

Case Study : 1433 T Street NW

- How Would it Work?
- R-5-B zone
- Existing conditions: GAR of 0.23
- With permeable paving: GAR of 0.325
- Or green roof: GAR of 0.438
- Both: GAR of 0.532



ZONING COMMISSION
District of Columbia
CASE NO. 08-06
EXHIBIT NO. 38

Contact

- Questions?
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Green Area Ratio: What's Next?

- Next Steps
 - Flesh out Administrative process & responsibilities
 - Finalize city-wide research to determine GAR for all zones
 - Develop accurate costing model for implementation
- Long Term
 - Training of Program administrators, inspectors
 - Develop educational materials and training for developers and the public
 - Step by Step instructions
 - Webinars
 - Sample implementation
 - Establish tracking system for projects
 - Obtain funding for interactive online weighting tools or 'find a BMP' databases

GAR Sample Scoresheet

- Landscape elements
 - Allowed to double count plant and soil depth
 - Different values for different size plants
 - Includes permeable paving
 - Includes green roofs
 - Includes bonus for native plants
 - Bonuses for food cultivation

Worksheet

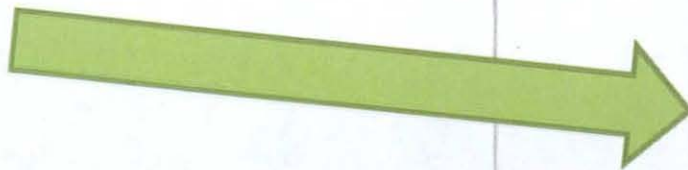
Landuse Subtitles: GAR Development Standards Chart

Contains: GAR for each zone

100.1

The development regulations, standards, rules of measurement, and conditions identified in the table below shall apply to the C-1 zone:

REGULATORY TOPIC	STANDARD OR PERMISSION	REFERENCES TO RULES OF MEASUREMENT		REFERENCES TO CONDITIONS
Height				
Max. FAR				
Residential or Public School Max. FAR				
Non-residential Max. FAR				
Bonus Density				
Rear setback	20 ft.	Abutting alley §G-101.3	No alley §G-101.2	
Side setback	-			
Green Area Ratio				
Plaza Requirements				



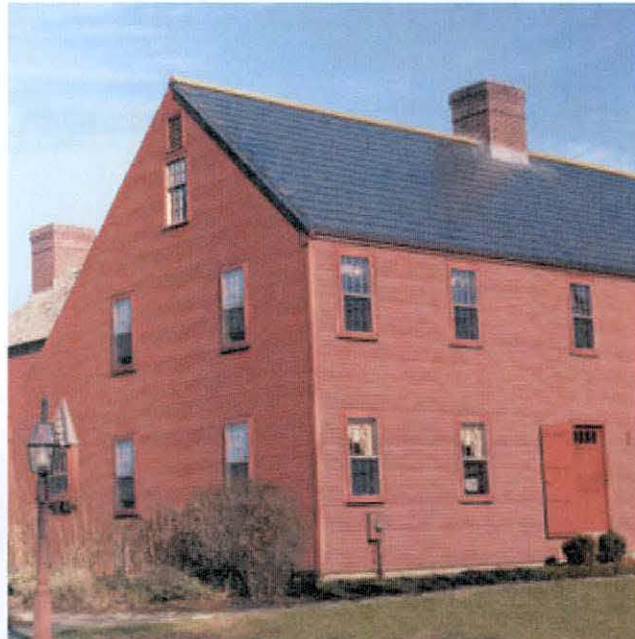
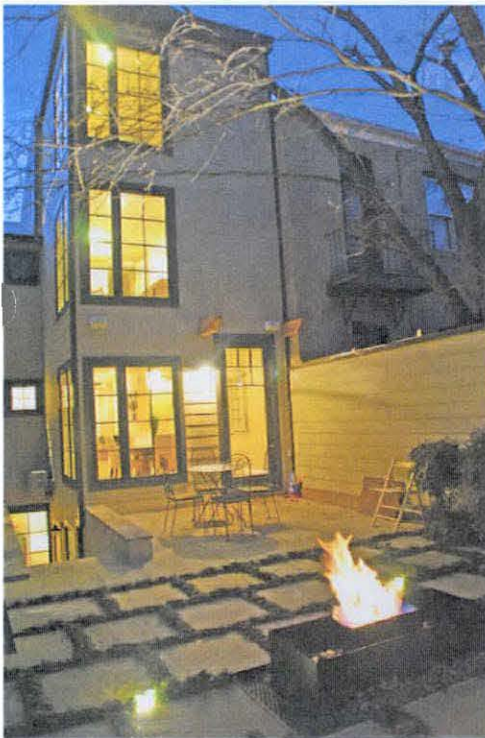
1307. Maintenance Requirements for GAR

