

# AFFORDABLE & SUPPORTIVE HOUSING

*Since 1987 Smith Dalia Architects has designed and built more than 3,800 affordable and supportive housing units.*

*The city of Atlanta still faces a deficit of affordable housing, estimated to be upwards of 40,000 units.  
(Mayor Franklin's 2006 Affordable Workforce Housing Implementation Plan)*

*The 5 county Atlanta Metro area was estimated to have a 343,000 affordable housing unit deficit in 2003.  
(Dr. Sawicki's 2003 Fair Share Housing in the Metropolitan Atlanta Region)*

Presented by  
Ed Akins, AIA, LEED AP

Smith Dalia Architects  
&  
The Georgia Institute of Technology



# AIA 2004 Code of Ethics and Professional Conduct

*This document states **guidelines for the conduct** of Members of the American Institute of Architects.*

The Code is arranged in three tiers of statements (Canons, Ethical Standards, and Rules of Conduct):

**Canons** are broad principles of conduct.

**Ethical Standards** (E.S.) are more specific goals toward which Members should aspire in professional performance and behavior.

**Rules of Conduct** (Rule) are mandatory; violation of a Rule is grounds for disciplinary action by the Institute. Rules of Conduct, in some instances, implement more than one Canon or Ethical Standard.



## CANON I

### General Obligations

Members should maintain and advance their knowledge of the art and science of architecture, respect the body of architectural accomplishment, contribute to its growth, **thoughtfully consider the social and environmental impact of their professional activities, and exercise learned and uncompromised professional Judgment.**

#### E.S. 1.3 Natural and Cultural Heritage:

**Members should respect and help conserve their natural and cultural heritage while striving to improve the environment and the quality of life within it.**

#### E.S. 1.4 Human Rights: **Members should uphold human rights in all their professional endeavors.**

#### **Rule 1.401**

**Members shall not discriminate in their professional activities on the basis of race, religion, gender, national origin, age, disability, or sexual orientation.**

## CANON II

### Obligations to the Public

Members should embrace the spirit and letter of the law governing their professional affairs and **should promote and serve the public interest in their personal and professional activities.**

E.S. 2.1 Conduct: Members should **uphold the law** in the conduct of their professional activities.

