

# CITY OF DECATUR UNIFIED DEVELOPMENT ORDINANCE

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## Section 10.1.6 - High Performance Building Standards

# AGENDA

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Introductions

What, when, and why?

Applicability

Accepted Building Standards

City requirements for single family and multifamily

Pilot study

Q & A

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# INTRODUCTIONS

# WHAT AND WHEN?

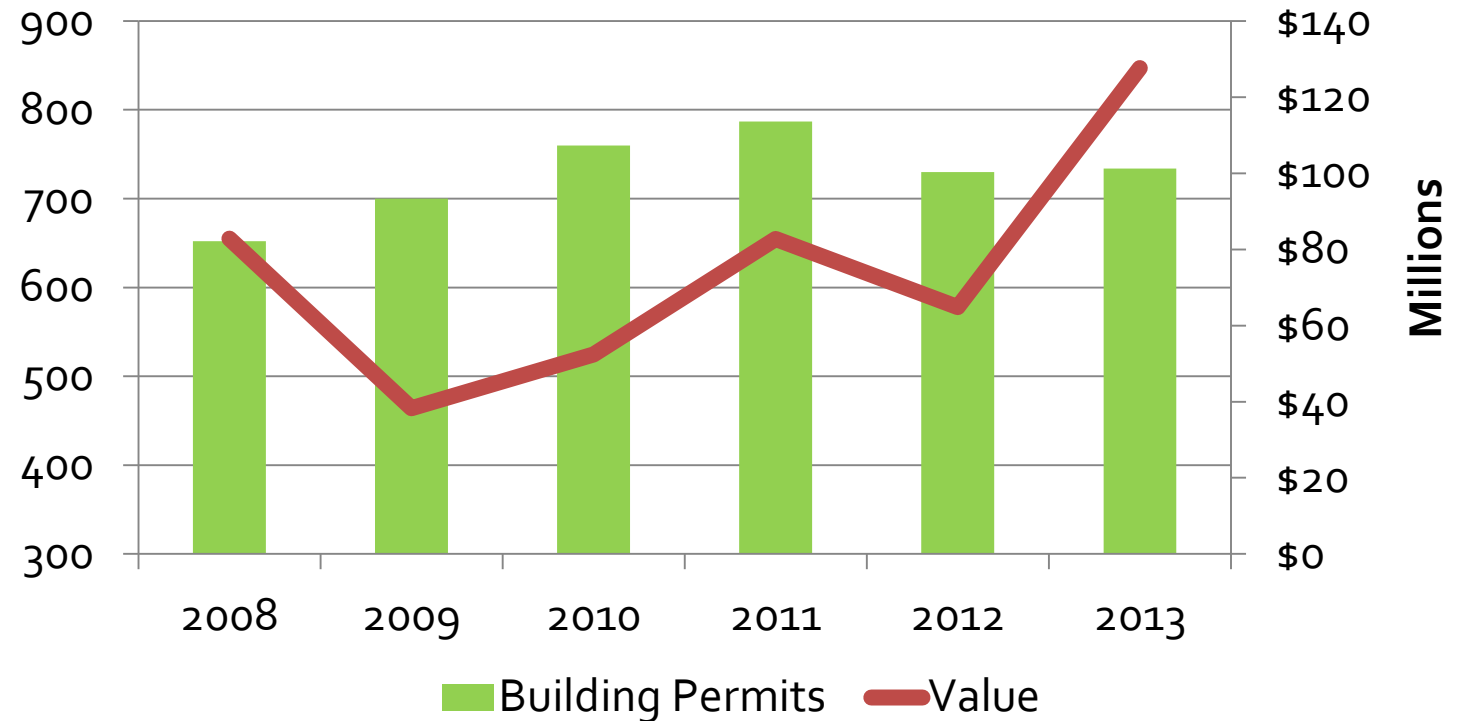
**What?** City of Decatur recently passed a unified development ordinance (UDO) requiring green building certification for all new buildings and most renovations — both residential and commercial.

**When?** November 2015



# WHY?

The High Performance Building Standard was adopted to move the City and its residents into a more sustainable, better building quality, and create an overall improvement to the quality of human life.



