

**MEMORANDUM**

TO: Zoning Commission for the District of Columbia
FROM: Jennifer Steingasser, Deputy Director for Development Review & Historic Preservation
DATE: April 1, 2013
SUBJECT: Supplemental Report for Zoning Commission Case No. 12-10 for text amendments to establish an effective date for Green Area Ratio and Pervious Surface requirements.

I. RECOMMENDATION

After the close of the public hearing, several written comments were submitted requesting additional clarifications and amendments to the advertised text. The Office of Planning (OP) has provided responses to the comments (Attachment 1), agrees that many issues need additional consideration and proposes changes and additions to the proposed text (Attachment 2).

Effective Date

OP recommends an effective date of October 1, 2013. The notice of public hearing for the GAR and pervious surface text amendments was published on September 7, 2012 in the *D.C. Register*. The public hearing was held on November 5, 2012. A Notice of Proposed Rulemaking was advertised on January 11, 2013. In combination with a phased in effective date, there has been public notice of the intended requirements for more than one year.

Section 3028 of the zoning regulation states that the Commission may specify a later effective date:

3028.9 *A written order setting forth a final action shall become final and effective upon publication in the D.C. Register, unless the Commission specifies a later effective date.* An amendment to the Zoning Map approved in connection with an application for a planned unit development shall, however, become effective only upon completion of the process required by chapter 24 of this title, and upon filing with the District of Columbia a covenant ensuring compliance with approved plans.

Applicability

Many projects have an approval from the Zoning Commission or Board of Zoning Adjustment. Many other projects that are matter-of-right are well into design and engineering, or in the process of having a building permit reviewed by the city. In addition there are a few projects that have gone through Large Tract Review (LTR) and are designing in conformance with those conditions.

Sites subject to LTR are large by nature and an LTR is an administrative review and not an approval thus it does not have the same regulatory authority of a PUD, variance or special exception approval, but there is substantial time, cost and public notice involved in an LTR. To accommodate those projects that have gone through an LTR OP recommends an additional one year phase-in for LTR projects provided they meet a minimum GAR of 0.1.

Additional comments raised the question of coordination with other regulations. All the comments were circulated to the District Department of Environment who provided responses within the table attached as Attachment 1.

OP recommends the following changes to section 3400 of the advertised text and a new Notice of Proposed Action be advertised. New proposed language is underlined and proposed deletions are stroke through.

3400 Applicability of Green Area Ratio Standards

3400.1 The requirements of this chapter shall become applicable October 1, 2013.

3400.2 Pursuant to the conditions and requirements of this chapter, properties, other than one-family detached and semi-detached dwellings, in zones listed in the following table shall provide a GAR as specified in the following table:

ZONE DISTRICT	GREEN AREA RATIO
R-5-A and R-5-B	0.40
R-5-C, R-5-D and R-5-E C-1, C-2-A, C-2-B and C-2-C W-1, W-2, W-3 SP-1, SP-2	0.30
C-3-A, C-3-B	0.25
C-3-C, C-4, C-5, CR and any property within the DDD overlay	0.20
CM-1, CM-2, CM-3 and M, • all structures except one story warehouses • one story warehouses	• 0.30 • 0.10

3401.3 The GAR standards set forth in this chapter shall apply to all new buildings requiring a certificate of occupancy and to all existing buildings requiring a certificate of occupancy where any additions, ~~alterations, or repairs~~ within any twelve (12) month period exceed one hundred percent (100%) of the assessed value of the building as set forth in the records of the Office of Tax and Revenue as of the date of the building permit application, except:

- (a) Buildings that do not require certificates of occupancy;
- (b) Municipal wastewater treatment facilities operated by the District of Columbia Water and Sewer Authority; or
- (c) The interior renovation of an existing building that:
 - 1) Is located in the Central Employment Area;

- 2) Has an existing 100% lot occupancy prior to the filing of the building permit;
- 3) Has an existing roof that cannot support a dead load of four inches (4 in.) of growth medium on the roof; and
- 4) The work proposed by the building permit application will not result in a roof capable of supporting a dead load of four inches (4 in.) of growth medium on the roof.

3401.4 Notwithstanding §§ 3202.24 and 3401.2, the provisions of this chapter shall not apply to any application for a building permit:

- a) That has been officially accepted by the Department of Consumer and Regulatory Affairs as being complete prior to October 1, 2013 if the building permit plans are consistent; or
- b) Filed on or after October 1, 2013 if the building permit plans are consistent with:
 - a. An unexpired approval of a planned unit development, variance, special exception, design review under the CG or SEFC overlay, or concept design by the Historic Preservation Review Board or Commission of Fine Arts; provided the vote to approve occurred prior to October 1, 2013;
 - b. An unexpired approval of a variance, special exception, or design review under the CG or SEFC overlay granted on or after October 1, 2013, for which a public hearing was held prior thereto;
 - c. An unexpired approval of a planned unit development that was granted after October 1, 2013, but which was set down for a public hearing prior thereto;
 - d. A Large Tract Review completed prior to July 1, 2012 subject to the following:
 - (A) The application shall be filed no later than July 1, 2014;
 - (B) The application shall be consistent with the conditions of the Large Tract Review;
 - (C) The building shall achieve a GAR of no less than 0.1; and
 - (D) This subparagraph shall expire on July 2, 2014.