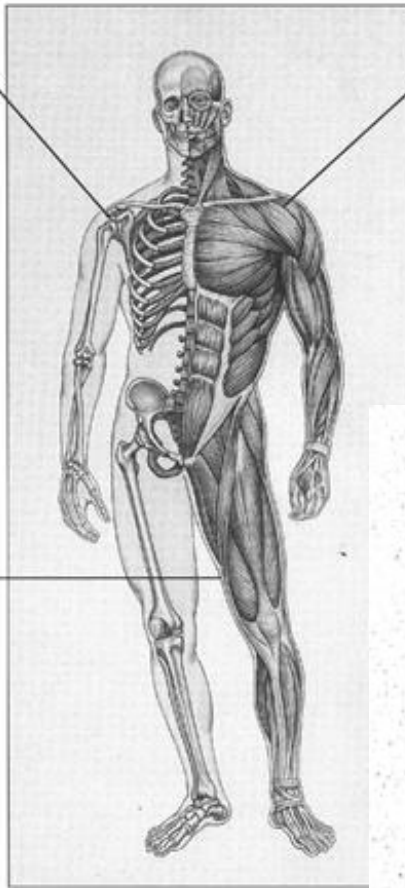
#### **Rule 2.101**

**Members shall not, in the conduct of their professional practice, knowingly violate the law.**



## BONE

SERVES AS A  
FRAMEWORK  
FOR THE BODY  
AND PROTECTS  
INTERNAL  
ORGANS

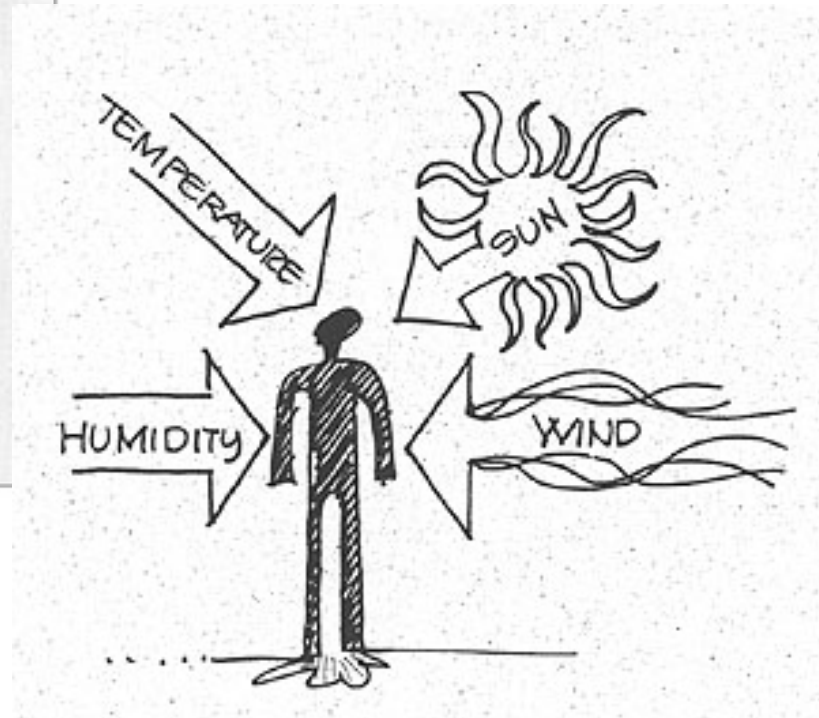


## MUSCLE

A MAJOR TYPE OF  
TISSUE ADAPTED  
TO CONTRACT,  
ALLOWING BODY  
MOVEMENT AND  
MOBILITY

## CONNECTIVE TISSUE

A MAJOR TYPE OF  
TISSUE ADAPTED  
TO CONTRACT,  
ALLOWING BODY  
MOVEMENT AND  
MOBILITY



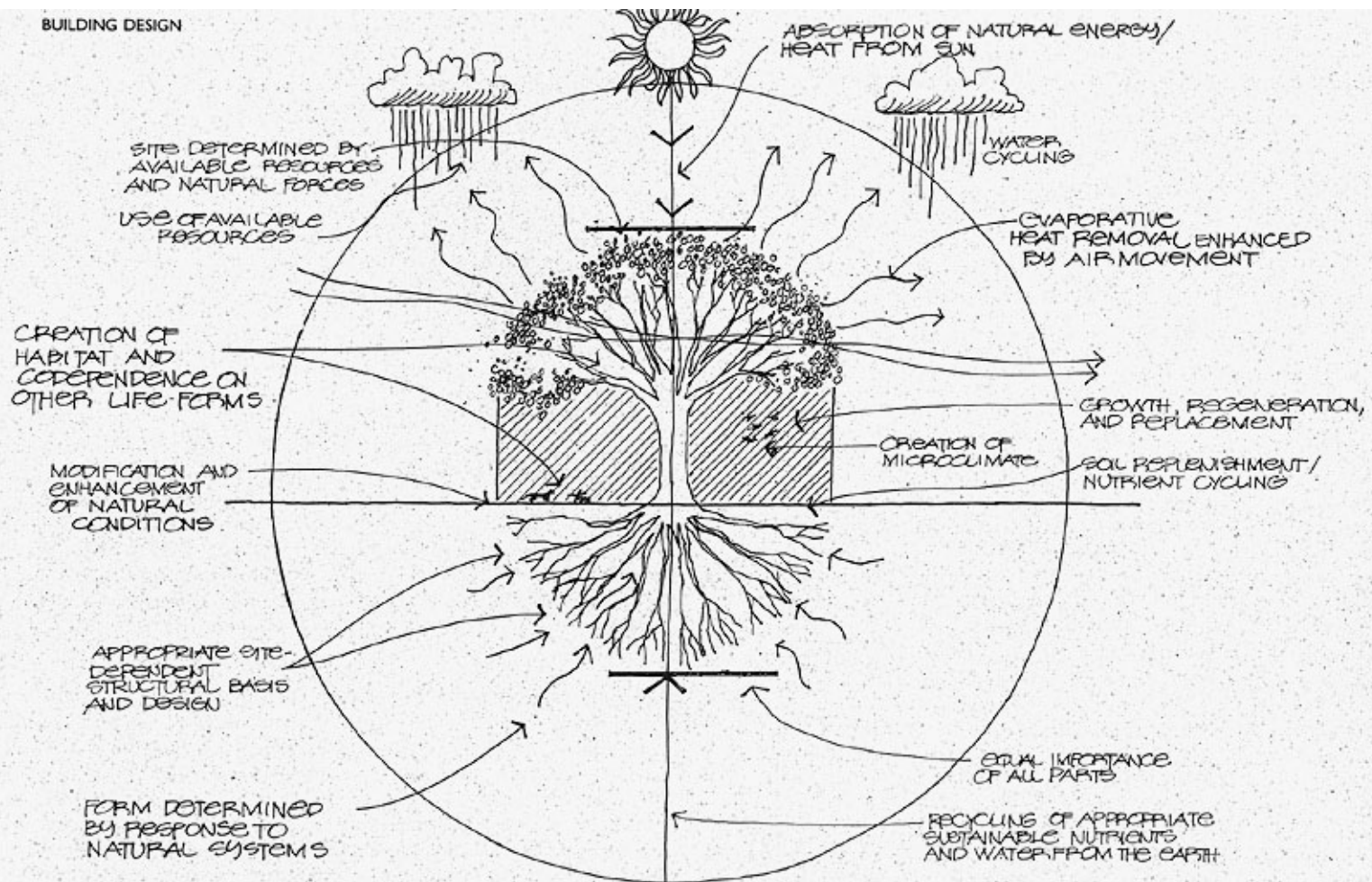


## sys-tem:

1 : **a regularly interacting or interdependent group of items forming a unified whole** <a number *system*>: as a (1) : **a group of interacting bodies under the influence of related forces** <a gravitational *system*> (2) : **an assemblage of substances that is in or tends to equilibrium** <a thermodynamic *system*> b (1) : a group of body organs that together perform one or more vital functions <the digestive *system*> (2) : **the body** considered as a functional unit c : **a group of related natural objects or forces** <a river *system*> d : a group of devices or artificial objects or an organization **forming a network especially for distributing something or serving a common purpose** <a telephone *system*> <a heating *system*> <a highway *system*> <a computer *system*> e : a major division of rocks usually larger than a series and including all formed during a period or era f : **a form of social, economic, or political organization or practice** <the capitalist *system*>



## BUILDING DESIGN



The organism makes use of immediately and locally available materials to construct itself, and does so with economy and efficiency. The same strategies when used in development can minimize global and local impacts on resources.

The organism adapts to its environment through instinctive reaction and an evolutionary process of generations. Through the ability to rationalize and mechanize, humans have the ability to adapt psychologically and physically in a matter of hours, but with little instinct for harmony with the environment.

The organism maintains a harmonious relationship with its environment by establishing a balance between its needs and available resources. Similarly, the ecologically sensitive design adjusts demands, lifestyles, and technologies to evolve a compatible balance with the natural and cultural systems within its environment.



# ARCH4832 natural systems: course graphics

**quiz results**

bookmark this page

CATEGORY	ACRES
FOOD	4.9
MOBILITY	2
SHELTER	4.9
GOODS/SERVICES	4.7
<b>TOTAL FOOTPRINT</b>	<b>16</b>

IN COMPARISON, THE AVERAGE ECOLOGICAL FOOTPRINT IN YOUR COUNTRY IS 24 ACRES PER PERSON.

WORLDWIDE, THERE EXIST 4.5 BIOLOGICALLY PRODUCTIVE ACRES PER PERSON.

IF EVERYONE LIVED LIKE YOU, WE WOULD NEED 3.7 PLANETS.

→ **TAKE ACTION!!**

→ **DONATE**

**ecological footprint QUIZ**

**ECOLOGICAL FOOTPRINT CAMPAIGN**

- Join the Campaign!
- Who am I?
- About the Footprint Quiz
- Support the EF Quiz

**EMAIL**

- Send a Friend
- Email Results to Yourself

**WHAT YOU CAN DO**

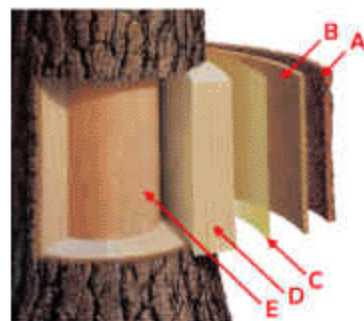
- Individuals
- Community Members and City Officials
- Businesses
- Nation
- Schools and Campuses

**COMMENTS AND QUESTIONS**

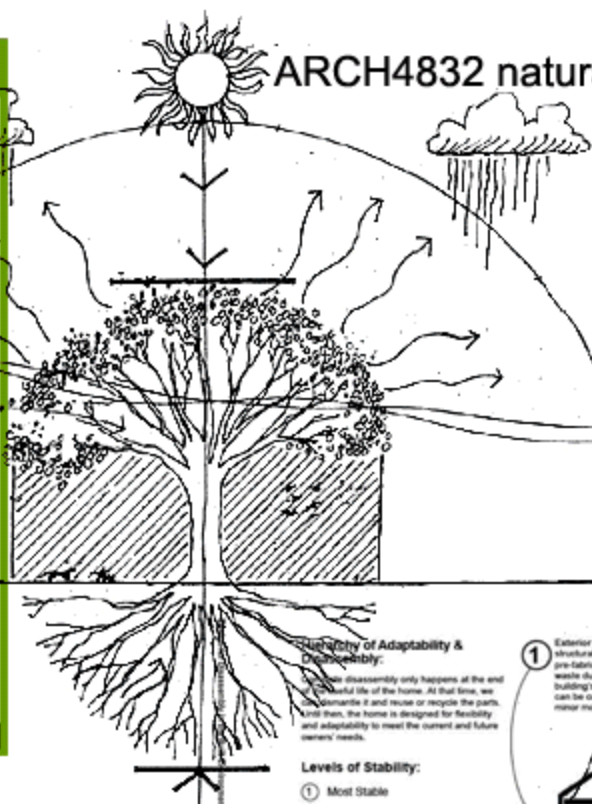
- Comment on the Footprint Quiz
- Frequently Asked Questions (FAQ)
- What about other Species?
- What about Population?