# BENEFITS OF A HIGH PERFORMING HOME

- Improved indoor air quality
- Increased quality of life
- Lower utility costs
- Improved resale value

# BENEFITS: IMPROVED INDOOR AIR QUALITY

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- Higher standards for building filtration and tightness
- No/Low VOC material specifications

## Benefits:

- 63% more symptom free days for children with asthma
- Fewer headaches
- Reduced allergies
- Lower stress levels

# BENEFITS: INCREASED QUALITY OF LIFE

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- Daylight access
- Connection to natural environment

## Benefits:

- Improved test scores
  - 20-26% improvement in student learning rates in classrooms with most sunlight
- Improved progress
  - 15% faster in math and 23% fast in reading
- Enhanced sense of place and community
  - Front porches provide areas to socialize
  - High ceilings allow heat to rise



# BENEFIT: LOWER UTILITY COSTS

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- Energy and water efficient appliances
- Energy efficient building design and building practices

## Benefits:

- Reduced annual utility bill
  - Average of \$150-\$400 annually depending on certification

# BENEFITS: IMPROVED RESALE VALUE

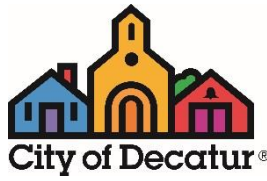
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- Higher building quality standards

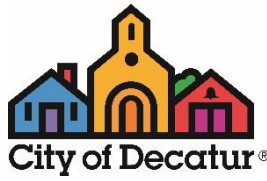
Benefits:

- 60% of home buyers desire energy efficient amenities in their next home
- Faster sale of homes

# THE CITY'S BUILDINGS ARE GOING GREEN TOO!



# APPLICABLE TO:

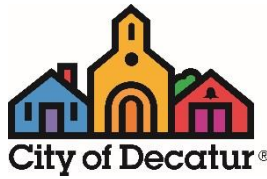


Single-Family/Two-Family Residential	Multifamily Residential	Commercial & Public (>3,000 sq.ft.)
New construction	Low-rise new construction or substantial improvement	New construction
Substantial improvement*	Mid-rise new construction or substantial improvement	Substantial improvement where gross floor area of project exceeds 10% of total building gross floor area
	High-rise new construction or substantial improvement	

**Substantial improvement:** any combination or repairs, reconstruction, alteration or improvements to a building where the cost of the construction exceeds 50% of the fair market value of the structure prior to improvement.

\* Pending results of pilot study

# ACCEPTED BUILDING STANDARDS



Single-Family/Two-Family Residential	Multifamily Residential	Commercial & Public (>3,000 sq.ft.)
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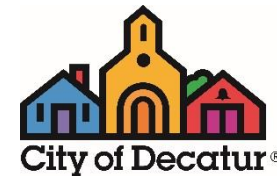


# EARTHCRAFT

- Greater Atlanta Home Builders Association program
- Designed and developed by Southface for the Southeastern states' hot and humid climate
- Points based system with 3 levels of certification
- On site verification and testing by Technical Advisor
- Provides framework for design, construction, operations and maintenance
- Flexible to all building types – residential to commercial



# LEED: LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN



- Internationally recognized and developed by the USGBC
- Points based system with 4 levels of certification
- Provides framework for design, construction, operations and maintenance
- Third-party verification via a Green Rater for single family
- Flexible to all building types – residential to commercial





# NGBS – NATIONAL GREEN BUILDING STANDARD

- Administered by Home Innovation Research Labs
- Flexible to some building types – residential, multifamily, and land development
- More self directed, therefore requires a higher level of certification (Silver)
- Adopted as a permissive code in the State of Georgia and amended by the City of Decatur





# GREEN GLOBES

- Administered by Green Building Initiative
- Flexible to all commercial construction
- More self directed, therefore requires a higher level of certification (3 Globes)
- Like EarthCraft – it uses modeling
- Path to Certification similar to EarthCraft (faster than LEED)



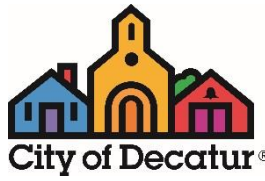
# A STEP BY STEP APPROACH TO COMPLIANCE

1. Choose a high performance building standard that works the best with your project.
2. Schedule a pre-application meeting with city of Decatur DEC staff.
3. Determine what you will need to reach certification.
  - Contractor certifications and third-party verifiers.
4. Contract with provider and register the project with the certification body.