- To ensure that environmental performance is achieved



1306. Special Exception for GAR

- Allow flexibility for our historic sustainable fabric
- DC has thousands of historic homes

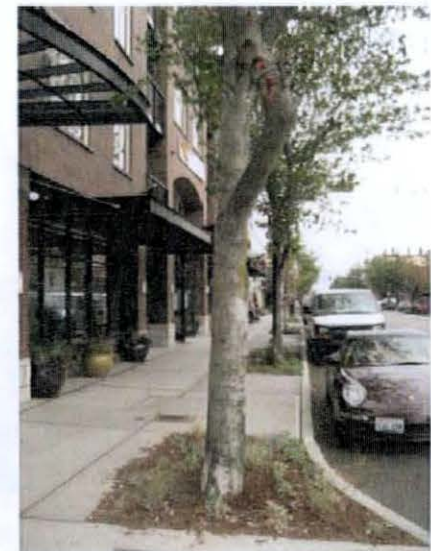
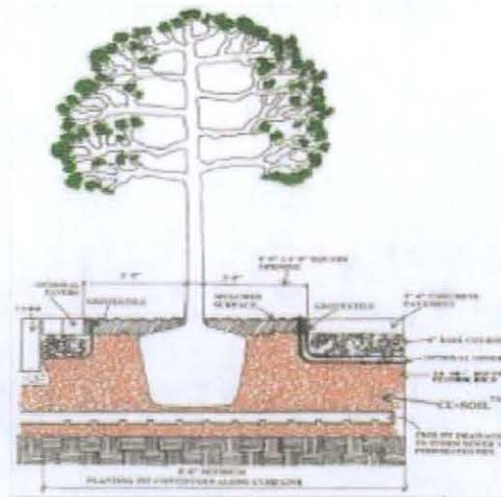


1305. Submittal Requirements for GAR

- 1305.2 Requires certified landscape experts
 - Suggestions for additions or changes to list?
- Submit landscape plan with typical elements
- Flexibility for weather, seasons, reasonable changes

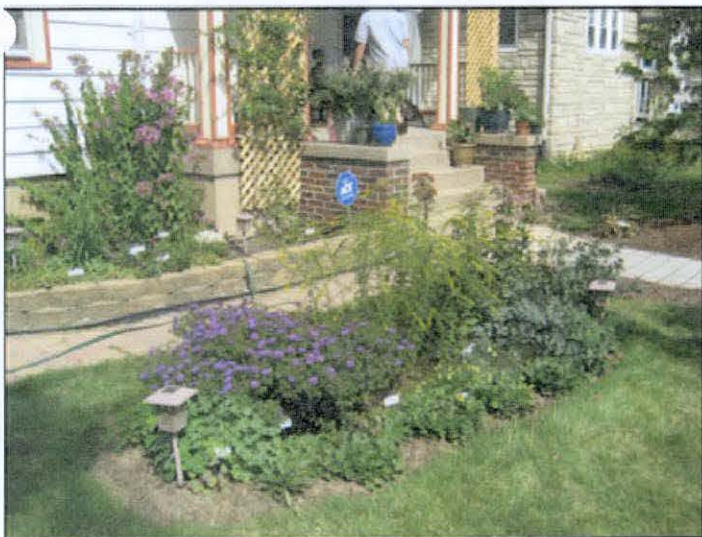
1304. Landscape element eligibility conditions for GAR

- Water features – fountains, etc.
- Enhanced tree growth – options like structural soils
- Native plant species – same standard as DDOE
- Food cultivation – encouraging city-wide goals
- Stormwater irrigation – based on DDOE input