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from ecological footprint website



from clemson website



from nps website

02/12/2008



## Levels of Adaptability & Disassembly:

Disassembly only happens at the end of the life of the home. At that time, we dismantle it and reuse or recycle the parts. Until then, the home is designed for flexibility and adaptability to meet the current and future owners' needs.

## Levels of Stability:

- 1 Most Stable
- 5 Most Adaptable

**Stair:** The staircase is in the core of the building and doubles as the location for two columns. As such, the location of the stair is integrated into the framing, and its location is relatively stable. It will be disassembled at the end-of-life of the building.

## 5 Repositionable Interior Walls

Interior walls can be removed and relocated with no waste resulting from this process. A scale mock-up of the wall system was created to investigate the steps required to make the wall demountable. Light gauge metal framing is used to frame the wall panels to reduce weight for portability. The wall sections can be reused as is, or combined to create new configurations to meet the needs of the homeowner.

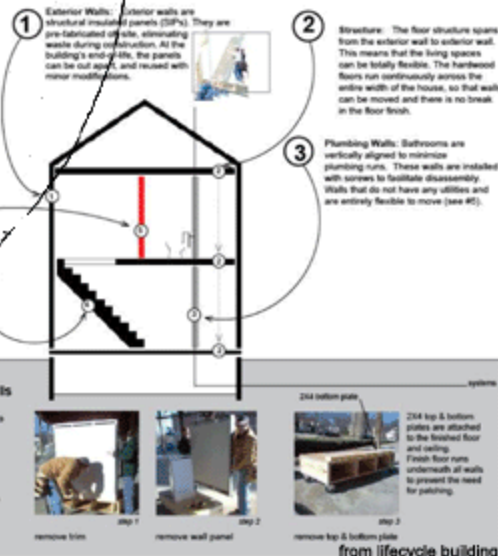


Figure 1: Levels of Assembly



## ARCH4832 natural systems: sketchbook examples



all images from Dan Goers (student 2006)





“We were born of light. The seasons are felt through light. We only know the world as it is evoked by light... to me natural light is the only light, because it has mood – it provides a ground of common agreement for man – it puts us in touch with the eternal. Natural light is the only light that makes architecture architecture.”



Common floor plans for large buildings prior to the twentieth century as a result of need for light and ventilation:





Large building floor plans with dependence upon artificial sources for lighting and ventilation:







Images of Ontario during a blackout from [www.DARKSKY.org](http://www.DARKSKY.org)





Images of Ontario with power restored from [www.DARKSKY.org](http://www.DARKSKY.org)



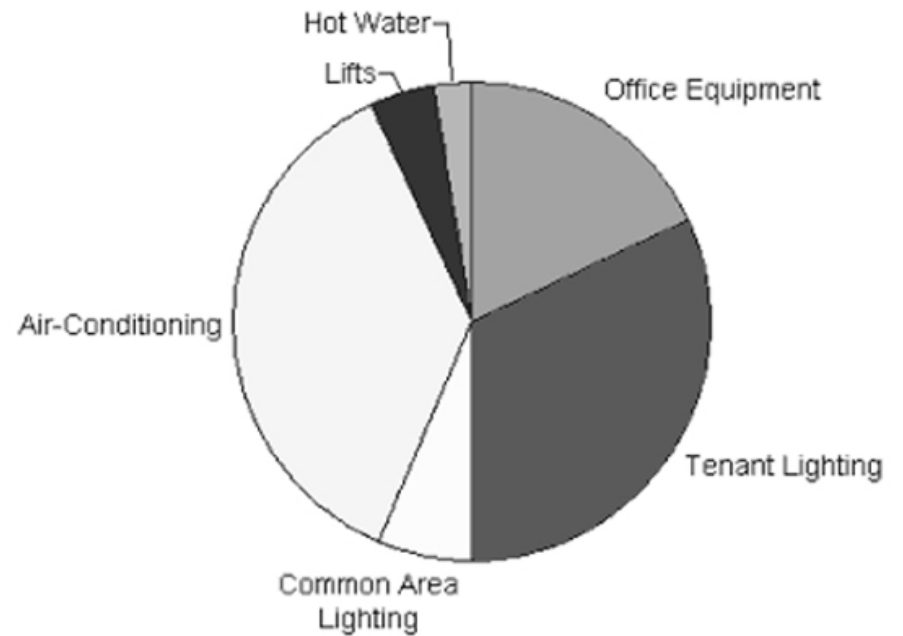
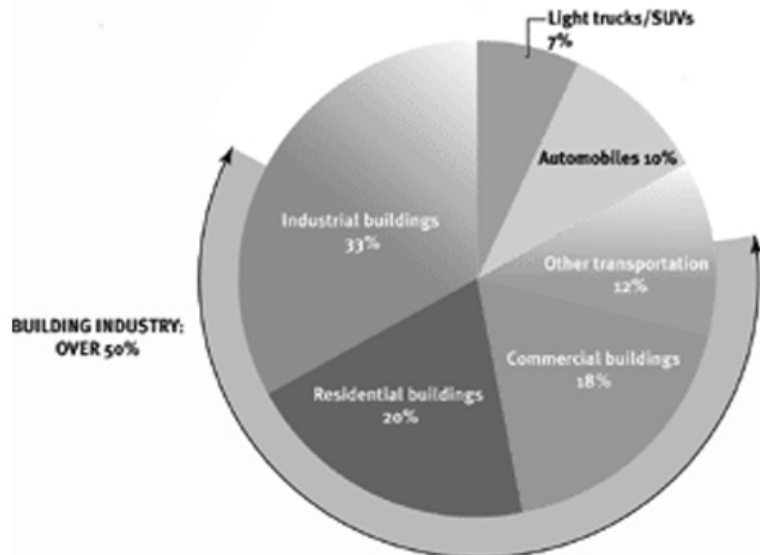