# A STEP BY STEP APPROACH TO COMPLIANCE

5. Contractor and Verifier to plan the path to compliance prior to building permit submittal.
6. Permits will not be issued until a path to compliance has been chosen and the required documentation is submitted.
7. Contractor and Verifier reviews/inspects project during construction.
8. Projects are certified by Verifier. Certificate of Occupancy will not be issued until project provides documentation requirements.

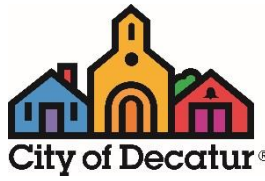
# PERMITTING STAGE CITY REQUIREMENTS



## Earth Craft House: Documentation Required at Permitting

- Project Registration Confirmation
- Preliminary Worksheet
- TA verifier contact information
- Manual J and load calculation

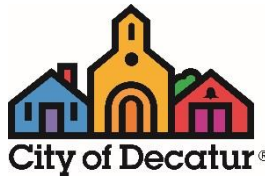
# PERMITTING STAGE CITY REQUIREMENTS



## LEED for Homes, Low Rise, and Mid Rise Residential: Documentation Required at Permitting

- Project Registration Receipt from the US Green Building Council
- Green Rater Contact information
- GC LEED requirements included in the CD's
- Preliminary LEED for Homes Checklist indicating that the project is tracking sufficient points for Certification
- Manual J load calculation

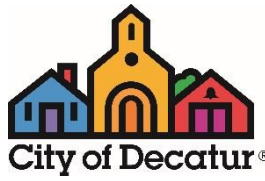
# PERMITTING STAGE CITY REQUIREMENTS



## National Green Building Standard: Documentation Required at Permitting

- Project Registration Confirmation for Silver Certification level (including Project ID)
- Green Rater Contact Information
- NGBS Scoring Sheet indicating that the project is tracking for Silver or higher level certification
- ACCA Manual J load calculation

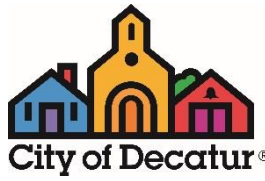
# PERMITTING STAGE CITY REQUIREMENTS



## Earthcraft for Home Renovation: Documentation Required at Permitting

- Registration Confirmation
- ECTA Contact Information
- Preliminary EarthCraft Worksheet
- EarthCraft Renovation Home Assessment Report

# PERMITTING STAGE CITY REQUIREMENTS

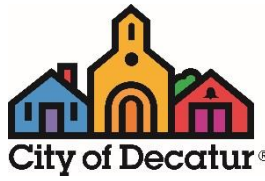


## Earthcraft Multifamily: Documentation Required at Permitting

- Registration Confirmation
- ECTA Contact Information
- Preliminary EarthCraft Worksheet
- ACCA Manual J load calculation



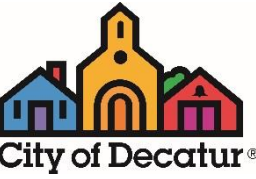
# CONSTRUCTION STAGE CITY REQUIREMENTS



## All Programs

- The 3<sup>rd</sup> party verifier will indicate on the building permit and set of plans the completion of each phase of the verification process.
- See the flowchart for each certification program for details.

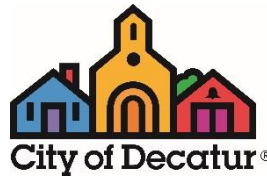
# CERTIFICATE OF OCCUPANCY STAGE CITY REQUIREMENTS



## Earth Craft Home and Renovation: Documentation Required at CO

- Final Sign Off
- Final EarthCraft Worksheet showing point achievement for certification
- Certificate from EarthCraft or Letter from Technical Advisor verifying that the project:
  - Has met all program pre-requisites
  - Is on track for certification
- Confirmed HERS Index, if applicable
- A list of any outstanding credits/documentation needed to achieve certification

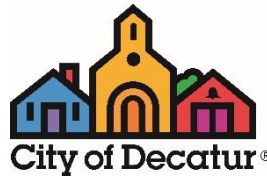
# CERTIFICATE OF OCCUPANCY STAGE CITY REQUIREMENTS



## LEED for Homes: Documentation Required at CO

- At minimum, Final Design Review comments from USGBC (Construction Review comments if available)
- Affidavit confirming post-construction certifications will be achieved from:
  - LEED Provider
  - General Contractor
- Post CO compliance certification document