3401.5 Any approved change or modification to a permit, project or application in §§ 3401.3 and 3401.4 that results in an increase in impervious surface or lot occupancy of twenty percent (20%) or more shall cause the GAR to be applicable for that portion of a project that is effected by the modification.

3400.6 In addition to meeting the applicable burden for obtaining further processing approval under a campus plan to construct or add to a building, the college or

university applicant shall demonstrate the extent to which the building or addition meets the GAR standards. Further processing approval shall include the determination by the Zoning Commission that the proposed building is compliant with the intent of the GAR regulations.

- 3400.7 A historic resource and any additions thereto are exempt from the requirement of this chapter as a result of a change of use or an increase of intensity of use, except that this chapter shall be applicable when any addition results in an increase in the gross floor area of the historic resource by 50% or more. For the purposes of this chapter a “historical resource” is a building or structure listed in the District of Columbia Inventory of Historic Sites or a building or structure certified in writing by the State Historic Preservation Officer as contributing to the character of the historic district in which it is located.
- 3400.8 The cost basis for additions, alterations or repairs to an existing building shall be the amount indicated by the applicant on the application for a building permit.

Full text is attached as Attachment 2.

ATTACHMENT 1 – Public Comment and Agency Response.

EXHIBIT 17 – Goulston & Stors

1. Implementation timeline and a phase-in period (probably the most important concern);	Agree
2. The activity that would vest a project (e.g., filing a building permit application) prior to the implementation of the GAR regulations;	Agree
3. An exemption for approved PUDs and PUDs for which applications have been filed;	Agree
4. An exemption for all BZA cases for which applications have been filed;	Agree
5. An exemption for project having been approved under a design review such as pursuant to the Capitol Gateway Overlay;	Agree
6. An exemption for projects having received concept approval from the HPRB and/or CFA;	Agree
7. An exemption for existing buildings (e.g., interior alterations only);	Agree
8. An exemption for approved campus plans and the general applicability of the GAR regulations to campus plans;	Campus plans will not be exempt from GAR requirements; are addressed in proposed changes to advertised text.
9. Coordination with the DDOE stormwater regulations and the Green Building Act to avoid duplicity of requirements.	Agree, DDOE has reviewing authority in all cases. The GAR requirements were created after consultation with DDOE. DDOE will continue to coordinate with OP.

EXHIBIT 19 – WV Urban Developments (Site at NY and Bladensburg)

Projects that have undergone extensive DC agency reviews and approvals, including Large Tract Review approval, should be grandfathered.	Addressed in proposed changes to advertised text.
LTR-approved projects that are to be developed with more than one building permit should be grandfathered upon the filing of this first building permit application.	Addressed in proposed changes to advertised text.
The criteria for GAR compliance should be expanded to include environmental features on abutting public space, as well as credit for remediation of polluted sites.	Both public rights-of-way and brown field remediation are outside the authority of zoning.

<p><i>EXHIBIT 19 – WV Urban Developments (Site at NY and Bladensburg) Con't</i></p>	
<p>Pervious paving should be permitted to count for more than one third of the GAR score for a lot.</p>	<p>Multiplier is based on meta-analysis of peer-reviewed literature weighing many environmental performance standards. These multipliers are fundamental to the GAR and can only be revised as further analysis warrants. Pervious pavers are limited to no more than one third of the lot, which will allow the District to benefit from other aspects of greening sites, such as reducing the urban heat island effect and improving air quality.</p>
<p>"Day lighting" should be counted as a Green Area Ratio element, similar to the area of a renewable energy generation feature. Similarly, a "white roof" which counts as an element for LEED compliance, should also be counted as a Green Area Ratio element.</p>	<p>'Daylighting' is not included as a GAR element because it is related to the interior energy efficiency of a building and not the external environmental benefits.</p> <p>A 'white roof' is not included as a GAR element but is included as a requirement in the Green Building code (currently being updated).</p>
<p>Above-grade accessory parking garage structures in the Industrial Zones that provide required parking and the footprint of the land area that they occupy, should be exempted from the GAR requirements. The roof of a parking garage is typically devoted to parking, and is not available for a green roof, or pervious paving or other similar features required in the GAR regulations.</p>	<p>Disagree</p>
<p>The GAR requirements for all buildings in the Industrial Zones should be reduced from 0.3 to 0.1. Industrially-zoned land typically has the lowest property values in the city, and cannot command the same level of rents as high-density residential or commercial property. Construction is permitted to occupy 100% of a lot in the CM and M zones, which results in little or no available area for GAR compliance other than on the roof. It is not possible to spread the cost of GAR compliance on a CM or M property, and particularly on a C-M-1 property, to the same extent that it is in a commercial or high-density residential property. Yet, the GAR requirement for industrial property is 0.3, which is higher than that for a downtown office building, and is the same GAR requirement as that for a high density residential building where there is also an open space requirement of at least 25%, providing much more opportunity for GAR compliance.</p>	<p>ZC already considered this argument and reduced GAR to 0.1 for one story warehouses. Many properties which are zoned CM or M include non-industrial commercial buildings</p>

<p><i>EXHIBIT 19 – WV Urban Developments (Site at NY and Bladensburg) Con't.</i></p>	
<p>The GAR regulations are more like a Building Code requirement than a Zoning Regulation. Accordingly, the phase-in period for GAR should be identical to that of the Building Code. That is, projects which have received building Permits, and projects for which building permit applications have been filed, and those for which a contract for design services has been entered, should be exempt from the new GAR regulations for a period of one year after they become effective.</p>	<p>Agree for projects prior to Oct 1, 2013</p>