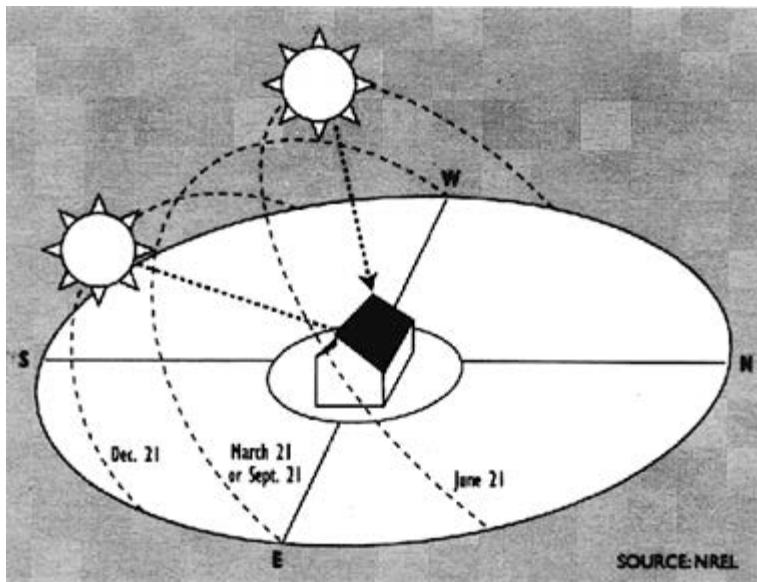
“The global economy (in 1998) burned up an amount of energy (mostly fossil fuels), each minute, that the planet took 10,000 minutes (6.94 days) to produce through solar energy collection and photosynthesis.”