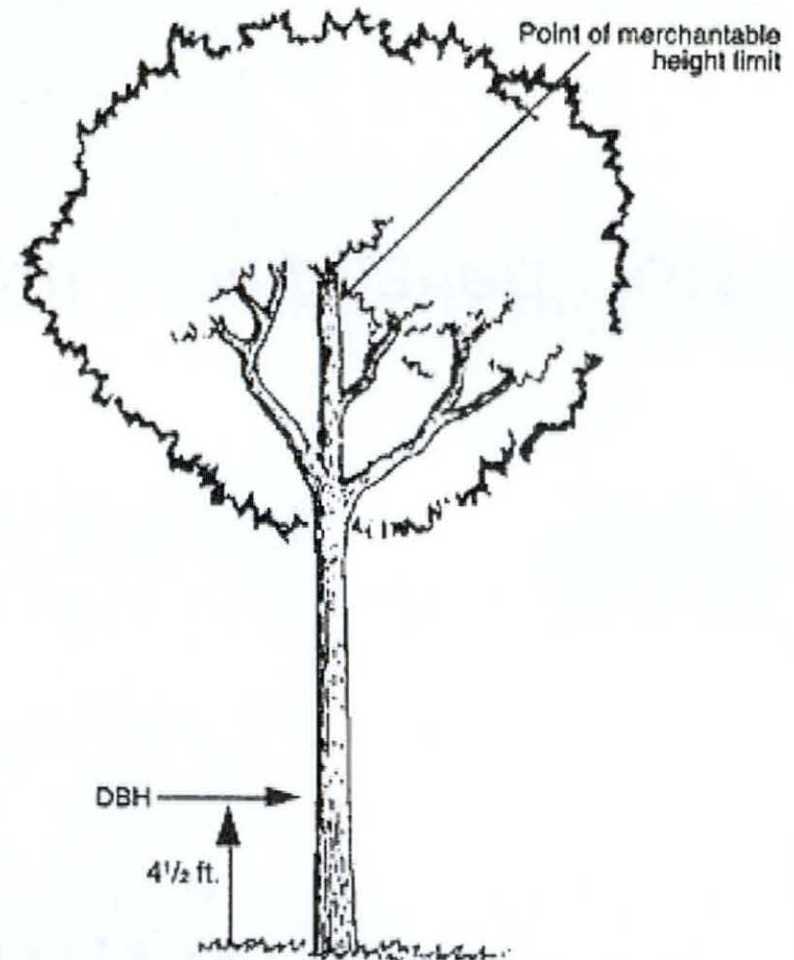
1304. Landscape element eligibility conditions for GAR

- Bioretention = rain gardens
- Trees – set to same standards as used by DDOT Trees
- Vegetated walls – further specifics on how to measure
- Vegetated roofs – watering, and when a roof is a roof



1303. Calculation of GAR

- 1303.7 Sf equivalencies for plants & trees
 - Why? Because trees are not uniform and can be difficult to measure



Common reference points used to measure standing trees.

1303. Calculation of GAR

- 1303.3 How to measure landscape elements
 - Intended to clarify how eligible landscape elements can be measured for GAR
- 1303.4 Intended to prevent “fully paved” lots



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	
Mulch, ground covers, or other plants less than 2 feet tall at maturity	0.5
Plants at least 2 feet tall at maturity	0.3
Tree canopy for all trees 2.5 inches (2.5 in.) to 8 inches (in.) in diameter	0.4
Tree canopy for new trees 8 inches (in.) in diameter or larger	0.5
Tree canopy for preservation of existing trees 8 inches (8 in.) to 24 inches (24 in.) in diameter	0.7
Tree canopy for preservation of existing trees 24 inches (24 in.) diameter or larger	0.8
Green wall, plantings on a vertical surface	0.6
Vegetated roofs	
Extensive vegetated roof over at least 2 inches but less than 4 inches of growth medium	0.3
Intensive vegetated roof over at least 4 inches of growth medium	0.4
Water features (using at least 50% recycled water)	0.2
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
Enhanced tree growth systems	0.4
Bonuses	
Native plant species	0.1
Landscaping in food cultivation	0.1
Harvested stormwater irrigation	0.1

1303. Calculation of GAR

- 1303.2 Landscape element options, and GAR values
 - Developed based on combination of Seattle and Dr. Keeley's research
 - Multiplier values set by working with Dr. Keeley & DDOE
 - Bonuses developed to aid in other city-wide goals

1303. Calculation of GAR

- Info used to calculate GAR
- Landscape element options, and GAR values
- How to measure landscape elements
- Sf equivalencies for plants & trees
- Technical calculation of GAR

1302. Applicability of GAR Standards

- Applies to all new buildings requiring a C of O
 - i.e. no single family homes
- Applies to all renovations over 100% assessed value
- Lot size no longer a determining factor
- Will apply different GAR scores in different zones

1301. Relationship to Landuse Subtitles

- Explains that standards in Subtitle B are general, and that zone-specific requirements will be located in Landuse Subtitles

1300. Introduction to GAR regulation

- Explains what the GAR is
 - “*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. “
- Explains why the GAR is being implemented
 - Achieve environmental performance
 - Meet city-wide environmental goals