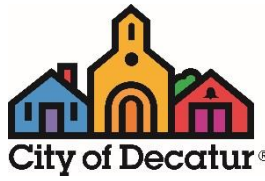
# CERTIFICATE OF OCCUPANCY STAGE CITY REQUIREMENTS



## National Green Standards: Documentation Required at CO

- Final Sign Off
- Final NGBS Scoring Sheet
- Certification from HIRL or Letter from NGBS Verifier verifying that the project:
  - Has met all program pre-requisites
  - Is on track for Silver or higher certification
- Confirmed HERS Index, if applicable
- A list of any outstanding work/credits/documentation needed to achieve certification

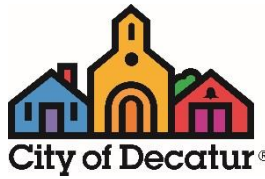
# CERTIFICATE OF OCCUPANCY STAGE CITY REQUIREMENTS



## Earthcraft Multifamily: Documentation Required at CO

- Final Sign Off
- Final EarthCraft Worksheet reaching certification
- Certificate from EarthCraft or Letter from ECTA verifying that the project:
  - Has met all program pre-requisites
  - Is on track for certification
- Confirmed HERS Index, if applicable
- A list of any outstanding credits / documentation needed to achieve certification

# SINGLE FAMILY & TWO FAMILY RESIDENTIAL CITY REQUIREMENTS



## New construction:

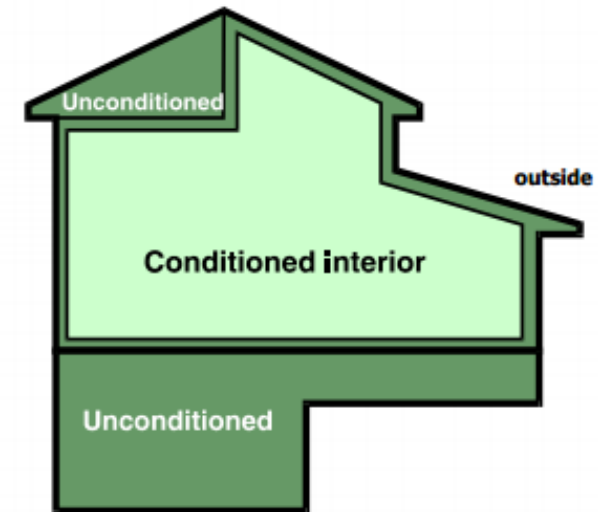
- Envelope and duct tightness verification via duct envelope testing process (DET) in accordance with Georgia Residential Energy Code
  - *Results should be higher than current standard – 5 ACH50*

## Substantial improvement:

- Must comply with thresholds as outlined in the Georgia Residential Energy Code
  - *Results – 7 ACH50 as of 2014*

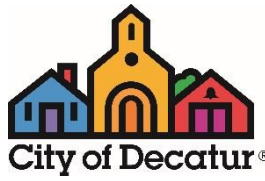
## Whole house as a system:

- **Building Envelope**
  - Continuous air barrier
  - Complete insulation coverage
- **Proper Heating and Cooling Systems**
- **Controlled Ventilation**
- **Don't forget moisture!**



The *building thermal envelope* separates conditioned space from unconditioned (or outside) and consists of two elements: an air barrier & insulation that must be continuous and touching