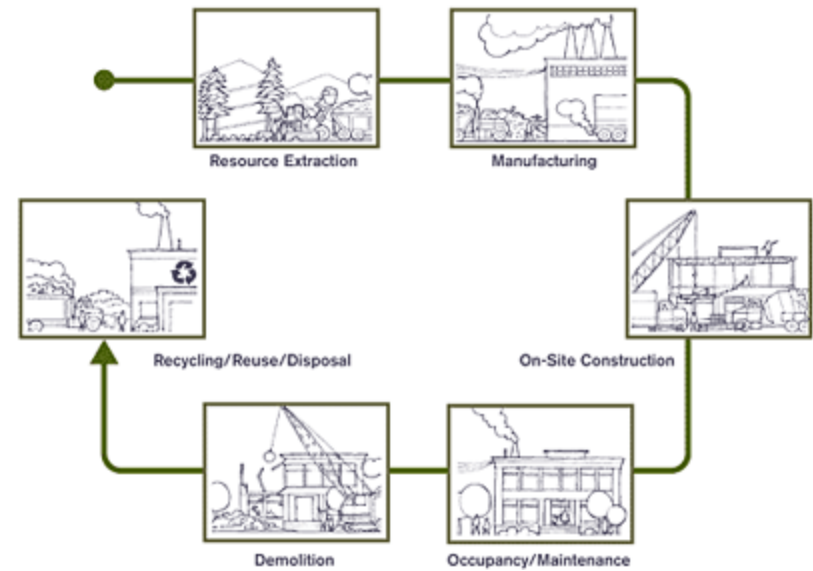
**U.S. Percentage of Total Energy Use**



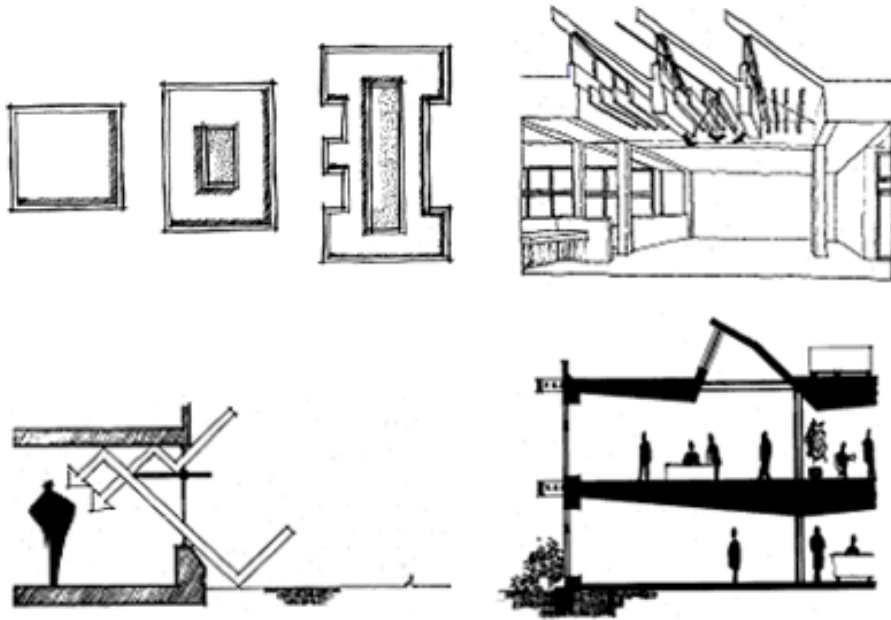




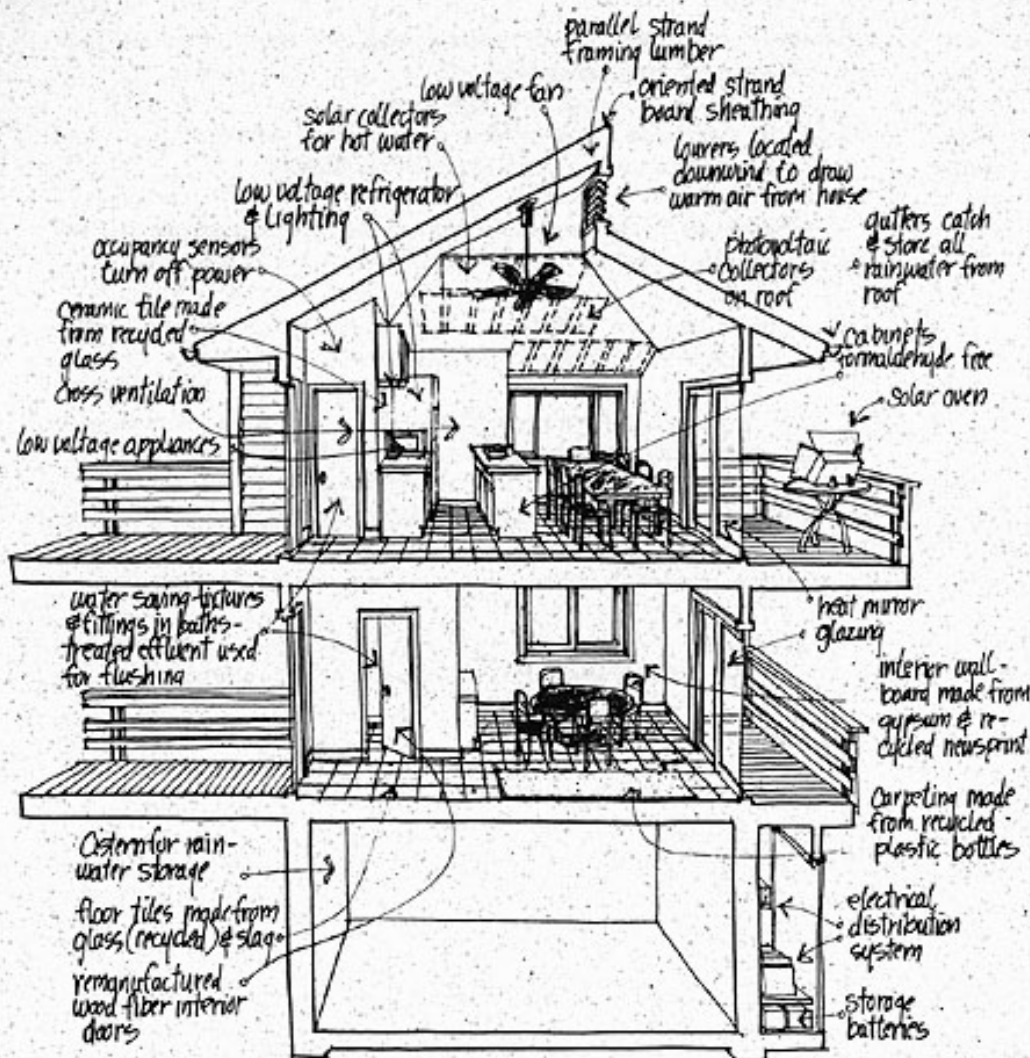
## LIFE CYCLE OF BUILDING PRODUCTS











◦ **INDEPENDENT ENERGY SYSTEM**  
Energized by wind power and photovoltaics  
Appliances selected for compatibility with power source

◦ **WATER CONSERVATION**  
Waste water for toilet flushing and irrigation  
Flow restrictors on all faucets  
Low-flush toilets  
Rainwater collected in cisterns

◦ **CONSTRUCTION MATERIALS MADE FROM RECYCLABLES**  
Waste or farmed trees for framing lumber  
Waste newspaper wall board  
Waste glass  
Waste plastic  
Waste cardboard  
Waste rubber tires

Example of Integrating Energy and Water Conservation with Environmentally Responsible Building Materials







# SUSTAINABLE = AFFORDABLE

## Access to alternative transportation:

### -Transit Oriented Development

### -Walk-ability within Urban / Village / Town infill projects

A person can save an average of \$672 dollars per month based on today's gas price of \$3.909 as reported by AAA. **The savings are more than the average household pays for food in a year. The annual cost savings is almost \$2,000 more than the annual cost of food, according to the Food Institute (\$6,111).**

-source: American Public Transit Associations "Monthly Transit Savings Report" August 2008

## Green Building Programs:

### -LEED (Leadership in Energy and Environmental Design) Certified Projects

### -Other green building programs include Earthcraft and Energy Star programs.

Data from the US Energy Association states that building operations relate to 76% of the annual US Electricity usage. An average household in the US consumes 10,656 kWh per year. Georgia's residential electricity rates are roughly \$.10 per kWh. **On average, LEED buildings were found to be delivering anticipated savings, performing 25-30% better than national average or modeled baselines.**

-source: [www.newbuildings.org/index.htm](http://www.newbuildings.org/index.htm)

## Pollution reduction from sustainable design:

According to the EPA, approximately 1.5lbs of Carbon dioxide are released into the atmosphere for every 1kWh. The American Lung Association released *The State of the Air 2007* in which some major metropolitan regions of Georgia received an "F" for air quality. **Groups at risk: Children, senior citizens, people who work or exercise outdoors**, people with preexisting respiratory disease (e.g., asthma or COPD) and "responders" who are otherwise healthy but have an enhanced reaction to ozone.

-source: American Lung Association

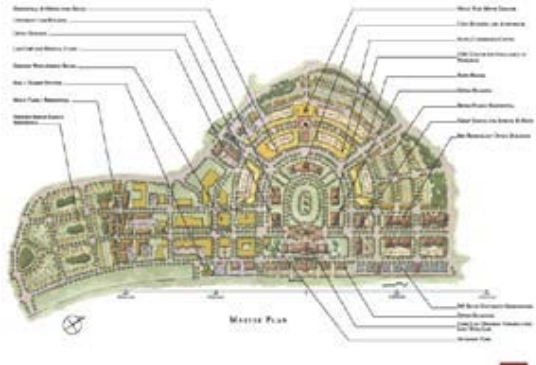
Approximately 210,000 Georgia children under the age of 17 have asthma, according to the Division of Public Health of the Georgia Department of Human Resources, July 2008. **The estimated annual cost for all pediatric asthma cases in Georgia: \$28 million**

-source: Georgia Conservancy



# KANNAPOLIS, NC : NCRC

## LEED™ Administration



**Smith Dalia Architects** is providing comprehensive sustainability strategies for this seminal project at Kannapolis, NC, in one the most ambitious and forward-looking university/private industry collaborations ever to take place. Now under construction on the site of a former mill, the North Carolina Research Campus [NCRC] consists of more than 260 acres of development including academic buildings and state-of-the-art laboratories, office space for participating industries, housing for professors, researchers, staff, students, company employees and service personnel; research farms, and commercial establishments serving the needs of this research-oriented City.

- Renderings by Narmour Wright Creech Architects; Courtesy City of Kannapolis/www.cityofkannapolis.com
- Other photos from North Carolina Research Campus Official Website: <http://www.ncresearchcampus.net>
- NCRC was featured on NPR's Marketplace on June 27, 2006



# ATLANTA, GA : EON

## EARTHCRAFT™ Multi-Family



EON is a certified **EarthCraft Multifamily** dwelling, and is comprised of two sustainably designed condominiums now under construction within Lindbergh City Center and sited 120 yards from the Lindbergh MARTA station in Buckhead.

A cooperative venture between the Metropolitan Atlanta Rapid Transit Authority (MARTA), BellSouth and private developers, the Lindbergh City Center is a **Transit Oriented Development (a community centered near a public transit station)**, and one of the largest mixed-use developments in the U.S. with 352 units.

