJM Interconnection region. Documentation pertaining to retainment and retirement of RECs must be available to the authority having jurisdiction, for review upon request." Note: PJM Interconnection is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states including Maryland and DC.

08.00.03.12 Section 701.5.1. Delete in full and replace with the following language: **Performance-based compliance.** Compliance for buildings and their sites to be designed on a performance basis must be determined by predictive modeling of both energy performance and CO₂e emissions. Predictive energy



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modeling must use source energy kBtu unit measure based on compliance with Section 701.5.1.1. Predictive CO_{2e} emissions modeling must comply with Section 701.5.2.

Subsection 701.5.1.1 Energy performance modeling. Performance-based designs must demonstrate a zEPI of not more than the zEPI_{target} for the building type as shown in Table 701.5.1. zEPI must be determined under the following:

Equation:

$$(Equation) \text{ zEPI} = M \times (\text{Proposed building performance} / \text{Baseline building performance})$$

Where:

zEPI = zero energy performance index of the proposed building

zEPI_{Target} = zero energy performance index target for compliance with this section

Proposed Building Performance (PBF) = The proposed building performance in source kBtu for the proposed design of the building and its site calculated under Section 701.5.1.2

Baseline Building Performance (BBF) = The baseline building performance in source kBtu for a baseline building and its site calculated under Section 701.5.1.2

M = zEPI conversion factors from a 90.1 Appendix G baseline to a CBECS 2003 baseline for the building type as shown in Table 701.5.1.

Table 701.5.1

Building Type zEPI score calculation inputs

BUILDING TYPE	M	zEPI _{target}
Multifamily	78	42
Health	83	45
Hotel/motel	92	50
Office	71	39
Restaurant	92	50
Retail	61	33
School	81	44
Semi-heated storage	61	37
Other	78	42



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Subsection 701.5.1.2 Modeling methodology. The proposed building performance and the baseline building performance of the building and building site must be calculated under Appendix G to ASHRAE 90.1, as modified by Sections 701.5.1.3 and 701.5.1.4. The energy use modeling must include all energy used for building and site functions and anticipated occupancy.

Subsection 701.5.1.3 Energy units. The building performance calculations in Section G3 of ASHRAE 90.1 must be based on energy use instead of energy cost. Energy use must be converted to consistent units by multiplying the nonrenewable energy fossil fuel use at the utility meter or measured point of delivery to Btus and multiplying by the conversion factor in Table 701.5.1.3.

Subsection 701.5.1.4 Site to source electric power conversion. In calculating the proposed building performance and the baseline building performance, electric energy used must be calculated in source energy by multiplying the electric power use at the utility meter or measured point of delivery in Btus by the conversion factor in Tables 701.5.1.3 and 701.5.1.4.

TABLE 701.5.1.3
ELECTRICITY GENERATION ENERGY CONVERSION FACTORS
BY EPA eGRID SUB-REGION

eGRID 2018 SUB- REGION ACRONYM	eGRID 2018 SUB- REGION NAME	ENERGY CONVER SION FACTOR
RFCE	RFC East	2.86

TABLE 701.5.1.4
U.S. AVERAGE BUILDING FUELS ENERGY CONVERSION
FACTORS BY FUEL TYPE

FUEL TYPE	ENERGY CONVERSION FACTOR
Natural Gas	1.09
Fuel Oil	1.19
LPG	1.15
Purchased District Heating- Hot Water	1.73



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Purchased District Heating- Steam	1.83
District Cooling	.62 (electric only)

08.00.03.13 Section 701.5.2. Delete Tables 701.5.2A and 701.5.2B and replace with:

TABLE 701.5.2A (7.5.2A) ENERGY COST AND CO₂e BUILDING PERFORMANCE FACTORS (BPF)

BUILDING TYPE	BUILDING PERFORMANCE FACTOR (BPF)
Multifamily	0.66
Healthcare/hospital	0.51
Hotel/motel	0.48
Office	0.47
Restaurant	0.61
Retail	0.48
School	0.36
Semiheated warehouse	0.42
all others	0.5

TABLE 701.5.2B (7.5.2B) CO₂e EMISSION FACTORS

Energy Form	CO ₂ e, lb/kBtu	CO ₂ e, kg/MWh
Grid-delivered electricity and other fuels not specified in this table	1156	524
LP or propane	651	295



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Fuel oil (residual)	738	335
Fuel oil (distillate)	715	324
Coal	892	405
Gasoline	744	337
Natural gas	681	309
District chilled water	339	154
District steam	1145	519
District hot water	1081	491

08.00.03.14 Sections 801.3.1.7 and 801.3.3.5. Delete.

08.00.03.15 Section 901.3.1. Delete.

08.00.03.16 Sections 1001.3.1.1.2.c and 1001.3.1.1.3. Amend to add the phrase “AHJ, with copies also being provided to” before the phrase “building owner” and “owner”, respectively.

08.00.03.17 Sections 1001.3.1.1.2.1.3, 1001.3.1.4, 1001.3.1.7, 1001.3.1.9, 1001.3.1.10, 1001.3.2.1.2, 1001.3.2.1.5 and 1001.3.2.4. Delete.

08.00.03.18 Section 1001.3.2.1.3. Delete the second sentence and subsections 1001.3.2.1.3.1 through 1001.3.2.1.3.3 and replace with the following: “The plan must describe the procedures needed to use the energy measurement devices and collection/storage infrastructure, and the procedures for tracking and assessing energy consumption.

08.00.03.19 Section 1001.3.2.1.4. Delete in its entirety and replace it with the following: “The indoor air quality plan must describe the procedures needed to implement a regular outdoor airflow monitoring program after building occupancy; the procedures for operating ventilation systems during occupancy; the procedures needed for maintaining and monitoring IAQ after building occupancy; a green cleaning plan; and the procedures for implementing a regular humidity sensor monitoring program after building occupancy.

08.00.03.20 Amend Normative Reference Chapter 11, ISO, to replace "ISO 21930-2007:" with "ISO 21930-2017:".

08.00.03.21 Informative Appendix H is adopted in its entirety.



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08.00.03.22 Section J101.1.3. Add the phrase “this code or” after the phrase “shall comply with”.

08.00.03.23 Informative Appendix J. Sections J101.1.3, J101.1.4, and J101.1.5 are adopted.

08.00.03.24 SEVERABILITY

The provisions of this regulation are severable. If a court of competent jurisdiction holds that a provision is invalid or inapplicable, the remainder of the regulation remains in effect.

Handwritten signature of Marc Elrich in cursive.

3/22/2021

Marc Elrich, County Executive

Date

Approved as to form and legality:

Handwritten signature of Charles L. Frederick in cursive.

Charles L. Frederick

Office of the County Attorney

12 February 2021
Date

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MONTGOMERY COUNTY EXECUTIVE REGULATION

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Subject: International Green Construction Code (IGCC) 2018	Number: 12-20
Originating Department: Department of Permitting Services	Effective Date:

Montgomery County Regulation on:

COMCOR 08.00.03 ADOPTION OF THE 2018 INTERNATIONAL GREEN CONSTRUCTION CODE

DEPARTMENT OF PERMITTING SERVICES

Issued by: County Executive
Regulation No. 12-20

Authority: Code Sections 8-13 and 8-14
Supersedes: Executive Regulation 21-15AMII
Council Review: Method 2
Register Vol. 37 Issue 8
Comment deadline: October 5, 2020
Effective date:
Sunset date: None

SUMMARY: This regulation adopts the 2018 International Green Construction Code (IGCC), with amendments, and supersedes Executive Regulation 21-15AMII.

ADDRESSES: Department of Permitting Services
2425 Reedie Drive, 7th Floor
Wheaton, Maryland 20902

STAFF CONTACT: Bryan Bomer, Manager
Commercial Green Building Review
240-777-6230
Rick Merck, Division Chief
Division of Commercial Construction
Department of Permitting Services
240-777-6216



MONTGOMERY COUNTY EXECUTIVE REGULATION

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Subject: International Green Construction Code (IGCC) 2018	Number: 12-20
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BACKGROUND INFORMATION: The Montgomery County Department of Permitting Services (DPS) enforces Chapter 8 (Buildings) of the Montgomery County Code. This regulation is adopted under Sections 8-13 and 8-14 of the Montgomery County Code. It supersedes Executive Regulation 21-15AMII by replacing the 2012 International Green Construction Code (IgCC), with amendments, with the 2018 IgCC, with amendments. This regulation is recommended by DPS after a coordinated effort spearheaded by the County Executive’s Assistant Chief Administrative Officer and Climate Change Coordinator, which was supported by the Montgomery County Departments of Environmental Protection and Transportation, the Montgomery County Public Schools, the Washington Suburban Sanitation Commission (WSSC), Montgomery County Planning Department of the Maryland-National Capital Park and Planning Commission, and public stakeholders, who are all committed to achieve net-zero carbon emissions by the year 2030 in Montgomery County.

COMCOR 08.00.03 Buildings – Energy Conservation and Sustainable Building Design.

08.00.03.01 PURPOSE

This regulation adopts the [2012] 2018 International Green Construction Code (IGCC), with amendments, and establishes:

- (a) a process to verify that certain new construction and additions comply with the applicable standard;
- (b) standards and procedures under which the Director may approve waivers or modifications of the IGCC, when compliance would be impracticable or unduly burdensome and the public interest would be served by the waiver or modification; and
- (c) standards and procedures for any enforcement mechanism that the Department finds necessary to accomplish the purposes of the energy conservation and sustainable building design standard adopted in this regulation.