EXHIBIT 20 – Goulston & Stors on behalf of GWU

<p>PENDING DEVELOPMENT Therefore, the University proposes that the GAR regulations be amended to exempt any project that is currently pending before or has been approved by the Zoning Commission (or the Board of Zoning Adjustment) prior to the effective date of the new regulations. This would ensure that already-designed projects could proceed to permit consistent with plans that have been filed with and reviewed by the Commission or BZA and avoid a series of costly and time consuming requests for modification.</p>	<p>Agree, with the caveat that if there is a major modification , GAR requirements would apply.</p>
<p>CAMPUS DEVELOPMENTS: Therefore, the University proposes that the GAR regulations. Including the pervious surface requirement, be amended to exempt development pursuant to an approved campus plan that was in effect prior to the effective date of the new regulations. This would allow development under approved campus plans to proceed as planned, and allow the University to integrate GAR into its next campus plan as a part of the overall planning process.</p>	<p>This exemption would be too broad, but application to campus plans addressed in proposed changes to advertised text.</p>
<p>Therefore, the University recommends that the OP and the Zoning Comm confirm that the pervious surface requirements for properties subject to a campus plan are calculated across the entire campus, rather than for an individual building. This would be consistent with the application of Section 403 (the percentage of lot occupancy requirement) to campus plans.</p>	<p>Addressed in proposed changes to advertised text.</p>
<p>PUDs: Therefore, the University proposes that the GAR regulations be amended to permit properties within a Planned Unit Development to assess compliance with the GAR regulations based on either (A) the entire PUD or (B) selected combinations of lots within the PUD.</p>	<p>PUDs are proposed to be exempt; that would include stage 1 PUDs as well as consolidated.</p>
<p>EXISTING BUILDINGS Therefore, the University proposes that the GAR regulations be amended to exempt existing buildings or additions thereto that do not exceed 50% of the existing building's GFA.</p>	<p>Disagree; This comment's proposed exemption for existing buildings would not match existing stormwater requirements, which are based on 50% of the assessed value of the property for the threshold.</p>

EXHIBIT 21 – SKANSKA

<p>Phased Development</p> <ul style="list-style-type: none"> • projects should be evaluated for GAR based on the project site being constructed and not the entire record lot on which the project is evaluated for zoning purposes • recommend that the denominator of the GAR formula more accurately represent the project site in larger, phased developments. This modification to the proposed reg will allow each development site within the record lot to meet the spirit and intent of the reg 	<p>Disagree – the GAR takes into account the entire lot to maximize the sustainable elements on a property.</p> <p>Larger, phased projects that have undergone extensive DC agency reviews and approvals could be grandfathered (within limits on renewals).</p>
<p>Effective Date</p> <p>Provide a minimum of one year period for phase in of the proposed GAR regs. This transition period will give this project-and others the necessary time to move forward without these delays and costs.</p>	<p>Agree but with Oct 1, 2013 effective date.</p>
<p>Vesting Provisions</p> <p>Projects for which a foundation-to-grade permit has, been filed should be exempt from compliance with these regulations</p> <p>All PUDs and BZA cases should be exempt from the GAR</p>	<p>Agree, addressed in proposed changes to advertised text.</p>
<p>Pedestrian Plaza:</p> <p>As part of Skanska's NoMA development, we are seeking to incorporate a mid-block pedestrian plaza to provide public seating, cafe seating and retail opportunities. It is our understanding that the provision of such space is desired by the community and the District.</p> <p>While this area will include green areas, this pedestrian plaza needs to be developed primarily with hardscape to allow flexibility of 1.1se. As such, it adversely impacts the calculation of the GAR for the project. Thus, the regulations result in a disincentive to achieve other goals for the District.</p>	<p>Examples exist where landscape performance features have been incorporated into designs that accommodate both gathering space and green features. Extensive green roofs have been installed under walking grates at the ASLA headquarters, UDC Van Ness campus has incorporated intensive green roof and commencement gathering areas as well as harvest/reuse system into main pedestrian plaza over parking structure. There are several other ways designers can meet the GAR requirement, including the use of permeable pavers, vegetated walls, or planters with trees or native plant species. GAR also has a review process where the applicant can ask for a special exception to request a change in the required ratio.</p>
<p>Multiplicity of Environmental Regulations:-</p> <p>Skanska requests that the Zoning Commission consider the overall impact of the varying regulations dealing with environmental sustainability. Not only most each project consider compliance with the GAR Regulations, but there are also a variety of other environmental regulations and initiatives that impact development and may provide conflicting or additive requirements, including the Green Building Act, Energy</p>	<p>GAR is primarily a landscape-environmental performance measure with some flexibility for additional built-environment environmental performance features; this is unique to the GAR.</p>

Benchmarking Requirements and the proposed SWM regs from DDOE. This cumulative impact be considered prior to adoption of the GAR.	
C of O and Enforcement: concerns that may impact an owner's ability to finance a project. <ul style="list-style-type: none"> • If a temporary certificate of occupancy is issued, it should be valid for a longer period. The enforcement provision should be removed.	Disagree; timing is adequate.
EXHIBIT 22 – DM Hoskins – requesting extended comment period.	Agree; time extended.