# SINGLE FAMILY & TWO FAMILY RESIDENTIAL CITY REQUIREMENTS



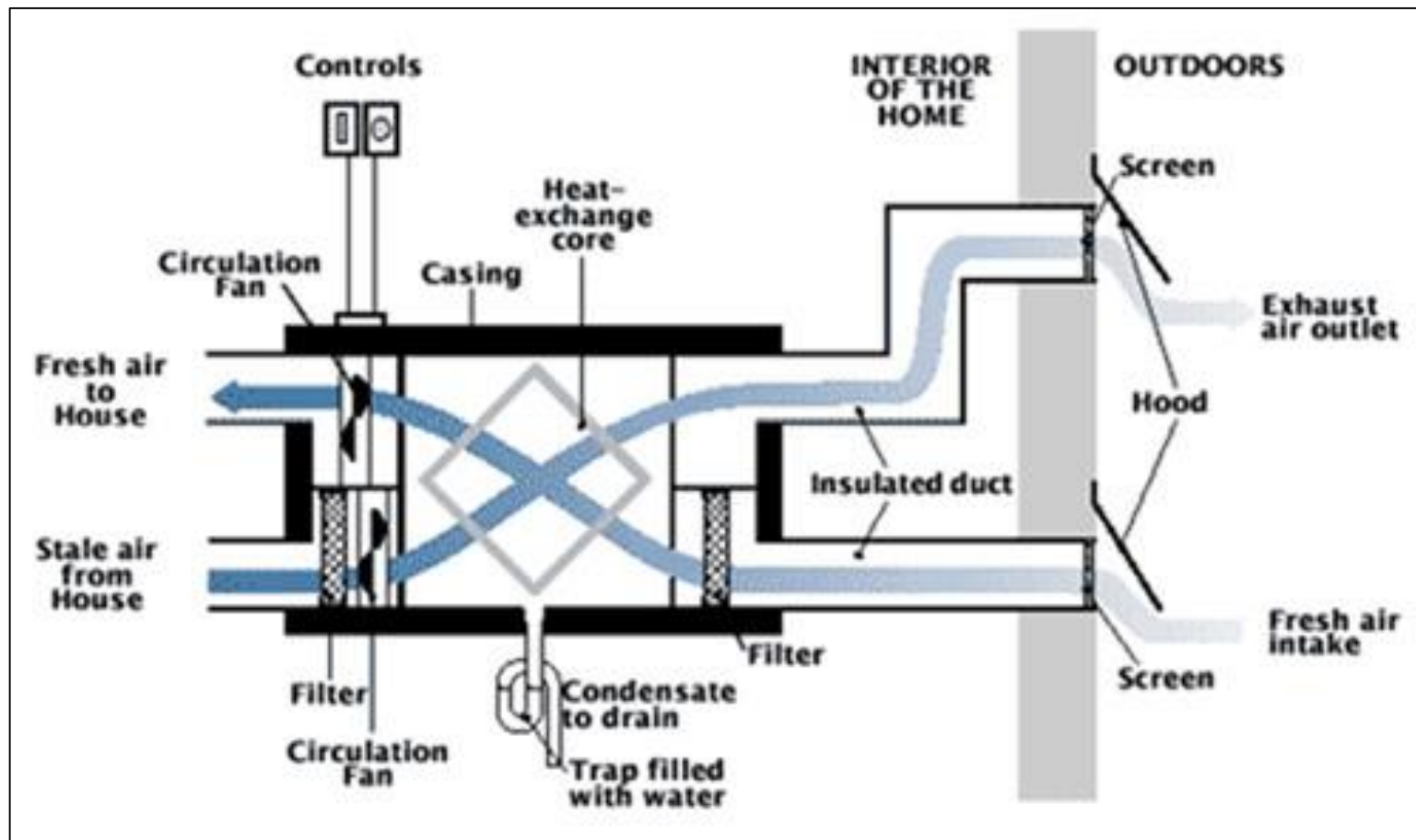
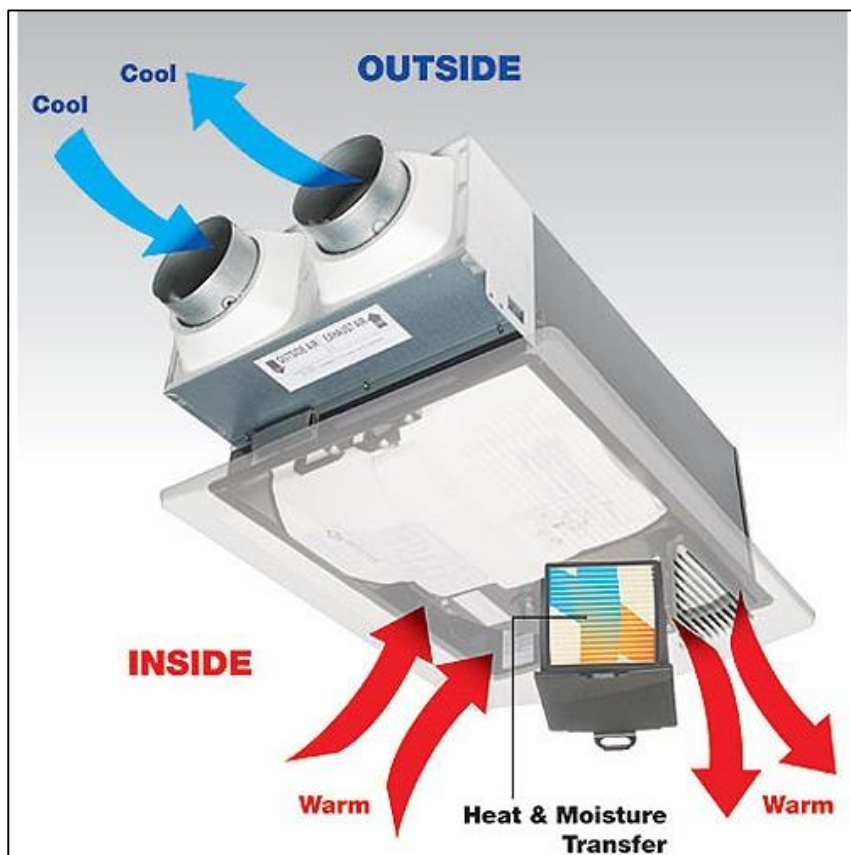
New construction (November 2015) and substantial improvement (Spring 2016):