AMENDMENTS TO THE 2018 INTERNATIONAL GREEN CONSTRUCTION CODE (IgCC)

08.00.03.02 [APPLICABILITY]

This regulation applies to any newly constructed, and to any addition to an existing non-residential or multi-family residential building, including R-2 and R-4 residential buildings (Group R-4 includes uses such as Assisted Living, Congregate Care, Group Homes and Social Rehabilitation Facilities), that will



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have at least 5,000 square feet of gross floor area. This regulation does not apply to any building or structure exempt under Section 101.3 of the IGCC and Section 08.00.03.06.01 of this regulation.]

Section 101.1. Delete the brackets and replace the phrase within the brackets with “Montgomery County, Maryland”.

08.00.03.03 [DEFINITIONS

For the purposes of this regulation, the following words and phrases have the meanings indicated. Words and phrases defined and used in Chapter 8 of the County Code have the meanings indicated in that Chapter.

Addition means an extension or increase in the gross floor area or height of an existing building or structure. Addition also includes the addition of building components such as electrical and mechanical systems or elements to an existing building or structure.

Commissioning Plan means the Commissioning Plan approved by the code official.

Department means the Department of Permitting Services.

Director means the Director of the Department of Permitting Services.

Multi-family residential building means any multi-family residential or mixed-use residential building that has at least 5,000 square feet of gross floor area. **Multi-family residential building** does not include a residential care or assisted living building which can house no more than 16 occupants.

Newly constructed refers to a new stand-alone building or an addition to an existing building.

Non-residential building means a building not used as a dwelling.

Non-residential building does not include any:

- (1) day care center for 5 or fewer persons;
- (2) accessory building or structure;
- (3) agricultural building, stable, barn, or greenhouse;
- (4) parking garage that is not heated or cooled; or
- (5) other building characterized as a miscellaneous building in the edition of the ICC International Building Code designated under Section 8-13 of the Montgomery County Code.]



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Section 101.3.1. Delete items (1) through (4) and replace with the following:

1. New buildings greater than 5,000 square feet in gross aggregate area and their systems.
2. New portions of buildings exceeding 5,000 square feet in gross aggregate square area and their systems.

08.00.03.04 [POLICY

In May 2011, the State of Maryland authorized local jurisdictions to adopt the International Green Construction Code as one of the Model Performance Codes. The Department of Permitting Services supports and recommends adoption of the IGCC as establishing a high performance baseline for energy conservation and sustainable building practices.]

Section 101.3.2. Add the following item:

6. Group R-4 occupancy buildings not exceeding 16 residents.

08.00.03.05 [PROCEDURES

The IGCC is part of the International Code Council (ICC) building codes family and as such is subject to the same regulations governing the approval and issuance of building permits, and the inspection procedures and policies codified in the Chapter 8 of the Montgomery County Code.]

Section 102.6. Existing Structures. Delete.

**08.00.03.06 [AMENDMENTS TO THE 2012 INTERNATIONAL GREEN
CONSTRUCTION CODE (IGCC)]**

Section 108. Board of Appeals. Delete.

[08.00.03.06.01 Section 101 – General

Subsection 101.1. Replace the brackets and the phrase inside the brackets with “ Montgomery County Maryland ”.

Subsection 101.3. Replace Subsection 101.3 with the following: The provisions of this code shall apply to new construction as it relates to design and construction of buildings and additions, building sites, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures and to the site on which



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the building is located. Occupancy classifications shall be determined in accordance with the International Building Code (IBC).

Subsection 101.3. Add the following exceptions:

5. The code shall not apply to items 5.1, 5.2 and 5.3.

5.1. Those low energy buildings that are exempt from the energy requirements of the current International Energy Conservation Code, including open parking garages, greenhouses, warehouses, storage buildings.

5.2 Any new building with less than 5000 sq.ft. gross floor area.

5.3 Any addition to an existing building which will create less than 5000 sq.ft. of additional gross floor area.

6. Alternately, USGBC-LEED Certification at the Silver level, using the most current USGBC mandated version of the LEED Standard, with not less than 8 points under Option 1 OR: Not less than 5 points under Option 2 of the Energy and Atmosphere Credit - Optimize Energy Performance - shall be deemed to comply with this code. Where LEED Certification is selected as an alternative compliance path, it shall not apply to buildings identified in Section 101.3 - Exceptions 1 through 3.

Subsection 101.4. Add a second sentence to read: “Appendix A shall apply as amended by subsection A102.1.”]

[08.00.03.06.02 Section 102 – Applicability

Subsection 102.4. Delete the phrases “the *International Code Council Performance Code (ICCPC)*”, “the *International Plumbing Code (IPC)*”, and “the *International Property Maintenance Code (IPMC)*.” Replace the phrase “*International Fire Code (IFC)*” with “Montgomery County Fire Code.”

Subsection 102.6. Delete the phrase “the *International Property Maintenance Code,*” and replace the phrase “*International Fire Code*” with “Montgomery County Fire Code.”]

[08.00.03.06.03 Section 108 – Board of Appeals. Delete.]

[08.00.03.06.04 Section 202 – Definitions



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Approved Agency. Add the phrase “by the code official or authority having jurisdiction” after the phrase “such agency has been approved.”

Addition. Add a second sentence to read: “Addition also includes the addition of building components such as electrical and mechanical systems or elements to an existing building or structure.”]

[08.00.03.06.05 Section 301 – General

Subsection 301.1.1. In the second sentence delete the word “either” and add the phrase “or exception 6 of Section 08.00.03.06.01 of this regulation” after the word “code”.

Subsection 301.2. Add the phrase, “including Appendix A” after word “applicable” in the second sentence, and add a new last sentence in the paragraph to read: “The Department of Permitting Services will accept LEED Silver certification in lieu of the Elective requirements listed in Appendix A.”]

[08.00.03.06.06 Section 302 – Jurisdictional Requirements

Subsection 302.1. Delete items 1 and 2, and renumber the second Item 2 as Item 1.

Subsection 302.1.1. Delete.

Table 302.1. Replace Table 302.1 with the following:

**TABLE 302.1
REQUIREMENTS DETERMINED BY THE JURISDICTION**

Section	Section Title or Description and Directives	Jurisdictional Requirements	
Chapter 1. SCOPE			
101.3 Exception 1.1	Detached one- and two-family dwellings and multiple single-family dwellings (town-houses) not more than three stories in height above grade plane with a separate means of egress, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700.	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
101.3 Exception 1.2	Group R-3 residential buildings, their accessory structures, and the site or lot upon which these buildings are located, shall comply with ICC 700	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
101.3 Exception 1.3	Group R-2 and R-4 residential buildings four stories or less in height above grade plane, their accessory structures, and the	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No



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	site or lot upon which these buildings are located, shall comply with ICC 700.		
	Chapter 4. SITE DEVELOPMENT AND LAND USE		
402.2.1	Flood hazard area preservation, general	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
402.2.2	Flood hazard area preservation, specific	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
402.3	Surface water protection	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
402.5	Conservation area	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
402.7	Agricultural land	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
402.8	Greenfield sites	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
407.4.1	High-occupancy vehicle parking	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
407.4.2	Low-emission, hybrid and electric vehicle parking	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
409.1	Light pollution control	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Chapter 5. MATERIAL RESOURCE CONSERVATION AND EFFICIENCY		
503.1	Minimum percentage of waste material diverted from landfills	<input checked="" type="checkbox"/> 50%	
	Chapter 6. ENERGY CONSERVATION, EFFICIENCY AND CO₂e EMISSION REDUCTION		
302.1, 602.1	zEPI of Jurisdictional Choice- The jurisdiction shall indicate a zEPI of 50 or less in each occupancy for which it intends to require enhanced energy performance.	Occupancy: ALL	
		zEPI: 50	
604.1	Automated demand response infrastructure	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Chapter 7. WATER RESOURCE CONSERVATION, QUALITY AND EFFICIENCY		
702.7	Municipal reclaimed water	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Chapter 8. INDOOR ENVIRONMENTAL QUALITY AND COMFORT		
804.2	Post- Construction Pre-Occupancy Baseline IAQ Testing	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
807.1	Sounds transmission and sound levels	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Chapter 10. EXISTING BUILDINGS: DELETE IN ITS ENTIRETY		
1007.2	Evaluation of existing buildings	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
1007.3	Post Certificate of Occupancy zEPI, energy demand, and CO ₂ e emissions reporting	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Appendix A^a		
A101	Minimum 2 project electives shall be selected for a building with gross floor area less than 10,000 sq.ft.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
A101	Minimum 3 projects electives shall be selected for building with gross floor area between 10,000 and 20,000 sq.ft.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
A101	Minimum 4 projects electives shall be selected for building with gross floor area greater than 20,000 sq.ft.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

^a If a Chapter or Section moved to Appendix A is administered under authority granted to another governmental entity or agency, such as the Maryland Department of Environment, Maryland-National



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Capital Park & Planning Commission, or Washington Suburban Sanitary Commission, then the applicant must exceed the minimum requirements of code, standards, and regulations as written and enforced by the governmental entity or agencies, and any such Chapter or Section will not count as a minimum project elective.]

[08.00.03.06.07 Section 303 – Whole Building Life Cycle Assessment
Section 303. Move Section 303 to Appendix A.]

[08.00.03.06.08 Section 401 – General
Subsection 401.2. Move Subsection 401.2 to Appendix A.]

[08.00.03.06.09 Section 402 – Preservation of Natural Resources
Section 402. Move Section 402 to Appendix A.]