[EXHIBIT 23 – USL WDC H Street LLC \(Insight\)](#)

<u>Vesting Provisions for PUDS</u> All PUDs for which an application has been submitted as of the effective date of the GAR regulations be exempt from compliance with the regulations.	Agree except case should be set down
<u>Clarification for Split-Zoned Sites:</u> The regulations must be clarified to address this issue and provide workable guidelines for development of split-zoned sites.	Agree
<u>Effective Date:</u> request that the a minimum of one year period for phase in	Agree with an effective date of October 1, 2013.
<u>C of O and Enforcement:</u> concerns that may impact an owner's ability to finance a project. <ul style="list-style-type: none"> • If a temporary certificate of occupancy is issued, it should be valid for a longer period. • The enforcement provision should be removed. 	Disagree; timing is adequate.
The additive nature of the GAR requirements is unclear An example would be an intensive, occupied green roof planted with trees, shrubs and ground covers, with 36" of soil. It is clear that the planted area is multiplied by 0.8. Clarification whether the area allocated to each tree and shrub from Table 3402.7, when multiplied by the multiplier in Table 3402.9, is then added to the total. There are other examples that can be identified.	Yes it is additive, see section 3402.3.
2- While the area allocated for each tree and plant is noted in Section 3402.7, there is no allocation for each groundcover plant under 2' tall at maturity. This makes it impossible to calculate the area allocation for groundcovers cited in 3402.9.	This concern refers to an earlier draft; changed in the Nov 12, 2012 version. Many of the GAR requirements are additive in nature. An Applicant could obtain points from both the trees and groundcover under the trees.
3. It is unclear-if the area for enhanced tree growth systems and for pervious pavement are additive. Installation of pervious pavements over enhanced tree growth systems is a common strategy.	No, these features cannot be combined considering current multipliers however; it could be considered in future updates if future peer reviewed papers suggests benefit compatible with

	GAR goals.
4. The rationale for the square footages allocated to trees of various sizes is not stilted. For example, the canopy size for a 6" tree is much greater than that of a 2.5" tree. The area of canopy for a 7" tree is not five times that of a 6" tree.	Choices for cutoffs are based on UFA recommendations and Seattle Green Factor experience. The area given for a tree is an approximate value based on several tree species.
5. Are the areas of landscaped area with a soil depth of 24" or more" and "intensive vegetated roof" with a soil depth of 24" or more additive?	No, they are not additive, you could count one or the other.
6. We would like to confirm that a landscaped area at grade, over a parking structure, is an intensive vegetated roof.	Yes, it is a vegetated roof, and is either extensive or intensive depending on soil depth
7. It would appear that the intent of the regulation is to plant the maximum number of plants feasible in any planted area. For example, by installing plants in a landscape area closer together, the amount of green area can be increased substantially. A landscaped area planted with shrubs at 24" o.c. rather than 36" o.c., will result in an increased green area of 200%. Is that the regulations intent?	Not the intent; DDOE plan reviewers will be evaluating planting plans for spacing, species selection, etc. based upon horticultural suitability.
8. Many planted areas include groundcovers or plants under trees. Are the numbers of both to be counted?	Yes

EXHIBIT 24 – VORNADO

<p><u>Concerned about:</u></p> <ul style="list-style-type: none"> • coordinated approach between DC agencies to SWM • are targets achievable throughout zone districts 	<p>DDOE has reviewing authority in both cases and will coordinate with OP/Zoning/DCRA</p>
<p><u>GAR Process:</u></p> <ul style="list-style-type: none"> • Reduce all GAR %; if attainable then consider raising them. • Allow self certification of GAR by project architect, civil engineer or LA to avoid extra cost • Permit condensate recovery irrigation systems to be permissible elements similar to harvested stormwater irrigation. • Add a provision for financial contributions to offset any shortfall in GAR limiting cases needed to go to BZA • Establish minimum lot size for all zones where GAR doesn't apply • Sec 3404.9 extend temporary Cof O to 9 months to allow for not only the seasonality of installing landscaping but time to complete work 	<p>Condensate recovery systems are not part of the GAR at this time. A Special Exception case could possibly be made for such a system at the BZA.</p> <p>Disagree; Two 4-month periods are generally sufficient.</p>
<p><u>Enforcement</u> Sec 3406 is very broad ; may have implications on financing projects and guarantees for ensuring compliance; section should be removed</p>	<p>Disagree</p>
<p><u>Effective Date:</u></p> <ul style="list-style-type: none"> • A minimum of one year period for phase in • Consider requiring submission of scorecard w/o enforcement to gain empirical data and its effectiveness 	<p>Agree. The effective date would start on October 1 2012.</p>
<p><u>Vesting Provisions</u> Projects for which a foundation-to-grade permit has, been filed should be exempt from compliance with these regulations</p> <p>All PUDs, BZA cases and Campus Plans should be exempt from GAR</p>	<p>Agree, addressed in proposed changes to advertised text.</p>