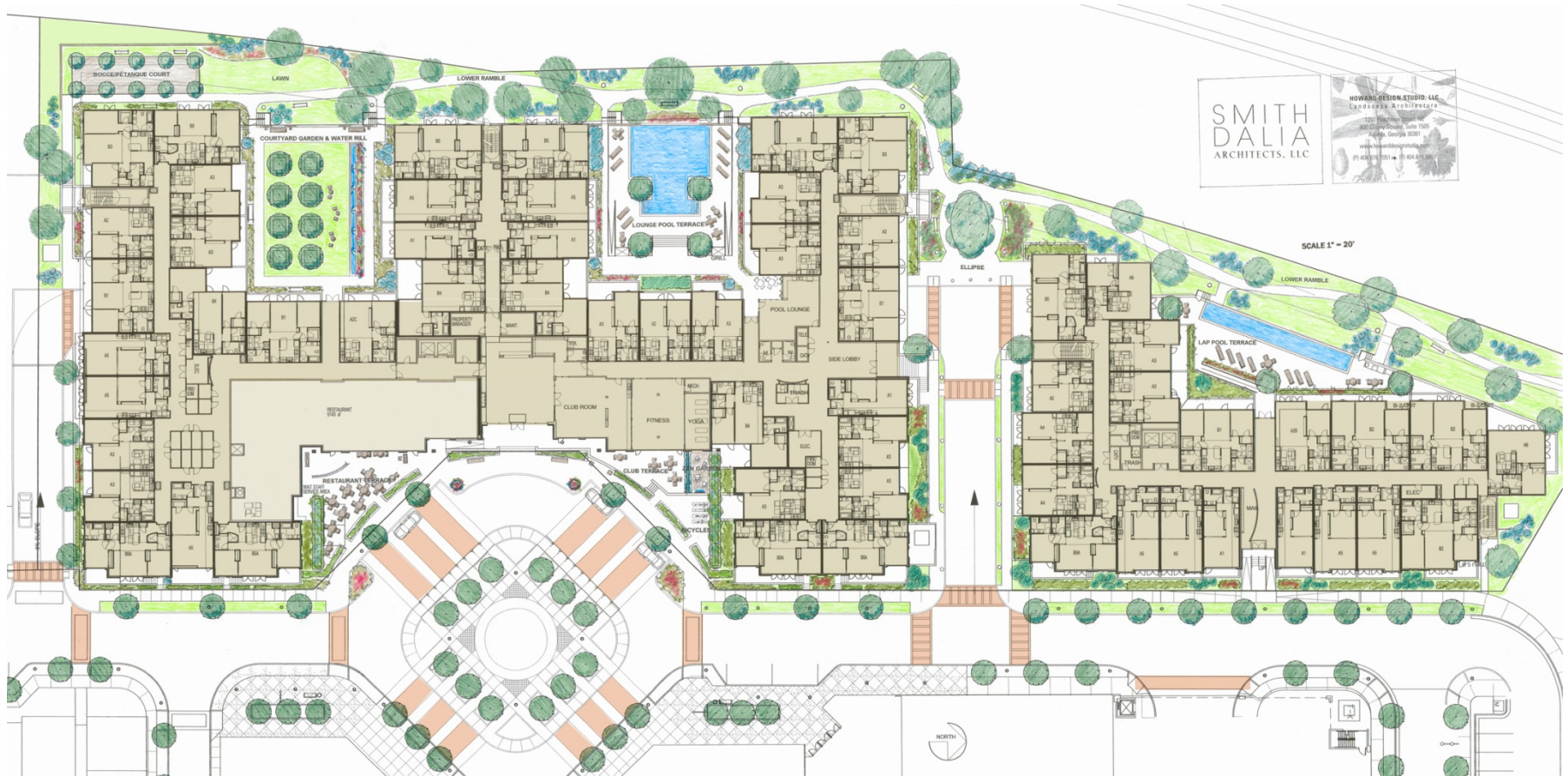
“The [transit-oriented] community will prevent an estimated 890,000 lbs. of carbon dioxide from entering the atmosphere -- the equivalent of taking 309 cars off the road annually.”

Anna Bentley, “Green Living at Lindbergh,” Jezebel. January, 2007, p. 120.



# ATLANTA, GA : EON

## EARTHCRAFT™ Multi-Family





# DECATUR, GA : Columbia Park

**LEED™ Registered Building**



Columbia Park/Avondale MARTA Station Development (CPAM) is a mixed use development which will create market residential condominiums as well as affordable housing and retail space, serving the City of Decatur's growing need for workforce and other housing. The development occupies 7.6 acres of the total area of 45 acres designated as Columbia Park through the Livable Centers Initiative (LCI) planning process.

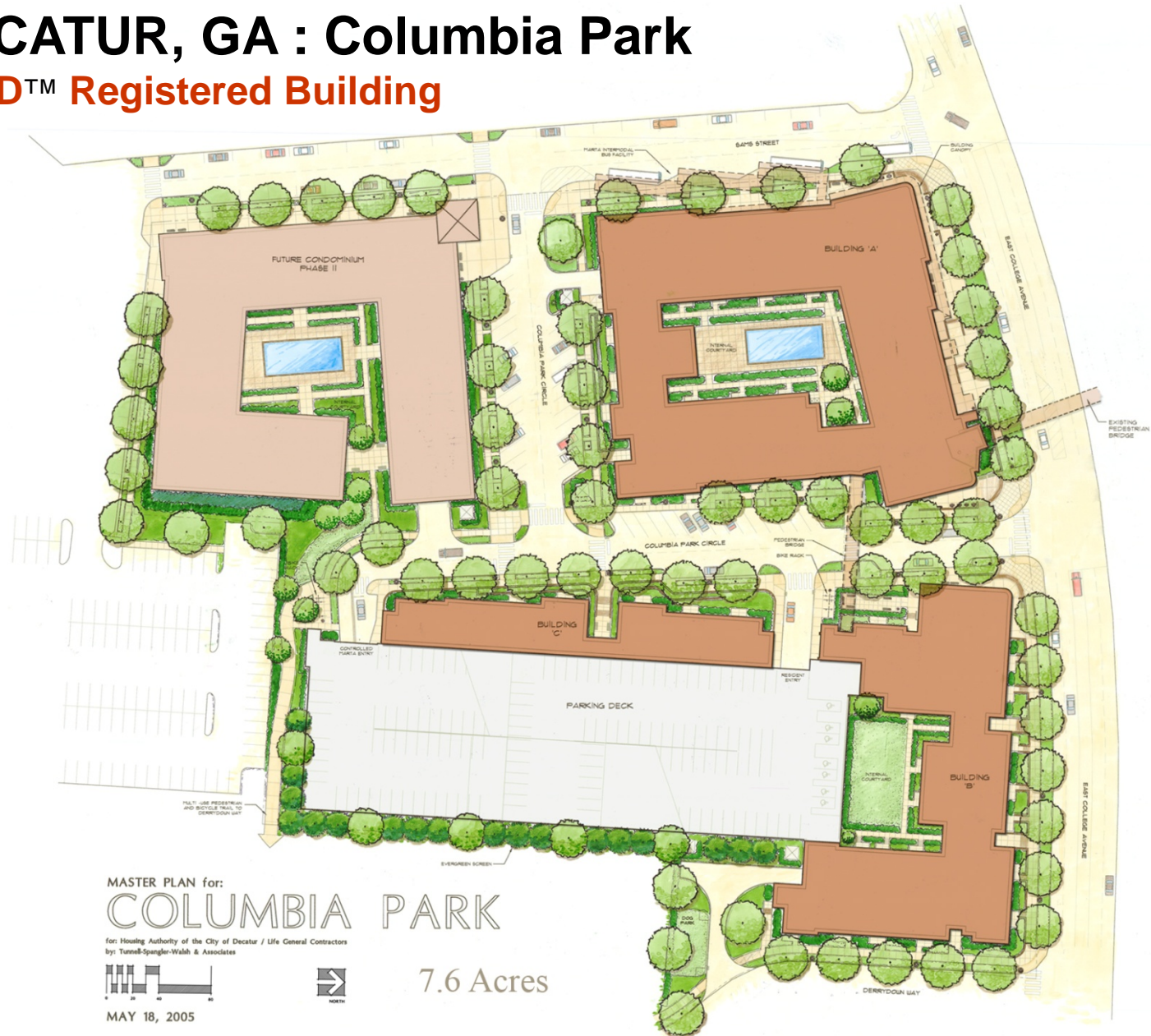
270 Residential units and 14,000sf of commercial retail space at grade.