[08.00.03.06.10 Section 403 – Storm Water Management
Section 403. Move Section 403 to Appendix A.]

[08.00.03.06.11 Section 404 – Landscape Irrigation and Outdoor Fountains
Section 404. Move Section 404 to Appendix A.
Appendix A, subsection 404.1.1. Delete the phrase “municipal reclaimed water or with.”]

[08.00.03.06.12 Section 405 – Management of Vegetation, Soils and Erosion Control
Section 405. Move Section 405 to Appendix A.]

[08.00.03.06.13 Section 407 – Transportation Impact
Section 407. Move Section 407 to Appendix A.]

[08.00.03.06.14 Section 408 – Heat Island Mitigation
Subsection 408.2. Replace the phrase “50 percent” with “40 percent.”
Subsection 408.3. Delete.]

[08.00.03.06.15 Section 409 – Site Lighting
Subsections 409.1, 409.2 and 409.3. Delete. Add a new Subsection 409.1 to read: Site Lighting shall comply with the 2015 International Energy Conservation Code and Chapter 59, Montgomery County Code.]

[08.00.03.06.16 Section 503 – Construction Waste Management
Subsection 503.1(4). Add the following phrase at the end of Item 4: “before a use and occupancy certificate is issued”]



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- [08.00.03.06.17 Section 504 – Waste Management and Recycling**
Section 504. Delete.]
- [08.00.03.06.18 Section 505 – Material Selection**
Section 505. Move Section 505 to Appendix A.]
- [08.00.03.06.19 Section 506 – Lamps**
Section 506. Move Section 506 to Appendix A.]
- [08.00.03.06.20 Section 601 – General**
Subsection 601.4. Delete the last sentence.
Subsection 601.5. Delete.]
- [08.00.03.06.21 Section 602 – Modeled Performance Pathway Requirements**
Subsection 602.1. Replace the phrase “Section 602.3” with “Section 602.2.”]
- [08.00.03.06.22 Section 604 – Automated Demand-Response (Auto-DR) Infrastructure**
Section 604. Move Section 604 to Appendix A.]
- [08.00.03.06.23 Section 606 – Building Mechanical Systems**
Subsection 606.4. Delete.
Subsection 606.5. Delete the phrase “Except as noted herein.”
Subsection 606.5.1. Delete.
Subsection 606.6 Variable air volume (VAV) fan control.
Add a Subsection numbering 606.6.1 before the paragraph that begins with the phrase “Static Pressure sensors.”
Add a Subsection numbering 606.6.2 before the paragraph that begins with the phrase “For systems with direct digital control.”]
- [08.00.03.06.24 Section 607 – Building Service Water Heating Systems**
Subsection 607.1. Delete the phrase “and the provisions of this section.”
Subsections 607.2, 607.3, 607.4, 607.5, and 607.7. Delete.]
- [08.00.03.06.25 Section 608 – Building Electrical Power and Lighting Systems**
Subsection 608.3(3) Parking garages. Replace the phrase “*International Fire Code*” in exception (2) with “Montgomery County Fire Code.”
Subsection 608.5. Move Subsection 608.5 to Appendix A.
Subsection 608.6. Delete.



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Subsection 608.12. Move Subsection 608.12 to Appendix A.]

[08.00.03.06.26 Section 609 – Specific Appliances and Equipment
Section 609. Delete.]

[08.00.03.06.27 Section 610 – Building Renewable Energy Systems
Section 610. Move Section 610 to Appendix A.]

[08.00.03.06.28 Chapter 7 – Water Resource Conservation, Quality and Efficiency
Chapter 7. Delete.]

[08.00.03.06.29 Section 803 – HVAC Systems
Subsection 803.3. Delete.
Subsection 803.4.1(1). Add the phrase “a smoke partition in a fully sprinklered building or a” before the phrase “1-hour fire-resistance rated construction assemblies” in Item 1.]

[08.00.03.06.30 Section 804 – Specific Indoor Air Quality and Pollutant Control Measures
Section 804. Delete.]

[08.00.03.06.31 Section 806 – Material Emissions and Pollutant Control
Section 806. Delete.]

[08.00.03.06.32 Section 807 – Acoustics
Section 807. Move Section 807 to Appendix A.]

[08.00.03.06.33 Section 808 – Daylighting
Section 808. Move Section 808 to Appendix A.]

[08.00.03.06.34 Table 903.1 – Commissioning Plan

Amend IGCC, Table 903.1, Chapter 4, reference subsections 401.2, 404.1, 405.1.1, 405.1.1, 405.1.3, 405.1.4, 403.1, 405.1.1, 408.2, 408.3.2 and 409 delete, “unless selected as an elective in Appendix A.”

Amend IGCC, Table 903.1, Chapter 6, reference subsection 608.6 delete.

Amend IGCC, Table 903.1, Chapter 7, reference subsections 702.6, 702.8, 703.7.7, 705.1.1, 707.15.1, 708.13.8, and 708.14.2 delete, “unless selected as an elective in Appendix A.”]



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[08.00.03.06.35 Chapter 10 – Existing Buildings
Delete Chapter 10 except Section 1006 – Demolition.]

[08.00.03.06.36 Chapter 11 – Existing Building Site Development
Chapter 11. Delete.]

[08.00.03.06.37 Appendix A – Project Electives

First Sentence. Replace the phrase “the adopting Ordinance” from the first sentence with “this code and this regulation.”

Appendix A, Subsection A102.1. Add a second and third sentence to read: “The code official shall require the number of project electives specified in Table 302.1 of this regulation as a minimum. If a Chapter or Section moved to Appendix A is administered under authority granted to another governmental entity or agency, such as the Maryland Department of Environment, Maryland-National Capital Park & Planning Commission, or Washington Suburban Sanitary Commission, then the applicant must exceed the minimum requirements of code, standards, and regulations as written and enforced by the governmental entity or agencies, and any such Chapter or Section will not count as a minimum project elective.

Subsection A102.2. Delete.

Add a new Section A110 to read: “Appendix A includes Sections and Subsections 303, 404, 405, 407, 505, 506, 604, 608.5, 608.12, 610, 807, and 808, which have been relocated from Chapters 3 through 8 of the IGCC.”]

[08.00.03.06.38 Appendix B – Radon Mitigation
Appendix B. Delete.]

[08.00.03.06.39 Appendix C – Optional Ordinance
Appendix C. Delete.]

[08.00.03.06.40 Appendix D – Enforcement Procedures
Appendix D. Delete.]

08.00.03.07 Section 301.2. Definitions.

Add the following definition:



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Gross Aggregate Area means the sum of the floor areas of all the spaces within the building with no deductions for floor penetrations. Gross Aggregate Area is measured from the exterior faces of exterior walls or from the centerline of walls separating buildings. Gross Aggregate Area includes covered walkways, open roofed-over areas, porches and similar spaces, exterior terraces or steps, roof overhangs, parking garages, surface parking, and similar features.

Amend the definition of Owner's Project Requirements (OPR) to add the following sentence at the end: "All information in the OPR document shall certify that the items identified in the plans are constructed, installed and operate as intended in the approved plans and specifications."

08.00.03.08 Subsection 501.3.1.2. Prohibited Development Activity. Delete.

08.00.03.09 Sections 501.3.2, 501.3.3, 501.3.4, 501.3.6, 501.3.7, and 501.3.8. Delete.

08.00.03.10 Section 601.3. Delete.

08.00.03.11 Section 701.4.1.1.1. Add the following sentence at the end: "All RECs obtained must be sourced within the PJM Interconnection region. Documentation pertaining to retainment and retirement of RECs must be available to the authority having jurisdiction, for review upon request." Note: PJM Interconnection is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of 13 states including Maryland and DC.

08.00.03.12 Section 701.5.1. [Add the following sentences at the end: "Energy modeling input and output data must be provided at the time of permit application submittal. The data must include, but is not limited to, source energy and energy units as metrics for calculation of a zEPI score."] Delete in full and replace with the following language: **Performance-based compliance.** Compliance for buildings and their sites to be designed on a performance basis must be determined by predictive modeling of both energy performance and CO₂e emissions. Predictive energy modeling must use source energy kBtu unit measure based on compliance with Section 701.5.1.1. Predictive CO₂e emissions modeling must comply with Section 701.5.2.

Subsection 701.5.1.1 Energy performance modeling. Performance-based designs must demonstrate a zEPI of not more than the zEPI_{target} for the building type as shown in Table 701.5.1. zEPI must be determined under the following:

Equation:

(Equation) $zEPI = M \times (\text{Proposed building performance} / \text{Baseline building performance})$

Where:

zEPI = zero energy performance index of the proposed building

zEPI_{target} = zero energy performance index target for compliance with this section



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Proposed Building Performance (PBF) = The proposed building performance in source kBtu for the proposed design of the building and its site calculated under Section 701.5.1.2

Baseline Building Performance (BBF) = The baseline building performance in source kBtu for a baseline building and its site calculated under Section 701.5.1.2

M = zEPI conversion factors from a 90.1 Appendix G baseline to a CBECS 2003 baseline for the building type as shown in Table 701.5.1.