EXHIBIT 25 – Holland & Knight for Number of Developers

Exemption for projects which have received Large Tract Review approval.	Agree, addressed in proposed changes to advertised text.
An exemption for renovation of existing buildings located in the Central Employment Area where the roof was not constructed to support a dead load of 8" of growth medium on the roof.	Agree, addressed in proposed changes to advertised text at dead load of 4" ; additional relief available as a Special Exception from the BZA.
An exemption for historic improvements where either the project cannot take a dead load of 8" of growth medium on the roof or where the roof, itself, would be an important part of the historic resource such as churches and other type buildings.	Agree, addressed in proposed changes to advertised text at dead load of 4" ; additional relief available as a Special Exception from the BZA..
That a provision similar to that in the Building Code where the entering into a contract with the architect or where a building permit application has been filed prior to the effective date vests the development under the existing regulations.	Disagree, too vague
That the effective date be set far enough in advance that those that are in the midpoint of their planning process can complete that planning process and either file under the new or old regulations.	Agree with an effective date of October 1, 2013.
Confirmation with the Office of the Attorney General whether such regulations are properly a part of the Zoning Regulations.	The GAR has been reviewed through OAG.
In projects which are to be developed in multiple phases, these regulations should apply only to the phase which is currently being constructed.	Agree, addressed in proposed changes to advertised text

EXHIBIT 26 – Holland & Knight for Adams Morgan Hotel

Request that the Commission provide language in Chapter 32 which would grandfather Planned Unit Development applications where the Commission has rendered a decision.	Agree, addressed in proposed changes to advertised text
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EXHIBIT 27 – Holland & Knight for Jemal's Babe's

Request that the Commission provide language in Chapter 32 which would grandfather Planned Unit Development applications where the Commission has rendered a decision.	Agree, addressed in proposed changes to advertised text
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EXHIBIT 28 - DCWATER

<p>The Green Area Ratio multiplier for landscape elements should be greater than one, not less than one. As proposed, the multiplier provides less area than the equivalent square footage outlined in the proposed rulemaking.</p>	<p>Under the GAR scale, when a site achieves 1 this demonstrates 100%, environmental performance achieved.</p>
<p>Municipal wastewater treatment facilities should be exempt from the proposed rulemaking. These facilities, such as Blue Plains, already provide treatment of its stormwater runoff.</p>	<p>Agree, addressed in proposed changes to advertised text</p>

EXHIBIT 29 – DCBIA

<p><u>Phase-In and Implementation</u> We believe transitory period would be appropriate for the GAR regulations.</p>	<p>Agree</p>
<p><u>Vesting and Applicability</u> additional consideration to the applicability of the GAR regulations to projects that have:</p> <ul style="list-style-type: none"> (i) already gone through a zoning or regulatory process (such as a PUD, Design Review, Large Tract Review, or HP Process), (ii) are part of a phased development; (iii) only involve interior renovations; or (iv) are subject to a Campus or Master Plan approval. 	<ul style="list-style-type: none"> (i) Agree, addressed in proposed changes to advertised text (ii) Agree, addressed in proposed changes to advertised text (iii) Disagree; the GAR would apply to a building undergoing interior or exterior renovations, which exceed 100% of the building’s assessed value. (iv) Agree, addressed in proposed changes to advertised text
<p><u>Appropriate Use of Zoning</u></p> <ul style="list-style-type: none"> • Does the Zoning Commission have the legislative authority to adopt the GAR regs? • Are the GAR regs even necessary in light of Green Bldg Act, Environ Policy Act; urban Forest pres Act, and DDOE SWM regulations? • Are the GAR regs consistent with the similar environmental regs? 	<p>Yes, the GAR has been reviewed through OAG.</p> <p>GAR is unique in that it focuses on landscape performance features rather than prescriptive targets. It compliments other regulation rather than replicates.</p> <p>Yes, the GAR is consistent with new stormwater requirements and the new stormwater credit trading program.</p>

ATTACHMENT 2 – Full GAR Proposed Text a Amended

A new Chapter 34, GREEN AREA RATIO, is added to read as follows:

3400	INTRODUCTION TO GREEN AREA RATIO
3401	APPLICABILITY OF GREEN AREA RATIO STANDARDS
3402	CALCULATION OF GREEN AREA RATIO
3403	LANDSCAPE ELEMENT CONDITIONS FOR GREEN AREA RATIO
3404	SUBMITTAL REQUIREMENTS FOR GREEN AREA RATIO
3405	SPECIAL EXCEPTIONS FOR GREEN AREA RATIO
3406	MAINTENANCE REQUIREMENTS FOR GREEN AREA RATIO

Chapter 34 GREEN AREA RATIO

3400 INTRODUCTION TO GREEN AREA RATIO

3400.1 Green Area Ratio (GAR) is the ratio of the weighted value of landscape elements to land area. The GAR score relates to an increase in the quantity and quality of environmental performance of the urban landscape.

3400.2 Green Area Ratio sets integrated environmental requirements for landscape elements and site design that contribute to the reduction of stormwater runoff, the improvement of air quality, and the mitigation of the urban heat island effect.

3400.3 The purposes of the GAR regulations are to:

- (a) Implement a value-based system of requirements for environmental site design that provides flexibility in meeting environmental performance standards; and
- (b) Promote attractive and environmentally functional landscapes.

3400.4 The purpose of this chapter is to:

- (a) Provide general guidance about the regulation of GAR requirements;
- (b) Define the applicability of GAR;
- (c) Set forth the formula for calculating the GAR and define its component parts;
- (d) Identify those landscape elements that are included in the GAR, explain how their area is measured, and set forth eligibility conditions;
- (e) Establish multipliers for each eligible landscape element;
- (f) Indicate what plans and certifications must accompany an application submitted to demonstrate proof of GAR compliance; and

- (g) Establish maintenance requirements for the landscape elements that are provided as part of a property’s GAR requirement.