Green Area Ratio Chapter

1300. Introduction to GAR Regulations

1301. Relationship to land use subtitles

1302. Applicability of GAR standards

1303. Calculation of GAR

1304. Landscape element eligibility conditions for GAR

1305. Special exceptions for GAR

1306. Submittal requirements for GAR

1307. Maintenance requirements for GAR



GAR Chapter

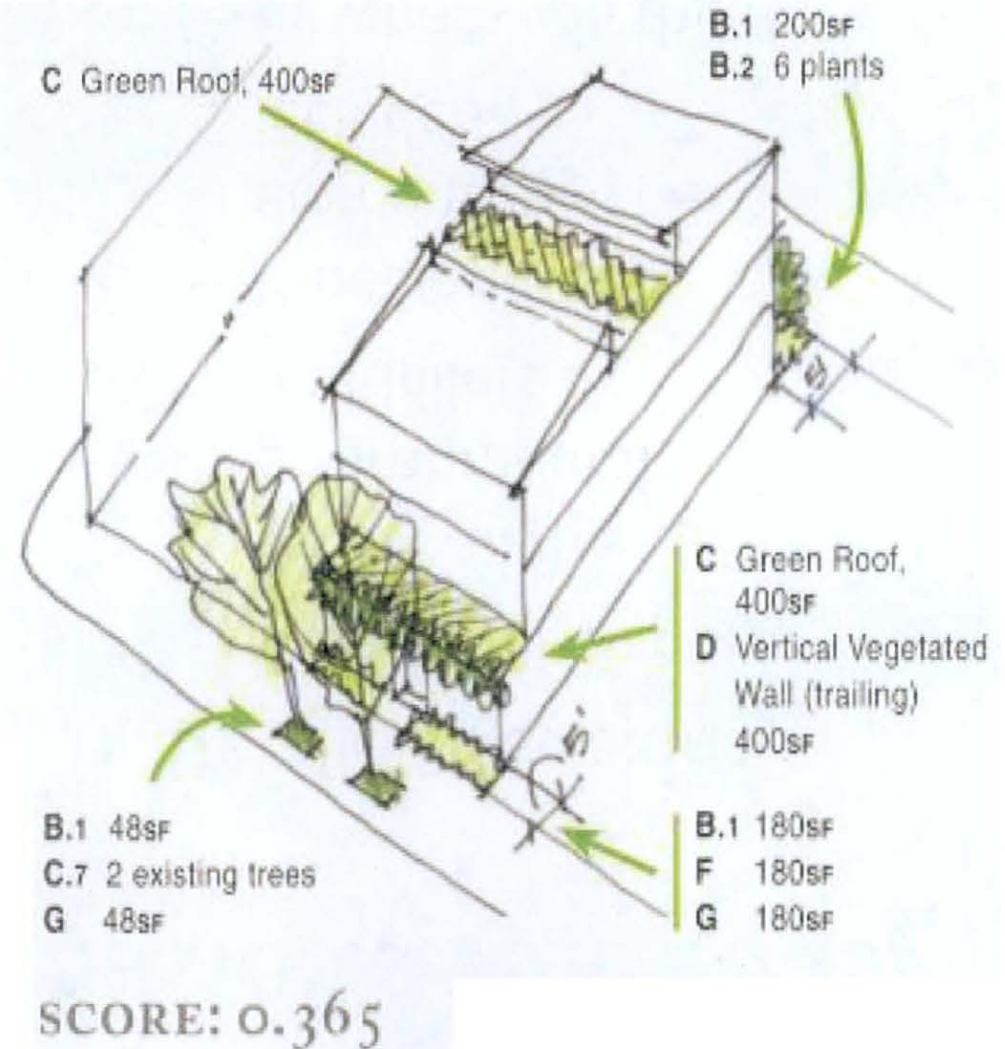
GAR: Recommendations to Reality

- Sample sites for proof of concept testing by zone and building type
- Costing estimates for proof of concept testing
- Discussions with DCRA, DDOE, DDOT
- Many decisions on program details
- Detailed Decisions
 - Where will it apply
 - What will the environmental multipliers be
 - What landscape elements will be included
 - By whom will the projects be certified

GAR: How Will it Work?

How to calculate:

- Add up landscape elements by number or size
 - # trees
 - Size of green roof
 - Size of rain garden
 - # of plants
 - Soil depths
- **Divide by lot area**
- **= GAR score**



Green Area Ratio

What is it?

- A flexible green site design requirement that varies by zone.

How Achieve?

- Choose from a range of environmental landscaping practices each of which have been assigned an environmental performance ranking.