Table 701.5.1

Building Type zEPI score calculation inputs

<u>BUILDING TYPE</u>	<u>M</u>	<u>zEPI_{target}</u>
<u>Multifamily</u>	<u>78</u>	<u>42</u>
<u>Health</u>	<u>83</u>	<u>45</u>
<u>Hotel/motel</u>	<u>92</u>	<u>50</u>
<u>Office</u>	<u>71</u>	<u>39</u>
<u>Restaurant</u>	<u>92</u>	<u>50</u>
<u>Retail</u>	<u>61</u>	<u>33</u>
<u>School</u>	<u>81</u>	<u>44</u>
<u>Semi-heated storage</u>	<u>61</u>	<u>37</u>
<u>Other</u>	<u>78</u>	<u>42</u>

Subsection 701.5.1.2 Modeling methodology. The proposed building performance and the baseline building performance of the building and building site must be calculated under Appendix G to ASHRAE 90.1, as modified by Sections 701.5.1.3 and 701.5.1.4. The energy use modeling must include all energy used for building and site functions and anticipated occupancy.

Subsection 701.5.1.3 Energy units. The building performance calculations in Section G3 of ASHRAE 90.1 must be based on energy use instead of energy cost. Energy use must be converted to consistent units by multiplying the nonrenewable energy fossil fuel use at the utility meter or measured point of delivery to Btus and multiplying by the conversion factor in Table 701.5.1.3.

Subsection 701.5.1.4 Site to source electric power conversion. In calculating the proposed building performance and the baseline building performance, electric energy used must be calculated in source



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energy by multiplying the electric power use at the utility meter or measured point of delivery in Btus by the conversion factor in Tables 701.5.1.3 and 701.5.1.4.

TABLE 701.5.1.3
ELECTRICITY GENERATION ENERGY CONVERSION FACTORS
BY EPA eGRID SUB-REGION

<u>eGRID 2018</u> <u>SUB-</u> <u>REGION</u> <u>ACRONYM</u>	<u>eGRID 2018 SUB-</u> <u>REGION NAME</u>	<u>ENERGY</u> <u>CONVER</u> <u>SION</u> <u>FACTOR</u>
<u>RFCE</u>	<u>RFC East</u>	<u>2.86</u>

TABLE 701.5.1.4
U.S. AVERAGE BUILDING FUELS ENERGY CONVERSION
FACTORS BY FUEL TYPE

<u>FUEL TYPE</u>	<u>ENERGY</u> <u>CONVERSION</u> <u>FACTOR</u>
<u>Natural Gas</u>	<u>1.09</u>
<u>Fuel Oil</u>	<u>1.19</u>
<u>LPG</u>	<u>1.15</u>
<u>Purchased District Heating-</u> <u>Hot Water</u>	<u>1.73</u>
<u>Purchased District Heating-</u> <u>Steam</u>	<u>1.83</u>
<u>District Cooling</u>	<u>.62 (electric</u> <u>only)</u>

08.00.03.13 Section 701.5.2. Delete Tables 701.5.2A and 701.5.2B and replace with:

TABLE 701.5.2A (7.5.2A) ENERGY COST AND CO₂e
BUILDING PERFORMANCE FACTORS (BPF)



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<u>BUILDING TYPE</u>	<u>BUILDING PERFORMANCE FACTOR (BPF)</u>
<u>Multifamily</u>	<u>0.66</u>
<u>Healthcare/hospital</u>	<u>0.51</u>
<u>Hotel/motel</u>	<u>0.48</u>
<u>Office</u>	<u>0.47</u>
<u>Restaurant</u>	<u>0.61</u>
<u>Retail</u>	<u>0.48</u>
<u>School</u>	<u>0.36</u>
<u>Semiheated warehouse</u>	<u>0.42</u>
<u>all others</u>	<u>0.5</u>

TABLE 701.5.2B (7.5.2B) CO₂e EMISSION FACTORS

<u>Energy Form</u>	<u>CO₂e, lb/kBtu</u>	<u>CO₂e, kg/MWh</u>
<u>Grid-delivered electricity and other fuels not specified in this table</u>	<u>1156</u>	<u>524</u>
<u>LP or propane</u>	<u>651</u>	<u>295</u>
<u>Fuel oil (residual)</u>	<u>738</u>	<u>335</u>
<u>Fuel oil (distillate)</u>	<u>715</u>	<u>324</u>
<u>Coal</u>	<u>892</u>	<u>405</u>
<u>Gasoline</u>	<u>744</u>	<u>337</u>
<u>Natural gas</u>	<u>681</u>	<u>309</u>
<u>District chilled water</u>	<u>339</u>	<u>154</u>



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<u>District steam</u>	<u>1145</u>	<u>519</u>	
<u>District hot water</u>	<u>1081</u>	<u>491</u>	

08.00.03.14 Sections 801.3.1.7 and 801.3.3.5. Delete.

08.00.03.15 Section 901.3.1. Delete.

08.00.03.16 Sections 1001.3.1.1.2.c and 1001.3.1.1.3. Amend to add the phrase “AHJ, with copies also being provided to” before the phrase “building owner” and “owner”, respectively.

08.00.03.17 Sections 1001.3.1.1.2.1.3, 1001.3.1.4, 1001.3.1.7, 1001.3.1.9, 1001.3.1.10, 1001.3.2.1.2, 1001.3.2.1.5 and 1001.3.2.4. Delete.

08.00.03.18 Section 1001.3.2.1.3. Delete the second sentence and subsections 1001.3.2.1.3.1 through 1001.3.2.1.3.3 and replace with the following: “The plan must describe the procedures needed to use the energy measurement devices and collection/storage infrastructure, and the procedures for tracking and assessing energy consumption.

08.00.03.19 Section 1001.3.2.1.4. Delete in its entirety and replace it with the following: “The indoor air quality plan must describe the procedures needed to implement a regular outdoor airflow monitoring program after building occupancy; the procedures for operating ventilation systems during occupancy; the procedures needed for maintaining and monitoring IAQ after building occupancy; a green cleaning plan; and the procedures for implementing a regular humidity sensor monitoring program after building occupancy.

08.00.03.20 Amend Normative Reference Chapter 11, ISO, to replace "ISO 21930-2007:" with "ISO 21930-2017:".

08.00.03.21 Informative Appendix H is adopted in its entirety.

08.00.03.22 Section J101.1.3. Add the phrase “this code or” after the phrase “shall comply with”.

08.00.03.23 Informative Appendix J. Sections J101.1.3, J101.1.4, and J101.1.5 are adopted.



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08.00.03.24 SEVERABILITY

The provisions of this regulation are severable. If a court of competent jurisdiction holds that a provision is invalid or inapplicable, the remainder of the regulation remains in effect.

Handwritten signature of Marc Elrich in cursive.

Marc Elrich, County Executive

3/22/2021

Date

Approved as to form and legality:

Handwritten signature of Charles L. Frederick in cursive.

Charles L. Frederick
Office of the County Attorney

12 February 2021
Date

Montgomery County Proposed 2018 International Green Construction Code Comment Summary

The following comments were evaluated and commented on by the Department of Permitting Services. Many comments that were submitted were related to sections of the Montgomery County Proposed 2018 IgCC that were removed during legal review. No response was provided to those comments. Additional comments were determined to be clarification questions and were answered directly to the submitter. Requests to remove those clarifying questions from this comment response document was approved by each submitter. Comments deemed to be supportive comments towards the Proposed 2018 IgCC were omitted from this document. Please feel free to contact me directly with any questions.

Bryan Bomer

Sustainability, Energy, and Mechanical Manager

Department of Permitting Services | Division of Commercial Building Construction

Montgomery County Maryland | montgomerycountymd.gov/dps

O: 240-777-6230 | M: 301-741-6137

The stakeholder identified as the **Conservation Consortium** comes from the following list of participants who submitted in a single document: Audubon Naturalist Society, 350 Montgomery County Anacostia Riverkeeper, Anacostia Watershed Society, Cedar Lane Unitarian Universalist Church, Clean Water Action, Coalition for Smarter, Conservation Montgomery, Corazon Latino , Friends of Sligo Creek, Friends of Ten Mile Creek and Little Seneca Reservoir, Little Falls Watershed Alliance, Montgomery Countryside Alliance, Montgomery County Faith Alliance for Climate Solutions Neighbors of the Northwest Branch, Rock Creek Conservancy, Sierra Club Montgomery County, TAME Coalition, Watts Branch Watershed Alliance.

Comment Overview Section

Full comments can be found after this section.

Code section: 501.3.1.1 Allowable Sites

Stakeholder: B.F. Saul Company

Overview: Stakeholder wants sections of the site sustainability chapter removed due to other restrictions set by the county.

Response: DPS has met with Park and Planning staff to discuss implementation of measure. It has been established that the requirements of this measure are within reason and are able to be enforced through current methods.

Code section: 501.3.1.1 Allowable Sites

Stakeholder: Conservation Consortium

Overview: stakeholder wants additional requirement of GHG calculation based on the typical mode of transit per site.

Response: The IgCC integrates well with the Climate Action Plan. DPS does not have the resources to run independent research on the impacts of GHG through enforcement of the IgCC.

Code section: 501.3.5.3 Roofs

Stakeholder: Conservation Consortium

Overview: stakeholder wants additional requirements and increased stringency for green roofs.

Response: The IgCC does not explicitly disallow sloped roofs. The code is not intended to provide "best practices". This is something we can work on with storm water and zoning as an education and outreach opportunity. Green roof requirements are established for the building. Lease language is not prevalent in the IgCC therefore defaults to the building owner/operator.

Code section: 501.3.5.1b Site Hardscape

Stakeholder: National Asphalt Pavement Association

Overview: Remove reflective pavements as an allowable hardscape-related heat island mitigation measure.

Response: DPS does not have the expertise to make performance changes to this measure. DPS recommends that this be brought up to the governing body, ICC, for consideration.