3401 Applicability of Green Area Ratio Standards

3401.1 The requirements of this chapter shall become applicable October 1, 2013.

3401.2 Pursuant to the conditions and requirements of this chapter, properties, other than one-family detached and semi-detached dwellings, in zones listed in the following table shall provide a GAR as specified in the following table:

ZONE DISTRICT	GREEN AREA RATIO
R-5-A and R-5-B	0.40
R-5-C, R-5-D and R-5-E C-1, C-2-A, C-2-B and C-2-C W-1, W-2, W-3 SP-1, SP-2	0.30
C-3-A, C-3-B	0.25
C-3-C, C-4, C-5, CR and any property within the DDD overlay	0.20
CM-1, CM-2, CM-3 and M, <ul style="list-style-type: none"> • all structures except one story warehouses • one story warehouses 	<ul style="list-style-type: none"> • 0.30 • 0.10

3401.6 The GAR standards set forth in this chapter shall apply to all new buildings requiring a certificate of occupancy and to all existing buildings requiring a certificate of occupancy where any additions, alterations, or repairs within any twelve (12) month period exceed one hundred percent (100%) of the assessed value of the building as set forth in the records of the Office of Tax and Revenue as of the date of the building permit application, except:

- (a) Buildings that do not require certificates of occupancy;
- (b) Municipal wastewater treatment facilities operated by the District of Columbia Water and Sewer Authority; or
- (c) The interior renovation of an existing building that:
 - 1) Is located in the Central Employment Area;
 - 2) Has an existing 100% lot occupancy prior to the filing of the building permit;
 - 3) Has an existing roof that cannot support a dead load of four inches (4 in.) of growth medium on the roof; and

- 4) The work proposed by the building permit application will not result in a roof capable of supporting a dead load of four inches (4 in.) of growth medium on the roof.

3401.7 Notwithstanding §§ 3202.24 and 3401.2, the provisions of this chapter shall not apply to any application for a building permit:

- a) That has been officially accepted by the Department of Consumer and Regulatory Affairs as being complete prior to October 1, 2013 if the building permit plans are consistent; or
- b) Filed on or after October 1, 2013 if the building permit plans are consistent with:
 - 1) An unexpired approval of a planned unit development, variance, special exception, design review under the CG or SEFC overlay, or concept design by the Historic Preservation Review Board or Commission of Fine Arts; provided the vote to approve occurred prior to October 1, 2013;
 - 2) An unexpired approval of a variance, special exception, or design review under the CG or SEFC overlay granted on or after October 1, 2013, for which a public hearing was held prior thereto;
 - 3) An unexpired approval of a planned unit development that was granted after October 1, 2013, but which was set down for a public hearing prior thereto;
 - 4) A Large Tract Review completed prior to July 1, 2012 subject to the following:
 - (E) The application shall be filed no later than July 1, 2014;
 - (F) The application shall be consistent with the conditions of the Large Tract Review;
 - (G) The building shall achieve a GAR of no less than 0.1; and
 - (H) This subparagraph shall expire on July 2, 2014.

3401.8 Any approved change or modification to a permit, project or application in §§ 3401.3 and 3401.4 that results in an increase in impervious surface or lot occupancy of twenty percent (20%) or more shall cause the GAR to be applicable for that portion of a project that is effected by the modification.

3401.3 In addition to meeting the applicable burden for obtaining further processing approval under a campus plan to construct or add to a building, the college or university applicant shall demonstrate the extent to which the building or addition meets the GAR standards. Further processing approval shall include the determination by the Zoning Commission that the proposed building is compliant with the intent of the GAR regulations.

3401.4 A historic resource and any additions thereto are exempt from the requirement of this chapter as a result of a change of use or an increase of intensity of use, except that this chapter shall be applicable when any addition results in an increase in the gross floor area of the historic resource by 50% or more. For the purposes of this chapter a “historical resource” is a building or structure listed in the District of Columbia Inventory of Historic Sites or a building or structure certified in writing by the State Historic Preservation Officer as contributing to the character of the historic district in which it is located.

3401.5 The cost basis for additions, alterations or repairs to an existing building shall be the amount indicated by the applicant on the application for a building permit.

3402 CALCULATION OF GREEN AREA RATIO

3402.1 The GAR shall be calculated using the following formula:

$$\text{GAR} = \frac{(\text{area of landscape element 1} \times \text{multiplier}) + (\text{area of landscape element 2} \times \text{multiplier}) + \dots}{\text{Lot Area}}$$

3402.2 For the purposes of the above formula and the remainder of this chapter:

- (a) The term “landscape element” refers to one of the elements listed in the table in § 3402.9, and will be hereafter referred to as “landscape element” or “element;”
- (b) The term “multiplier” refers the number listed the Table in § 3402.9 that corresponds to a “landscape element”; and
- (c) The “area of landscape element” shall be the square feet of a landscape element, unless the element is a tree or large shrub, in which case “area of landscape element” refers to the element’s equivalent square footage as indicated in § 3402.7.

3402.3 The process for calculating a property’s GAR under the formula is as follows:

- (a) The area of each landscape element is multiplied by its corresponding multiplier;
- (b) The resulting numbers for all landscape elements are added together;
- (c) The resulting point total is then divided by the total land area of the lot; and

(d) The product of the equation equals the property’s GAR.

3402.4 The total points for all permeable paving and enhanced tree growth credits may not count for more than one-third (1/3) of the GAR score for a lot.