*Workforce housing accounts for 45% of the rental and 20% of the sales units to fulfill the city's goal of 20% affordability for all units developed in this area.*



# DECATUR, GA : Columbia Park

LEED™ Registered Building



## MASTER PLAN for: COLUMBIA PARK

for: Housing Authority of the City of Decatur / Life General Contractors  
by: Tunnell-Spangler-Walsh & Associates



MAY 18, 2005



7.6 Acres



# DECATUR, GA : INDEPENDENT COMMUNITIES

Shepherd Center and Progressive Redevelopment Inc.



This site is shared by the Historic Scottish Rite Hospital, an adaptive use (also by Smith Dalia Architects) of an original J. Neel Reid building that is now a community center. The cooperatively funded project included historic tax credits and HUD for the housing component. The architectural style references the surrounding neighborhood's overall period, adding to a sense of place. Second bedrooms were added to units whose residents required personal attendants. Common courtyards, intimate in scale, serve as community space, and porches connect units for socializing purposes. By combining sidewalk with building ramping, the site both exceeded accessibility requirements and saved mature trees, significantly helping to preserve the neighborhood's biodiversity.

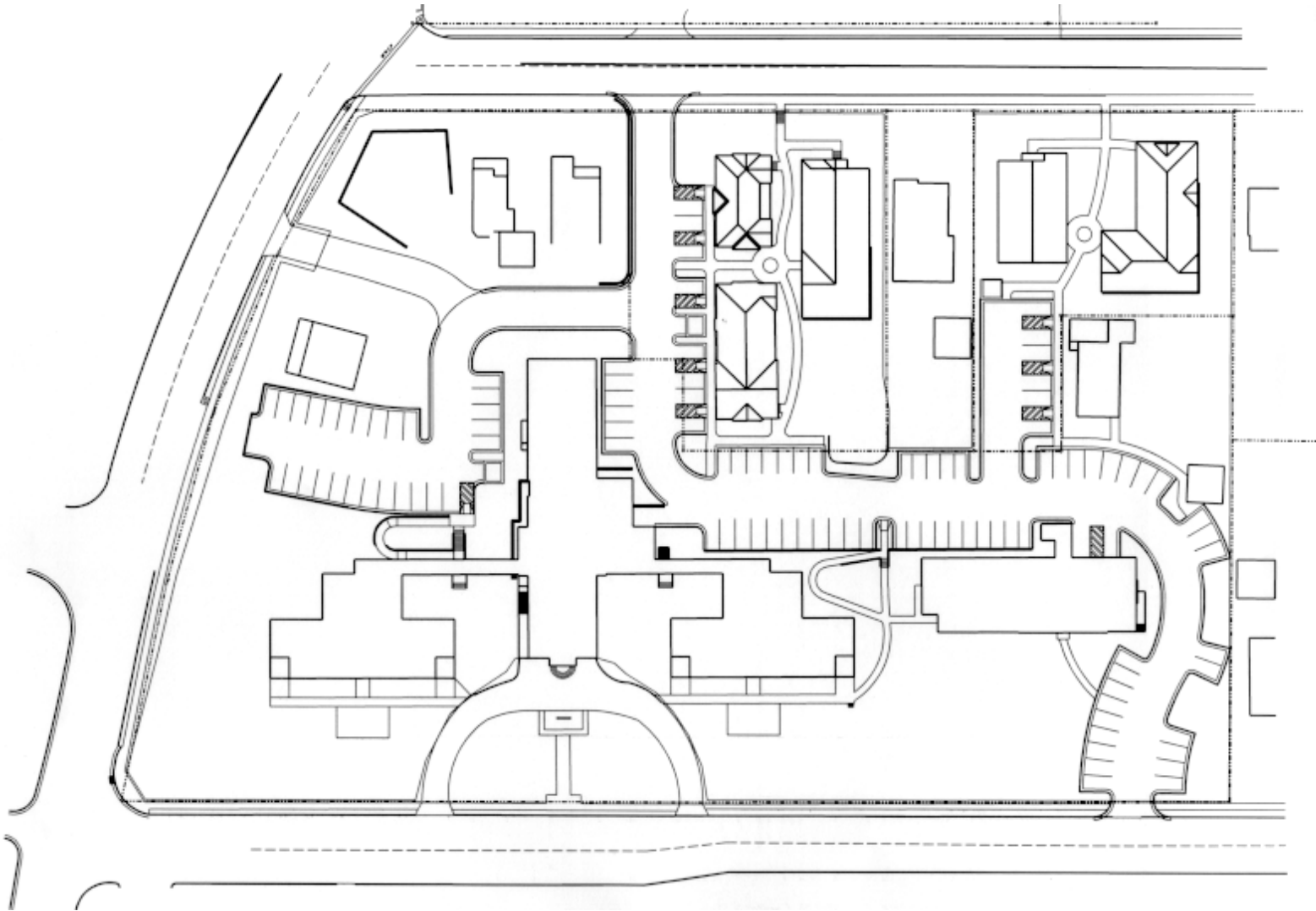
## Awards:

2003 AIA National HUD Secretary's Alan J. Rothman Housing Accessibility Award  
2003 Magnolia Award for Excellence in Affordable Housing/Superior Design Award