Code section: 701.5.1 Annual Energy Cost

Stakeholder: Conservation Consortium

Overview: Stakeholder expresses concerns over allowing an Alternative Compliance Path (ACP) weakening the IgCC and specifically the energy section. There is a desire to re-instate the Zero Energy Performance Index (zEPI) into code. Additionally, there is a desire to adjust the zEPI based on building type.

Response: A robust and thorough ACP process has been developed by DPS to prevent the weakening of the IgCC. The ACP approval process is available for review. DPS worked closely with New Buildings Institute (NBI), developers of the zEPI score to create an accurate and updated zEPI calculation and scoring rubric for Montgomery County. Amendment language has been submitted to the 2018 IgCC.

Code section: 701.3.3 Energy Consumption Management

Stakeholder: WSSC

Overview: Stakeholder wants section removed from IgCC which requires submetering of specific utilities.

Response: this measure does not require WSSC to supply the sub-metering equipment. Sub-metering is a vital step in understanding the end point use of energy utilities. DPS staff reviews for presence of meters and confirms the installation through commissioning plan review at time of final inspections. No additional time or resources are required of WSSC, these meters are not used for billing purposes.

Code section: 701.4.4 Service Water Heating

Stakeholder: WSSC

Overview: Stakeholder wants section removed from IgCC which requires increased efficiency of service water heating due to complexity of measure.

Response: design teams are only required to meet this measure if they choose an alternate renewables approach as identified in section 701.4.1.1.2. This measure requires increased efficiency of water heating which is already reviewed by DPS staff. This measure does not require additional resources of WSSC.

Code section: 701.5.2 Annual Carbon Dioxide Equivalent

Stakeholder: FSi Engineering

Overview: Stakeholder recommends adjusting the values associated with this measure to more current numbers.

Response: Amendment language to update values in the table have been submitted to the 2018 IgCC.

Code section: 801.3.1.3 Filtration and Air Cleaner Requirements

Stakeholder: Conservation Consortium

Overview: Stakeholder wants to include ozone air cleaning devices or filtering components to this section.

Response: DPS does not have the expertise to evaluate the impact of this request. DPS has elected to default to the expertise of ICC. DPS recommends that this be brought up to the governing body, ICC, for consideration.

Code section: 901.5 Performance Option

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: Stakeholder recommends the life cycle assessment include provisions to calculate embodied building emissions from the construction of the project.

Response: the IgCC does not address embodied emissions. DPS does not have the expertise to add language to capture embodied emissions. DPS recommends further discussion with the CAP action committee.

Code section: 1001.3 Mandatory Provisions

Stakeholder: WSSC

Overview: Stakeholder is concerned that commissioning requirements in the IgCC will impact WSSC workload. There is additional concern that failure of the commissioning report will impact WSSC approval.

Response: DPS currently reviews commissioning plans and reports and will continue to do so for the 2018 IgCC. DPS currently works with project teams to determine proper course of actions, document submittals, and pathways to project approval. DPS will not require WSSC to add any additional steps to the WSSC process.

Code section: 1001.3.1.1.1.2c

Stakeholder: Conservation Consortium

Overview: Stakeholder requests that all information regarding operation and maintenance be available to the building owner or facility manager, including future owners and facility managers.

Response: Amendment language has been submitted to the 2018 IgCC to include DPS as a recipient of documentation. While this does not immediately result in future recipients, it creates a record of the documentation.

Code section: Appendix B

Stakeholder: Bradford White Corporation

Overview: Stakeholder expressed concern for stringency language in Appendix B.

Response: Appendix B is designed to apply to projects that choose increased equipment efficiency in lieu of on-site renewables. Therefore, no adjustment should be made to this measure.

Code section: Appendix J

Stakeholder: AOBA, NAIOP, AvalonBay, Brookfield Properties, Donohoe, Duffie Companies, Federal Realty Investment Trust, Lerner, Lorax Partnerships, Sustainable Design Consulting, Steven Winter Associates, St. John Properties, Therrien Waddell, The Tower Companies, Washington REIT

Overview: Stakeholder group recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Code section: Appendix J

Stakeholder: Green Globes

Overview: Stakeholder group recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Code section: Appendix J

Stakeholder: Montgomery County Faith Alliance for Climate

Overview: Stakeholder expresses concerns over allowing an Alternative Compliance Path (ACP) weakening the IgCC because it does not have mandatory sections.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review. This includes mandatory measures that mirror the IgCC chapters.

Code section: Appendix J

Stakeholder: USGBC

Overview: Stakeholder recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Code section: Appendix J

Stakeholder: Lisa M. Ferretto

Overview: Stakeholder recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Code section: Appendix J

Stakeholder: Maryland Building Industry Association

Overview: Stakeholder recommends an Alternative Compliance Path process. Suggests allowing newer versions of NGBS, which is identified in the published code.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review. DPS agrees with allowing a newer version of NGBS and will use the ACP process to confirm compliance.

Code section: Overall comment

Stakeholder: Lisa M. Ferretto

Overview: Stakeholder recommends formatting the 2018 IgCC similar to previous version which included elective measures.

Response: Neighboring jurisdictions took a different approach to IgCC adoption. DPS does not have the resources available to reconfigure the 2018 IgCC format at this time. We anticipate ICC returning to this format in future version of the IgCC.

Code section: Overall comment

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: stakeholder recommends closer alignment with the County CAP and recommends adopting the code after the CAP is approved.

Response: the IgCC is one tool used to achieve CAP goals. New versions of the IgCC are evaluated and adopted by the county when possible. DPS anticipates the release of the 2021 IgCC and will work with County agencies to implement the code as soon as possible in order to meet CAP goals. Energy chapter measure amendments have been proposed. These amendments are designed to better align the IgCC with more aggressive GHG and energy reduction goals.

Code section: Overall comment

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: Stakeholder recommends a climate analysis be performed on the IgCC.

Response: The IgCC integrates well with the Climate Action Plan. DPS does not have the resources to run independent research on the impacts of climate goals through enforcement of the IgCC.

End comment overview section.

Chapter 5

Code section: 501.3.1.1 Allowable Sites

Stakeholder: B.F. Saul Company

Overview: Stakeholder wants sections of the site sustainability chapter removed due to other restrictions set by the county.

Response: DPS has met with Park and Planning staff to discuss implementation of measure. It has been established that the requirements of this measure are within reason and are able to be enforced through current methods.

Stakeholder Comment: Saul has reviewed the proposed regulation in the context of the County's existing statutory and regulatory review framework. As a result, Saul has a concern regarding the proposed amendments to Chapter 5 (Site Sustainability) in the 2018 IgCC. For reference, enclosed is a copy of Chapter 5 that has been marked to show which Chapter 5 sections would be retained and which would be deleted per the proposed regulation. Section 501.2 of Chapter 5 states that "[a]ll of the provisions of Chapter 5 (Section 5) are mandatory." Saul's concern relates to three mandatory sections in Chapter 5 that would take effect under the proposed regulation: Sections 501.1 (Scope), 501.3 .1 (Site Selection), and 501.3.1.1 (Allowable Sites). Together, it appears to Saul that these sections would create new standards for permitted locations for new buildings. Together, it appears that these sections would permit a new building ("building project") only within an existing "building envelope," on a "brownfield," on a "greyfield," or on a "greenfield" that meets certain conditions. For reasons set forth below, Saul thinks that the proposed regulation should be revised to delete "site selection" in Section 501.1, and to delete Sections 501.3.1 and 501.3.1.1 entirely from the adopted version of the 2018 IgCC. Currently, the County's standards for site and building development are established by ordinance and applied by Park & Planning. Saul is concerned about the proposed regulation, because it B. F. Saul Company would adopt new building development standards outside the customary legislative process, and it would make DPS the review agency for application of those new standards. Park & Planning does not administer the building code. Park & Planning makes decisions on site and building development based on zoning, subdivision and related ordinances enacted by Council. Applicants should be entitled to rely on those decisions. Saul believes that fundamental issues related to site and building development should not be subject to a second review by DPS under Sec. 501.3 .1.1 (Allowable Sites) at time of building permit. At time of building permit, an applicant will have invested substantial time and money for complete project design drawings in reliance on Park & Planning's decisions. In addition, DPS is not currently positioned or staffed to review the site submittals that Sec. 501.3 .1.1 would require at time of building permit. For example under Sec. 501.3.1.1, would the proposed building be located on a "brownfield," a "greyfield," or a "greenfield?" If on a "greenfield," depending upon the proposed use, would it satisfy the ASTM (American Society for Testing and Materials) guidelines for "walkable proximity to neighborhood assets" and "access to public transit?" Also if on a "greenfield," what would be the proximity to developed residential land, and the density of development on that developed residential land? Only Park & Planning is currently positioned and staffed to apply standards like these, and only if Council establishes them by ordinance after public hearing and full legislative consideration. Consequently, Saul thinks that the proposed regulation should be revised to delete "site selection" in Section 501.1 and to delete Sections 501.3.1 and 501.3.1.1 entirely from the adopted version of the 2018 IgCC.