3402.5 If multiple landscape elements occupy the same area, for example groundcover under a tree or trees and shrubs on an intensive green roof, the full square footage or equivalent square footage of each element may be counted.

3402.6 A landscape element must meet the eligibility conditions of § 3403.

3402.7 Equivalent square feet of tree canopy and large shrubs are identified in the table below.

GREEN AREA RATIO LANDSCAPE ELEMENTS	EQUIVALENT SQUARE FOOTAGE
Plants, not including grasses, at least 2 feet tall at maturity	9 s.f. per plant
Tree canopy for trees 2.5 inches to 6 inches in diameter	50 s.f. per tree
Tree canopy for trees 6 inches to 12 inches in diameter	250 s.f. per tree
Tree canopy for trees 12 inches to 18 inches in diameter	600 s.f. per tree
Tree canopy for trees 18 inches to 24 inches in diameter	1300 s.f. per tree
Tree canopy for trees larger than 24 inches in diameter	2000 s.f. per tree

3402.8 Landscape elements of the GAR shall be measured in the following ways:

- (a) All trees shall be measured for diameter at a height four feet, six inches (4 ft. 6 in.) above grade when planted and the square footage equivalent based on diameter shall be as established in the table in § 3402.7;
- (b) For vegetated walls, use the vertical square footage of the portion of the wall covered by vegetation; and
- (c) For all other elements other than trees, large shrubs, perennials, and vegetated walls, square footage is determined by the area of a horizontal plane that is over the element.

3402.9 Eligible landscape elements are identified in the table below:

GREEN AREA RATIO LANDSCAPE ELEMENTS	MULTIPLIER
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GREEN AREA RATIO LANDSCAPE ELEMENTS	MULTIPLIER
Landscaped area (select one of the following for each area)	
Landscaped areas with a soil depth of less than 24 inches	0.3
Landscaped areas with a soil depth of 24 inches or more	0.6
Bioretention facilities	0.4
Plantings	
Ground covers, or other plants less than 2 feet tall at maturity	0.2
Plants , not including grasses, at least 2 feet tall at maturity	0.3
Tree canopy for all trees 2.5 inches to 6 inches in diameter	0.5
Tree canopy for new trees 6 inches in diameter or larger	0.6
Tree canopy for preservation of existing trees 6 inches to 24 inches in diameter	0.7
Tree canopy for preservation of existing trees 24 inches diameter or larger	0.8
Vegetated wall, plantings on a vertical surface	0.6
Vegetated roofs	
Extensive vegetated roof over at least 2 inches but less than 8 inches of growth medium	0.6
Intensive vegetated roof over at least 8 inches of growth medium	0.8
Permeable paving	
Permeable paving over at least 6 inches and less than 2 feet of soil or gravel	0.4
Permeable paving over at least 2 feet of soil or gravel	0.5
Other	
Enhanced tree growth systems	0.4
Renewable energy generation (area of)	0.5
Water features (using at least 50% recycled water)	0.2
Bonuses	
Native plant species listed in §3403.9	0.1
Landscaping in food cultivation	0.1
Harvested stormwater irrigation	0.1

3403 LANDSCAPE ELEMENT CONDITIONS FOR GREEN AREA RATIO

3403.1 No landscape element may be counted towards a property's GAR unless it meets the applicable conditions stated in this section.

3403.2 Plantings over the specified soil depths shall meet the required conditions listed in the Table of Landscape Elements and Multipliers in § 3402.9.

3403.3 Bioretention facilities shall be landscaped areas that receive rainwater from surrounding areas and use plants and soils to slow, filter, and infiltrate stormwater runoff. Bioretention facilities include but are not limited to rain or rainwater gardens, bioretention planters, ~~Baysavers~~, or linear cells or swales. These do not include structures made of cement or concrete alone.

3403.4 Trees shall meet the following conditions:

- (a) All trees shall be at least two and one-half inches (2.5 in.) in diameter measured at a height four feet, six inches (4 ft. 6 in.) above grade when planted and shall be replaced if damaged or killed by any cause; and
- (b) All trees shall meet the American Standard for Nursery stock, as set forth by the American Nursery and Landscape Association.

3403.5 Vegetated walls shall meet the following conditions:

- (a) The maximum calculated vertical dimension shall not exceed thirty feet (30 ft.) unless the vegetated wall features a built-in growth medium;
- (b) The area calculated for the vegetated wall features shall be fully covered within a period of two (2) to five (5) years from planning;
- (c) The area calculated is the ground coverage area, not the total plant growth area;
- (d) The walls shall be at least five feet (5 ft.) from a side or rear lot line; and
- (e) Where stormwater harvesting for irrigation is proposed, vegetated walls shall contain a connection to the proposed irrigation system.

3403.6 Vegetated roofs shall meet the following conditions:

- (a) Designs for vegetated roofs must include plans to provide supplemental water;
- (b) Where stormwater harvesting for irrigation is proposed, vegetated roofs shall contain a connection to the proposed irrigation system; and
- (c) The groundcover vegetation on a vegetated roof is not additionally eligible for groundcover value towards GAR requirements.