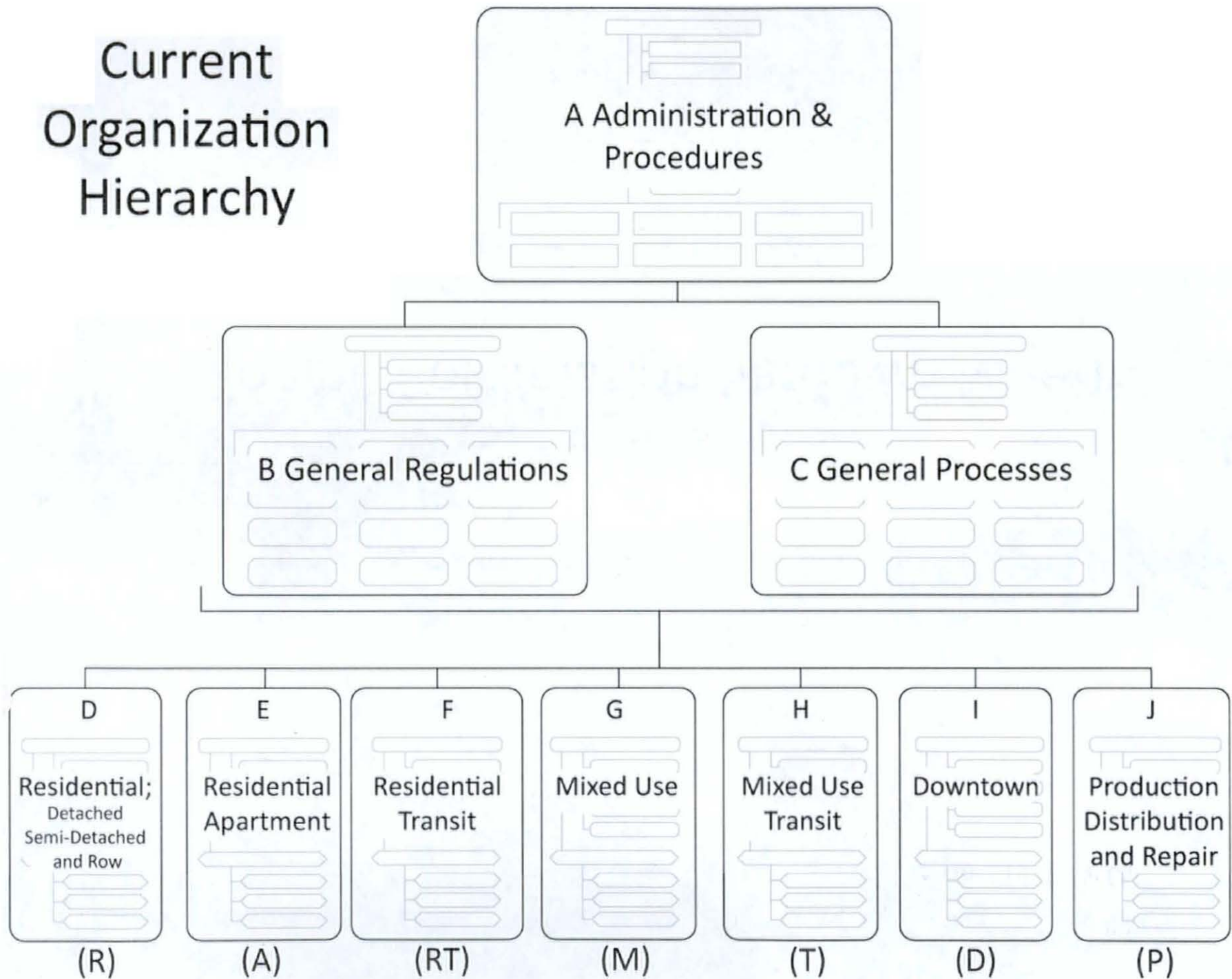
Examples may include...

- Impermeable pavement
- Impermeable roof
- Turf grass
- Un-vegetated permeable pavement
- Vegetated permeable pavement
- Green roofs
- Natural ground cover
- Rain gardens
- Trees & shrubs
- Green facades

Sustainability: GAR

- Sustainability Working Group – Nov. 2008 – Feb. 2009
- Recommendations – combined green roofs, pervious surfaces, native/low-water landscaping, tree planting and preservation
- Task Force – March 2009
- Feedback from ZC – March 25, 2009, May 2009, June 2009

Current Organization Hierarchy



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Zoning Commission Setdown Meeting

October 18, 2010