Code section: 501.3.1.1 Allowable Sites**Stakeholder:** Conservation Consortium**Overview:** stakeholder wants additional requirement of GHG calculation based on the typical mode of transit per site.**Response:** The IgCC integrates well with the Climate Action Plan. DPS does not have the resources to run independent research on the impacts of GHG through enforcement of the IgCC.**Stakeholder Comment:** GHG calculation: We recommend that a study which includes GHG reductions due to trip generation and the predicted mode of transit be included as part of identifying allowable sites.**Code section: 501.3.5.3 Roofs****Stakeholder:** Conservation Consortium**Overview:** stakeholder wants additional requirements and increased stringency for green roofs.**Response:** The IgCC does not explicitly disallow sloped roofs. The code is not intended to provide "best practices". This is something we can work on with storm water and zoning as an education and outreach opportunity. Green roof requirements are established for the building. Lease language is not prevalent in the IgCC therefore defaults to the building owner/operator.**Stakeholder Comment:** We recommend sloped green roofs as they capture more stormwater, as seen in American Society of Landscape Architects' sloped green roof building where they were able to capture "27,500 gallons of stormwater, or 78%, going into DC's overburdened sewer and stormwater systems." We recommend DPS runs a program similar to the one conducted between DC and the US General Services Administration (GSA),²¹ in which GSA requires vegetated rooftops through its lease requirements. We recommend pairing green roofs with a requirement for bird-safe glass or no glass to create safe building environments for birds who might be attracted to the roofs as visitors, especially migratory birds during fall and spring migrations.**Code section: 501.3.5.1b Site Hardscape****Stakeholder:** National Asphalt Pavement Association**Overview:** Remove reflective pavements as an allowable hardscape-related heat island mitigation measure.**Response:** DPS does not have the expertise to make performance changes to this measure. DPS recommends that this be brought up to the governing body, ICC, for consideration.**Stakeholder Comment:** We recommend removing reflective pavements as an allowable hardscape-related heat island mitigation measure in the 2018 IgCC, which can be accomplished by deleting Section 501.3.5.1.b in its entirety. Heat Island Effect – The use of reflective paving materials should be removed as a mitigation measure for heat island effect. The use of reflective paving materials to mitigate the

heat island effect comes with numerous unintended consequences and is often not effective at achieving the desired result. These undesired effects include the following: Reflective pavement materials have a high carbon footprint relative to other pavement materials. The reflected radiation can increase the cooling load on adjacent buildings. The reflected radiation can increase thermal stress by pedestrians, even when the ambient air temperature near the pavement is lower than less reflective pavements.

Chapter 7

Code section: 701.5.1 Annual Energy Cost

Stakeholder: Conservation Consortium

Overview: Stakeholder expresses concerns over allowing an Alternative Compliance Path (ACP) weakening the IgCC and specifically the energy section. There is a desire to re-instate the Zero Energy Performance Index (zEPI) into code. Additionally, there is a desire to adjust the zEPI based on building type.

Response: A robust and thorough ACP process has been developed by DPS to prevent the weakening of the IgCC. The ACP approval process is available for review. DPS worked closely with New Buildings Institute (NBI), developers of the zEPI score to create an accurate and updated zEPI calculation and scoring rubric for Montgomery County. Amendment language has been submitted to the 2018 IgCC .

Stakeholder Comment: LEED should not be included as an alternative pathway. LEED has several weaknesses as compared to the IgCC 2018 Prescriptive and Performance pathways. LEED energy requirements are not as stringent as zEPI. LEED does not require onsite inspections to verify that construction is following design plans as does the IgCC. LEED does not require reporting after construction to verify energy use as the IgCC does. LEED minimum energy requirements are not as stringent as a zEPI of 40 (and certainly not as stringent as a zEPI of 30), and LEED includes cost in calculating energy reductions that are not optimal for climate change action planners. This section from the national IgCC 2018 uses the Performance Cost Index (PCI) from ASHRAE 90-1 2016 appendix G. However, using energy cost as the metric for efficiency is not as helpful to environmental planners as using greenhouse gas emissions or energy use. Energy cost can vary with the market price, so it is possible that low-cost natural gas might reduce energy costs but increase energy use and greenhouse gases. We recommend that the Zero Energy Performance Index (zEPI), which measures energy use, replace the PCI. We recommend replacing the current Performance Cost Index and instead using the Zero Energy Performance Index (zEPI). zEPI was included in the IgCC 2012, and is expected to be included again in the IgCC 2021 as the 2020 version of 189.1 Addendum AR. We recommend that section 701.5.1 be changed, and that the "Performance Option" use the zEPI from the 2020 189.1 addendum AR. At a minimum, the zEPI from the IgCC 2012 should be maintained as the Performance Option in the 2018 IgCC. Some building types have an easier time achieving high performance standards and there is no reason to defer strict standards for these building types. We believe that new school buildings should immediately meet a net zero energy standard (zEPI=0). Many school buildings in Maryland and Virginia⁴⁰ have already been constructed to be net zero energy. From an affordability

perspective, we have already seen the costs of construction of net zero energy schools that are no higher than conventional school buildings, and the long-term cost saving from reduced energy use by these schools are substantial. Requiring school buildings to be net zero energy will also provide experience for builders, allowing them to make other commercial construction more energy efficient. Research shows that constructing net zero energy buildings is feasible if engineered and taken into account from the beginning. We recommend that new school buildings should immediately be designed and constructed to achieve a zEPI score of zero beginning when the County adopts its version of the 2018 IgCC.

Code section: 701.3.3 Energy Consumption Management

Stakeholder: WSSC

Overview: Stakeholder wants section removed from IgCC which requires submetering of specific utilities.

Response: this measure does not require WSSC to supply the sub-metering equipment. Sub-metering is a vital step in understanding the end point use of energy utilities. DPS staff reviews for presence of meters and confirms the installation through commissioning plan review at time of final inspections. No additional time or resources are required of WSSC, these meters are not used for billing purposes.

Stakeholder Comment: IGCC Section 701.3.3 Energy Consumption management has requirements for gas submetering of gas and district services and process and plug process loads. WSSC Water is the authority having jurisdiction for the installation of natural gas and propane gas downstream from the point of delivery. WSSC Water does not provide private submeters for gas. Private submeters for gas are uncommon and WSSC Water RSD would require additional resources to review plans and equipment and inspect private gas submeters.

Code section: 701.4.4 Service Water Heating

Stakeholder: WSSC

Overview: Stakeholder wants section removed from IgCC which requires increased efficiency of service water heating due to complexity of measure.

Response: design teams are only required to meet this measure if they choose an alternate renewables approach as identified in section 701.4.1.1.2. This measure requires increased efficiency of water heating which is already reviewed by DPS staff. This measure does not require additional resources of WSSC.

Stakeholder Comment: Most of the conflicts between the IGCC and the WSSC code are in IGCC Chapter 6 are deleted per the final draft of Executive Regulation. Although the majority of the conflicts between codes have been resolved in the proposed Executive Regulation, the adoption of ICC section 701.4.4 will create some confusion on domestic hot water requirements. IGCC Section 701.4.4 Service Water Heating references ANSI/ASHRA/IES Standard 90.1 Energy Standard for Buildings Except Low-Rise Residential Buildings with modifications and additions. As required by the State, Montgomery County has also adopted the 2018 edition of the International Energy Conservation Code (IECC), this includes section C404 Service Water Heating (Mandatory). Designers and tradesmen will be required to

reference the IECC, the IGCC, ASHRAE 90.1, and the WSSC Code to design domestic hot water systems. WSSC Water recommends that DPS not adopt IGCC section 701.4.4. WSSC Water suggests if DPS chooses to adopt any portions of IGCC section 701.4.4 and/or ASHRAE 90.1 that the adopted portions are coordinated with IECC requirements to avoid confusion by users. Also, these requirements increase the complexity of the water heating systems and make the systems more susceptible to bacterial growth such as legionella pneumophila. More complex systems will also increase the resources required by WSSC Water to review plans and inspect installations.

Code section: 701.5.2 Annual Carbon Dioxide Equivalent

Stakeholder: FSi Engineering

Overview: Stakeholder recommends adjusting the values associated with this measure to more current numbers.

Response: Amendment language to update values in the table have been submitted to the 2018 IgCC.

Stakeholder Comment: I also would strongly recommend changing the GHG emissions factor for electric. The base IgCC uses the worst grid in the country and unintentionally incentivizes gas heating because of that. Our grid is almost 50% better and getting cleaner. For Baltimore we modified to 716 tons/KWH based on the EPA value: <https://www.epa.gov/energy/power-profiler#/RFCE>.

Chapter 8

Code section: 801.3.1.3 Filtration and Air Cleaner Requirements

Stakeholder: Conservation Consortium

Overview: Stakeholder wants to include ozone air cleaning devices or filtering components to this section.

Response: DPS does not have the expertise to evaluate the impact of this request. DPS has elected to default to the expertise of ICC. DPS recommends that this be brought up to the governing body, ICC, for consideration.

Stakeholder Comment: Particulate Matter: We recommend that all new and old retrofit buildings include an ozone air cleaning device or filtering component. Ozone reduction equipment is needed because Montgomery County falls in to one of the National Ambient Air Quality Standard (NAAQS) “non-attainment” areas, meaning the county has areas where air quality is worse than national standards as defined by the Clean Air Act. Furthermore because of the scientific research linking ozone to higher asthma rates, requiring higher and more strict air quality and air filtering provisions will improve the health of county residents.

Chapter 9

Code section: 901.5 Performance Option

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: Stakeholder recommends the life cycle assessment include provisions to calculate embodied building emissions from the construction of the project.

Response: the IgCC does not address embodied emissions. DPS does not have the expertise to add language to capture embodied emissions. DPS recommends further discussion with the CAP action committee.