- Whole house ventilation system that complies with ASHRAE 62.2-2010 via airflow testing, but may operate by default at a lower ventilation rate depending on occupants' desires/comforts
  - Supply duct must be a manufactured outside intake device to protect against animals and debris and must be 10+ feet from pollution sources
  - Outside air duct must be connected to return air plenum upstream of main system filter, or has an installed filter
  - ERV option
- Systems (e.g. plumbing) that are not mandated to be upgraded are not subject to this requirement



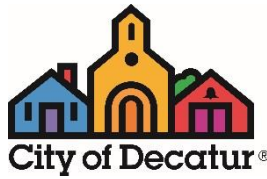
# SINGLE-FAMILY & TWO-FAMILY VENTILATION

## Energy Recovery Ventilator (ERV)





# SINGLE-FAMILY & TWO-FAMILY



## Exemptions

*One of the following criteria has been met rendering full compliance with the requirements infeasible:*

1. Certification and verification fees exceed 10% of the construction cost (least expensive project compliance alternative)
2. Project is a historic building or within a historic district and the Historic Preservation Commission denies certificate of appropriateness due to negative impacts on preservation
3. Project is a historic building or eligible for listing on the National Register of Historic Places and compliance would create ineligibility for such list.

All decisions granted or denied will be made by the UDO Administrator within 20 days of exemption request.



# MULTI-FAMILY RESIDENTIAL CITY REQUIREMENTS

- Units must test  $<5$  ACH<sub>50</sub> or demonstrate  $<0.33$  ELR<sub>50</sub>
- Must be tested in accordance with Georgia State Supplements and Amendments to the 2009 International Energy Conservation Code, Chapter 4, Section 402.4.2.2
- Protocol 1: test every 4 adjacent units per floor for blower door testing
- Protocol 2: RESNET sampling protocol (HERS Professional)

# MULTI-FAMILY RESIDENTIAL CITY REQUIREMENTS

- Duct systems tested for leaks in compliance with the 2011 Georgia Energy Code for residential homes – but is not required if duct system and air handler are located within thermal envelope
- All units comply with ASHRAE 62.2-2010
- No changes to systems that are not being modified as part of the planned construction process

# WE ARE LOOKING FOR PILOT PARTICIPANTS

## Why participate?

- Property owner receives up to \$1200 to cover certification and technical assistance costs
- Opportunity to influence the implementation of the new policy
- Increased value of the property
- Expand your market into sustainable building certifications
- Lead the sustainable building movement and stay ahead of competition
- Reduced warranty work due to construction durability and third party quality verification

# HOTLINE & RESOURCES

City of Decatur Ordinance Hotline and Website:

**404-604-3674**

**[HPBS Website](#)**

Useful resources:

**[LEED Certification](#)**

**[EarthCraft Certification](#)**

**[NGBS Certification](#)**

**[Green Globes Certification](#)**

# DISCUSSION

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We would like to know about your experiences working on sustainable building projects.