- 3403.7 Water features shall meet the following conditions:
- (a) Water features must use harvested rainwater for at least fifty percent (50%) of the annual flow; and
 - (b) The water features must be under water for at least six (6) months out of twelve (12).
- 3403.8 Enhanced tree growth systems shall meet the following conditions:
- (a) Be at least twenty-four inches (24 in.) deep, under pavement, and adjacent to planting areas; and
 - (b) Be composed of soils that are not considered contaminated or compacted according to federal SUPERFUND [add citation] legislation.
- 3403.9 Native plant species shall meet the following conditions:
- (a) The plants are listed in the U.S. Fish and Wildlife Service’s Native Plants for Wildlife Conservation Landscaping: Chesapeake Bay Watershed guide; or
 - (b) The applicant provides two (2) references in current publications showing that the plant is native to the region; and
 - (c) The plant is not listed on the U.S. Fish and Wildlife Service’s list of Plant Invaders of Mid-Atlantic Natural Areas.
- 3403.10 Food cultivation shall meet the following conditions:
- (a) All food cultivation areas must be easily accessible to at least one occupant of the building;
 - (b) All food cultivation areas must have a source of water that can reach all portions of the food cultivation area; and
 - (c) The cultivation of animals for food is not eligible for GAR credits.
- 3403.11 Harvesting stormwater for irrigation shall meet the following conditions:
- (a) If the irrigation type is spray, applicants shall follow treatment standards set forth in the current District Department of Environment’s Stormwater Management Guidebook; and
 - (b) If the irrigation type is drip, no additional treatment of stormwater is required.

3404 SUBMITTAL REQUIREMENTS FOR GREEN AREA RATIO

- 3404.1 This section lists the submittal requirements for demonstrating compliance with a GAR requirement.

- 3404.2 For the purposes of this section, the term Certified Landscape Expert means a person who is a:
- (a) State of Virginia certified landscape architect;
 - (b) State of Maryland certified landscape architect;
 - (c) International Society of Arboriculture Certified Arborist;
 - (d) Maryland’s certified Professional Horticulturist; or
 - (e) Landscape Contractors Association MD-DC-VA Certified Landscape Technician;
- 3404.3 Applicants shall submit a GAR score sheet with the GAR calculated for the given lot at the time of building permit application.
- 3404.4 Applicants shall provide a landscape plan prepared by a Certified Landscape Expert that includes the following information:
- (a) GAR elements called out by category and area, which may be provided as a part of the landscape plan or as a separate document;
 - (b) Lot dimension and size;
 - (c) Location and areas of all landscape elements with dimensions;
 - (d) Location, size, and species of all plants used to meet requirements;
 - (e) Both common and botanical names of all plant material;
 - (f) Identification of all existing trees that are to be preserved, with their location, trunk diameter at four feet, six inches (4 ft. 6 in.) above grade, canopy radius, and species;
 - (g) Plans indicating how preserved trees and other plants will be protected during demolition and construction;
 - (h) Location and dimensions of wheel stops, curbs, or other devices to protect landscaping for landscaped areas adjacent to driveways;
 - (i) A schematic irrigation and drainage plan and the size and depth of all plant containers for rooftop or container landscaping or areas to be irrigated with rainwater;
 - (j) Location and size of any trees to be removed;
 - (k) Specifications for soil improvement; and
 - (l) Signature of the Certified Landscape Expert who prepared the plans together as verification that plantings and other landscape elements meet the requirements of the this chapter.

- 3404.5 Applicants shall provide a landscape maintenance plan prepared and signed by a Certified Landscape Expert that describes how the plantings, water features and hardscape features will be cared for and maintained including:
- (a) Soil preparation;
 - (b) Use of compost;
 - (c) Plant replacement;
 - (d) Irrigation;
 - (e) Weed and pest control; and
 - (f) Control of noxious or invasive species.
- 3404.6 The following modifications or substitutions to the landscape elements of an approved landscape plan require a plan revision and approval:
- (a) Number of trees, shrubs, or groundcovers;
 - (b) Location of required plantings or landscape features;
 - (c) Substitution of species; or
 - (d) Revisions of any feature that could decrease the planting area or lower the GAR score.
- 3404.7 Except as provided below, approved landscape elements shall be installed in accordance with the approved plan prior to the issuance of the certificate of occupancy.
- 3404.8 Prior to the issuance of the certificate of occupancy, a landscape checklist must be signed by a Certified Landscape Expert, verifying that that landscaping was installed according to the building permit approved by DCRA.
- 3404.9 The Zoning Administrator may grant a temporary certificate of occupancy when installation of the required landscaping is not currently possible due to weather, season or site construction subject to the condition that the required landscaping must be installed within four (4) months after the date the temporary certificate is issued.
- 3404.10 The Zoning Administrator may grant up to two (2) extensions of a temporary certificate of occupancy, each for a four (4) month period by based on the same conditions of § 3004.9.
- 3405 SPECIAL EXCEPTIONS FOR GREEN AREA RATIO
- 3405.1 The Board of Zoning Adjustment may grant, by special exception, a full or partial reduction in the GAR required under this chapter if, in addition to meeting the general

requirements of § 3104, the applicant demonstrates that providing the GAR is impractical as a result of equivalent sustainability measures already being implemented on the property that achieve the intent of the GAR through methods not available through the GAR requirement.

3406 MAINTENANCE REQUIREMENTS FOR GREEN AREA RATIO

3406.1 All plantings and landscape elements used to calculate a property's GAR must be maintained for the life of the project. If, for any reason, the installed landscape elements fall below the minimum required GAR score, new eligible landscape elements shall be added to compensate and result in the required ratio. These elements are not required to be the same as the submitted plans, so long as the GAR achieved is equivalent.