Stakeholder Comment: Are there provisions in the IgCC that address upfront or embodied building emissions, either through making a whole building life cycle analysis mandatory, as described in IgCC Section 901.5.1, or through some other means within the IGCC or otherwise? It's estimated that embedded emissions makeup perhaps a quarter of the total emissions from a building over its useful life. As operational emissions are being reduced the proportion of the buildings GHG emissions coming from the construction of the building will increase unless effective measures are taken to eliminate these emissions. These emissions are even more critical to eliminate than operational emission reductions because of the need to reduce emissions as soon as possible before climate tipping points are breached. Therefore, a ton of GHG reduction occurring prior to the building being occupied is much more valuable in stabilizing the climate than one that occurs years later during the operation of the building.

Chapter 10

Code section: 1001.3 Mandatory Provisions

Stakeholder: WSSC

Overview: Stakeholder is concerned that commissioning requirements in the IgCC will impact WSSC workload. There is additional concern that failure of the commissioning report will impact WSSC approval.

Response: DPS currently reviews commissioning plans and reports and will continue to do so for the 2018 IgCC. DPS currently works with project teams to determine proper course of actions, document submittals, and pathways to project approval. DPS will not require WSSC to add any additional steps to the WSSC process.

Stakeholder Comment: The commissioning and enforcement of the proposed Executive Regulation may require additional WSSC Water resources to review plans and inspect installations. The IGCC adds an additional phase of regulation with requirements for commissioning. WSSC Water's RSD enforces our Code in 2 phases; document review (plan review) and construction inspections. Inspections are finished prior to occupancy of new construction or addition. The IGCC would be enforced by DPS in 3 phases: document review; construction inspections; and commissioning. Commissioning includes inspections and review after completion of construction and can take place after the building project is occupied. Commissioning may require additional plumbing or fuel gas work after the final inspection by WSSC Water, and require additional WSSC Water permits, plan review, and inspections. Customers may have to spend additional resources if the completed work is approved by WSSC Water but is then disapproved by DPS during the commissioning phase. WSSC Water recommends that DPS makes it clear to their customers that the plumbing and fuel gas portions of the IGCC will be enforced by DPS and not WSSC Water. Recently Montgomery County has created a Commercial Green Building Plan Review section and hired an additional 4 employees; this may indicate a need for additional complementary resources at WSSC Water, which may increase budget needs.

Code section: 1001.3.1.1.1.2c

Stakeholder: Conservation Consortium

Overview: Stakeholder requests that all information regarding operation and maintenance be available to the building owner or facility manager, including future owners and facility managers.

Response: Amendment language has been submitted to the 2018 IgCC to include DPS as a recipient of documentation. While this does not immediately result in future recipients, it creates a record of the documentation.

Stakeholder Comment: More generally, whenever documentation regarding operation and maintenance of building systems and components is required under Chapter 10 to be provided by the building owner or facility manager, we recommend that the IgCC standard adopted by the county require that the relevant documentation be provided to both the building owner and facility manager, and that each of them be required to pass that documentation to the subsequent building owner or facility manager, as the owners and facility managers change over time. In effect, the building code or operating permit should require that this type of documentation pass with the building through both the building owner and facility manager.

Appendices

Code section: Appendix B**Stakeholder:** Bradford White Corporation**Overview:** Stakeholder expressed concern for stringency language in Appendix B.**Response:** Appendix B is designed to apply to projects that choose increased equipment efficiency in lieu of on-site renewables. Therefore, no adjustment should be made to this measure.

Stakeholder Comment: On July 11, 2014, the Department of Energy (DOE) published a new test procedure and efficiency metric for residential and certain commercial water heaters. Manufacturers were required to label the applicable products in terms of the new efficiency metric starting no later than June 12, 2017. These changes affect the following types of water heaters: ☐ Gas-fired storage water heaters with inputs less than or equal to 105,000 Btu/hr; Electric storage water heaters with inputs less than or equal to 12 kW; Oil-fired storage water heaters with inputs less than or equal to 140,000 Btu/hr; Gas-fired instantaneous water heaters with inputs less than or equal to 200,000 Btu/hr; Electric instantaneous water heaters with inputs less than or equal to 58.6 kW; and Oil-fired instantaneous water heaters with inputs less than or equal to 210,000 Btu/hr. All residential products that are affected by these changes were previously labeled with an Energy Factor (EF) and a First Hour Rating (FHR). For those products that were previously considered commercial but have been determined by DOE to have a residential utility have transitioned away from being labeled in terms of Thermal Efficiency (TE) and Standby Loss (SBL). All of these products are labeled, as of June 12, 2017, in terms of a Uniform Energy Factor (UEF) and new First Hour Rating. BWC alerts the County of Montgomery to the aforementioned DOE efficiency metric changes (i.e. UEF and the new First Hour Rating), as the 2018 International Green Construction Code references the outdated efficiency metrics EF and TE in Table B101.8 Performance Requirements for Service Water Heating Equipment. This is detailed in Attachment A. BWC recommends corrections updating the DOE efficiency metrics in Table B101.8 BWC's edits are focused on products that we manufacture and are very familiar with. These include the following: gas-fired and electric resistance storage water heaters; electric resistance grid-enabled water heaters; heat pump water heaters; gas instantaneous water heaters; and oil-fired storage water heaters. Manufacturers are prohibited from denominating the efficiency of federally regulated products, except in terms of the efficiency metrics that have been prescribed by DOE. Therefore, we recommend updating to the values and nomenclature detailed in Attachment B, which are available from the DOE, 10 CFR Part 430.32 and 10 CFR Part 431.110. Given these concerns, BWC recommends the County of Montgomery to amend resolution number 12-20 with the corrections provided, prior to adoption of the 2018 International Green Construction Code. BWC recognizes the County of Montgomery's efforts to achieve net-zero carbon emissions by the year 2030, but we respectfully request that improvements in energy efficiency are done in terms of current efficiency metrics required by the Department of Energy.

Code section: Appendix J**Stakeholder:** AOBA, NAIOP, AvalonBay, Brookfield Properties, Donohoe, Duffie Companies, Federal Realty Investment Trust, Lerner, Lorax Partnerships, Sustainable Design Consulting, Steven Winter Associates, St. John Properties, Therrien Waddell, The Tower Companies, Washington REIT**Overview:** Stakeholder group recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Stakeholder Comment: On behalf of the 17 organizations and individuals below, representing a diverse list of building owners, managers, and occupants across Montgomery County, we are writing to express our opposition to the proposed regulation as it is written, and to urge you to maintain a compliance option of LEED Silver certification. While we support the inclusion of IgCC in the current code and the proposed adoption of the 2018-IgCC, we are strongly in favor of a LEED compliance pathway. Maintaining this option, and ensuring it is available for all building types, will: Allow flexibility in the market by providing multiple compliance options, including LEED with which the market and development community has extensive experience demonstrated by LEED certification being a common practice in the county. Provide additional benefit of a streamlined pathway for projects willing to strive for higher levels of certification and performance. Leverage a third-party review process, offering relief to project teams already pursuing and documenting beyond-code certification while also reducing the workload for enforcement officials. Reduce the burden for project teams who may lack green building expertise and experience as GBCI (the independent body which administers LEED and provides third-party verification services) provides significant customer service and technical support for registered projects. As the County incentivizes LEED certification in commercial building practices, it would be advantageous for the policies from the County to be aligned in outcomes. We urge you to amend the regulation to include a LEED compliance option for all building types in addition to adopting the 2018-IgCC.

Code section: Appendix J

Stakeholder: Green Globes

Overview: Stakeholder group recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Stakeholder Comment: As a part of this code advancement, GBI also strongly urges Montgomery County to enable third party certification systems such as Green Globes to act as a partner in the effort. Green Globes is poised to enhance and amplify Montgomery County's goals by pushing projects toward levels of achievement potentially greater than the IgCC code baseline and giving projects the incentive of additional recognition by a national certification entity. The use of Green Globes certification as an additional component of compliance with Montgomery County's IgCC requirement, would enhance not only the building projects, but also provide GBI with the opportunity to showcase nationwide the efforts of Montgomery County, Maryland as the county continues to push the leading edge in both code requirements and certification opportunities. To date, GBI has been excited to work on Green Globes sustainability projects with fifteen Montgomery County Public Schools (MCPS) and we have appreciated the enthusiasm that the MCPS teams have for producing tangible results that benefit the county's children. Our ability to work with MCPS projects informs our own experts and allows us to hold up MCPS as an example of how jurisdictions can achieve greater performance, sustainability, and resilience in

educational facilities. We would like to recommend that the County recognize Green Globes as an allowable certification in Montgomery County's updated policy. To that end, we are submitting with these comments extensive crosswalks that show you how Green Globes can work alongside of the 2018 IgCC to meet the needs of Montgomery County. Green Globes also brings with it additional benefits, including the ability for Montgomery County to identify specific Green Globes criteria that are important to the county for inclusion in every Green Globes project within the jurisdiction, as well as a team-oriented and efficient process that helps project teams succeed and educate themselves about how to further improve their future county projects.

Code section: Appendix J

Stakeholder: Montgomery County Faith Alliance for Climate

Overview: Stakeholder expresses concerns over allowing an Alternative Compliance Path (ACP) weakening the IgCC because it does not have mandatory sections.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review. This includes mandatory measures that mirror the IgCC chapters.

Stakeholder Comment: The Montgomery County Faith Alliance for Climate Solutions strongly supports ER12-20, the 2018 version of the International Green Construction Code (IgCC 2018) for new commercial buildings and large renovations. Buildings produce over 50% of our county's greenhouse gas (GhG) emissions. It is very important that new buildings be as environmentally friendly as possible and keep our county on track for its GhG reduction goals. In 2017 Montgomery County adopted the 2012 version of the IgCC, but unfortunately made many important provisions optional. We understand that this was in part because DPS did not have authority to regulate some aspects covered by the IgCC. We strongly support legislation to allow DPS to enforce all the aspects of the IgCC 2018, which we understand is being drafted as a separate bill. We urge you to adopt the IgCC 2018 in its entirety with all sections mandatory. In ER-12-20 LEED is not allowed as an alternative pathway for compliance. LEED is not a code, is not enforceable, and does not require energy efficiency goals which would keep the county on track to make all new commercial buildings energy neutral by 2030. We hope LEED is not added back in to the final bill.

Code section: Appendix J

Stakeholder: USGBC

Overview: Stakeholder recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Stakeholder Comment: USGBC agrees that to meet the County's GHG emissions reduction goal, additional steps must be taken to increase the energy efficiency of buildings – and that strategies like water conservation, transportation and renewable energy deployment must also be emphasized. As co-

sponsors of the IgCC, USGBC desires for all communities to adopt core green building provisions found in the IgCC. The IgCC was intended to provide a baseline set of minimum green requirements – not to replace leadership, above-code programs in the marketplace, such as LEED. We support adoption of the 2018-IgCC as it can help guide higher levels of performance across the building industry and allows above code programs like LEED to continue to innovate as codes ratchet-up their sustainability criteria over time. However, we do not support MCER No. 12-20 as proposed as it eliminates the compliance by LEED certification option included in the current code (Executive Regulation 21-15 AMII). We would support a revised regulation that includes a compliance by LEED certification option, as explained below. (see support docs).

Code section: Appendix J

Stakeholder: Lisa M. Ferretto

Overview: Stakeholder recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Stakeholder Comment: While I strongly support adopting the 2018 IgCC from the 2012 IgCC, I would like to urge the County to maintain alternate compliance paths that allow certification options, such as LEED, Green Communities, etc. Green codes, like the IgCC, and green rating systems, like LEED, have common goals – to reduce the negative impacts of buildings on our environment and increase the positive impacts for the health and well-being of people. IgCC is considered a base sustainability code and rating systems like LEED allow for projects to strive for higher levels of performance. For example, a 20% water use reduction requirement would be an IgCC baseline, as well as a LEED prerequisite. Projects following LEED could then strive for additional water savings for additional points. But regardless, a LEED project and an IgCC project in Montgomery County would both be required to meet a minimum performance of 20%. Sustainability is not a one size fits all approach and some clients desire and value a green rating certification. Pursuing a third-party rating system is arduous at times, and those projects should not have to also prove compliance with the IgCC. Allowing a LEED path also aligns with the certification requirements of the Montgomery County “Green Building” tax credit (Energy and Environmental Design Property Tax Credit).

Code section: Appendix J

Stakeholder: Maryland Building Industry Association

Overview: Stakeholder recommends an Alternative Compliance Path process. Suggests allowing newer versions of NGBS, which is identified in the published code.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review. DPS agrees with allowing a newer version of NGBS and will use the ACP process to confirm compliance.

Stakeholder Comment: The Maryland Building Industry Association is pleased to provide the following comments on the proposed Montgomery County Executive Regulation adopting the 2018 International Green Construction Code (IgCC). The Association supports the continued acceptance of the National Green Building Standard (NGBS) as a compliance pathway for the residential building types indicated in MCER 12-20 to meet the County’s green and energy efficiency goals. The residential building industry sees no issues with the County accepting compliance using either the 2015 or the 2020 National Green Building Standard as suggested by the Home Innovation Research Labs, which manages the third-party certification program for the NGBS and serves as the administrator for the ANSI-approved standard development process for the Standard. Since the 2020 NGBS now includes requirements covering mixed use residential buildings, an amendment may be in order for 2018 IgCC Appendix J, Section J101.1.5 to allow the non-residential portions of R-2 and R-4 buildings to comply with the provisions of the 2020 National Green Building Standard.

Code section: Appendix J

Stakeholder: Sustainable Design Consulting

Overview: Stakeholder recommends an Alternative Compliance Path process.

Response: A robust and thorough ACP process has been developed by DPS to create a clear and equivalent crosswalk between the proposed ACP and the Published 2018 IgCC. The ACP approval process is available for review.

Stakeholder Comment: Sustainable Design Consulting, LLC (SDC) has signed onto and supports USGBC National Capital Region (NCR) Chapter’s call for inclusion of a LEED certification compliance path within Montgomery County’s regulation.

General Comments on IgCC

Code section: Overall comment

Stakeholder: Lisa M. Ferretto

Overview: Stakeholder recommends formatting the 2018 IgCC similar to previous version which included elective measures.

Response: Neighboring jurisdictions took a different approach to IgCC adoption. DPS does not have the resources available to reconfigure the 2018 IgCC format at this time. We anticipate ICC returning to this format in future version of the IgCC.

Stakeholder Comment: The regulation also does not include many revisions or amendments to the base IgCC language. I would like to suggest that the County review the 2018 IgCC amendments being

proposed by Baltimore City. The Baltimore City 2018 IgCC Task Force has been very thoughtful in the revisions and encourage other jurisdictions and the State to consider collaboration for adoption.

Code section: Overall comment

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: stakeholder recommends closer alignment with the County CAP and recommends adopting the code after the CAP is approved.

Response: the IgCC is one tool used to achieve CAP goals. New versions of the IgCC are evaluated and adopted by the county when possible. DPS anticipates the release of the 2021 IgCC and will work with County agencies to implement the code as soon as possible in order to meet CAP goals. Energy chapter measure amendments have been proposed. These amendments are designed to better align the IgCC with more aggressive GHG and energy reduction goals.

Stakeholder Comment: Why is Montgomery County developing its version of the 2018 IgCC now instead of evaluating it as part of the new Climate Action and Resiliency Plan (CARP)? The CARP will include a comprehensive review of all County sources of greenhouse gas (GHG) emissions (including those from new commercial buildings) in order to determine the best path forward for reducing emissions 80% by 2027 and 100% by 2035. This review will involve both the county's technical consultants and a much broader public participation process than is occurring through the IGCC engagement process. To achieve these targets, it may be necessary to mandate net zero energy use in new buildings immediately or sooner than 2030 and/or to take other necessary measures. Unless there are compelling benefits to moving ahead now, we strongly urge that you fully integrate the IGCC regulatory process, or at least those components directly touching on greenhouse gas emissions, into the CARP.

Code section: Overall comment

Stakeholder: The Climate Mobilization, Montgomery County Chapter

Overview: Stakeholder recommends a climate analysis be performed on the IgCC.

Response: The IgCC integrates well with the Climate Action Plan. DPS does not have the resources to run independent research on the impacts of climate goals through enforcement of the IgCC.

Stakeholder Comment: Has there been a climate analysis performed on the IGCC regulations? Any and all drafts of the proposed IGCC regulations must include a comprehensive analysis to determine to what degree their implementation supports county climate goals and targets - whether or not the regulations are consistent with the analysis and conclusions contained in the CARP. We do not see any such analysis accompanying this document.

Alternative Compliance Path (ACP) Approval Process

- A crosswalk between the published 2018 IgCC and the ACP, outlining full compliance with all sections of the IgCC, must be submitted to the manager of the Sustainability, Energy, and Mechanical Section of the Department of Permitting Services (DPS).
 - Once the review is complete, a response letter with the required ACP Level (points, ACP specific threshold, etc.) will be posted on the DPS website.
- the ACP 3rd party must provide a method for guaranteed measure compliance (i.e.: jurisdictional overlay). Access is required to all aspects of the project's progress throughout the entire process. This includes, but is not limited to; worksheets, documents, team members, all measures and their compliance method(s).
- Any project utilizing an ACP will be required to meet or exceed the published zEPI score identified in section 701.5 of the Montgomery County Amended 2018 IgCC.
- A submittal checklist with all the above items identified (per project) must be provided at time of permit application. A review of this checklist and supplemental documentation, as they pertain to the specific project, will be conducted before approval of the ACP in lieu of the IgCC.
- The project will have one year from the issuance of the occupancy and use permit to provide all documentation proving full compliance of the ACP as outlined at time of permit application. Any changes to measure selection in an ACP requires a plan revision.

2018 IgCC reference sections

- Chapter 1 Scope and Administration, Section 105 APPROVAL. 105.4 Innovative approaches and alternative materials, design, and methods of construction and equipment.
- Chapter 1 Scope and Administration, Section 105 APPROVAL. 105.6 Approved Programs.

Alternative Compliance Pathway Approval Process.

Projects that wish to utilize an ACP (alternative compliance pathway) to the IgCC must follow these steps:

1. Use a vetted and approved ACP. This must be conducted prior to a project's request to use an ACP.
 - a. An ACP administrator (3rd party provider who owns the ACP process) must provide sufficient evidence of full compliance to the published IgCC. supporting documentation must be submitted to the AHJ for review and approval prior to any project submitting an ACP for IgCC compliance. This includes but is not limited to:
 - i. Outline of all comparable measures.
 - ii. AHJ must have full access to project progress in the ACP.
 1. Once an ACP is approved by the AHJ, all requirements of the approved ACP will be published for reference.
 - b. All projects using an ACP must comply with 701.5 Performance Option in Chapter 7 Energy Efficiency.
 - c. All projects will have one year from the issuance of the occupancy and use permit to provide all necessary documentation proving full compliance of the ACP as provided at time of permit application. Any changes to measure selection in an ACP require a plan revision.
 - d. A submittal checklist with all of the above items identified per project must be provided at time of permit application. A review of this checklist and supplemental documentation, as they pertain to the specific project, will be conducted before approval of the ACP in lieu of the IgCC.