# DECATUR, GA : INDEPENDENT COMMUNITIES

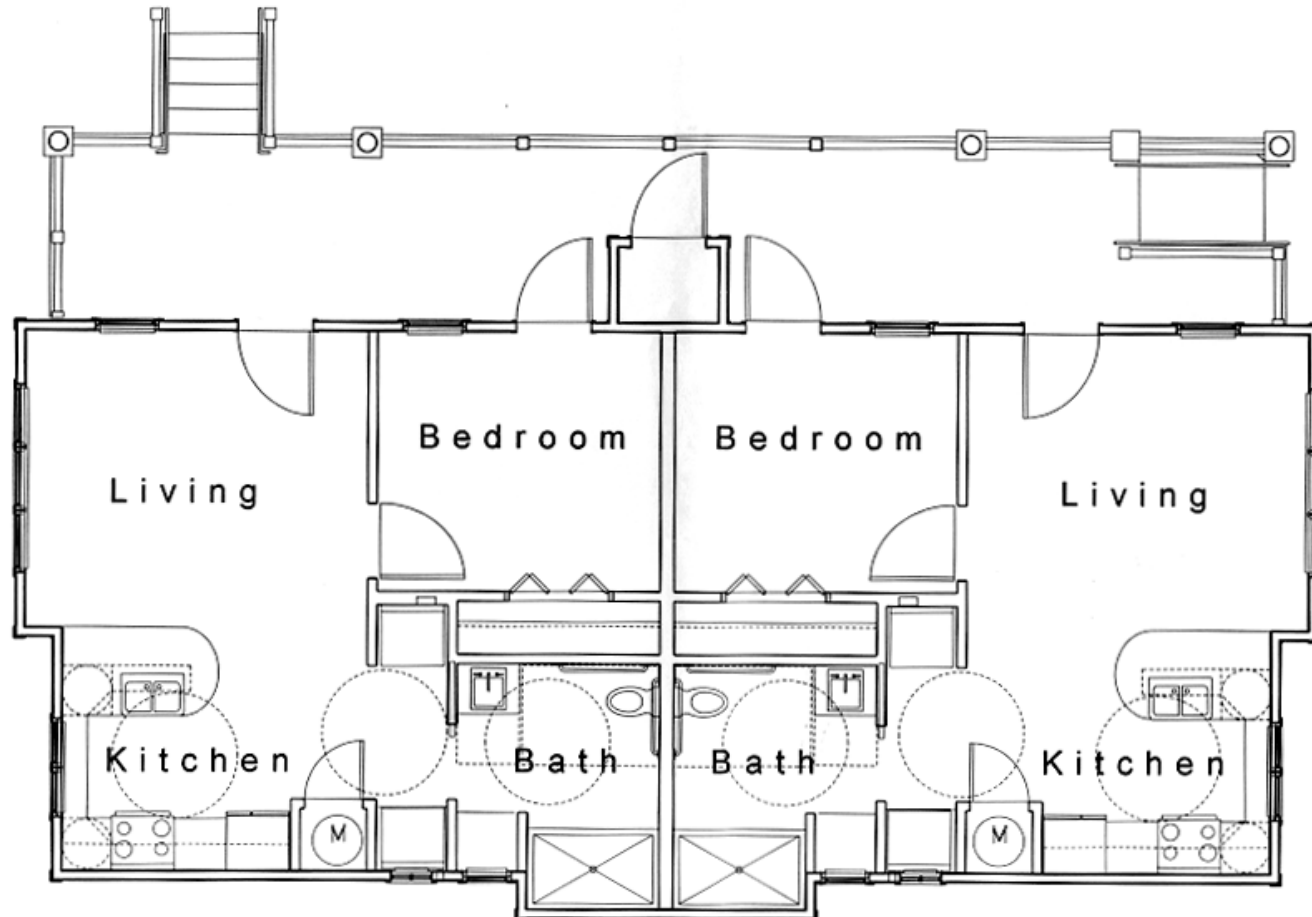
Shepherd Center and Progressive Redevelopment Inc.





# DECATUR, GA : INDEPENDENT COMMUNITIES

Shepherd Center and Progressive Redevelopment Inc.



Age: Over 18 years of age

All Residents: 50% of median income

Tenants pay no more than 30% of their income for rent.

HUD provides the PRAC – an “operating” subsidy to the project

Fourteen (14) Apartments

Nine (9) one Bedroom Units

Five (5) two Bedroom Units

\*All units are fully handicap accessible



# ATLANTA, GA: HOPE House

## Transitional Housing



The Hope House was built on a former parking lot in the heart of downtown Atlanta, and served 366 previously homeless men in its first year. Its design reflects both the urban pattern of this commercial area and the challenge of housing 70 individuals plus a full program of recovery services on a site of less than half an acre.

Of 209 men initially awaiting treatment, 81% stayed clean and sober. Of those who finished the program, 60% moved on to permanent housing.

Hope House is organized around a landscaped interior courtyard. While views through the lobby provide a visual connection to the street, the courtyard provides a calm, secluded environment for socializing, recreation and vegetable gardening, which partially supplies the kitchen.

Award:  
2006 Magnolia Award for Excellence in Special Needs Housing



# ATLANTA, GA : Presley Woods

## Georgia Supportive Housing Demonstration



Combining affordable housing with an on-site social service staff, Presley Woods Apartments is innovative in its concept and design. The staff provides linkage to community services, enabling residents to live independently with success. **This is the first project completed under the State of Georgia's Supportive Housing Demonstration Project.**

The substantial development has 40 fully-furnished studio apartments. Half are reserved for individuals living with a mental illness, and all residents are low income. The apartments are subsidized by HUD's Shelter Plus Care program and the Section 8 program.

Construction cost was minimized through the use of prefabricated modular units for the homes.



# ATLANTA, GA: Reynoldstown Square

## Adaptive re-use / Affordable Housing



Sited between two new John Wieland Townhomes developments, **this adaptive use was initiated by the Reynoldstown Revitalization Corporation, a non-profit community development center** for this transitional Atlanta neighborhood. Smith Dalia Architects' design apportioned the former 1940's ice plant's warehouse and company offices into lofts and smaller units, creating an affordable housing component for the complex. All of the resulting 23 condominiums were sold within a year of completion in 2004.

### Awards:

Finalist, 2005 ULI Development of Excellence Award

2005 AHAND\* Project of the Year

(As a John Wieland Townhome)

2005 Bridge Building Award, Reynoldstown Revitalization Corporation



# Doing the work...

## Affordable Housing Directions



Auburn Glenn



The Bridge



Devereux



Imperial Hotel



Trinity

The US Department of Housing and Urban Development (HUD) funding is distributed to regions via non-profit Community Development Corporations (CDC's). **This funding is beginning to require increasing components of "green" or sustainable design.**

**DCA** (Department of Community Affairs): Administers low income tax credits and offers Energy Star Bonus points

**Home Depot Foundation:** Earthcraft and Green Building Certification

**Enterprise Foundation:** An internal ranking system for "green" design

Predominantly, developers are incentivized through zoning and codes, wherein density and parking reductions may be awarded based upon adjacency to transit and/or allocation of affordable units within the development.



# **SMITH DALIA SUSTAINABLE INITIATIVES**

## **In House Training**

Summer Green  
Energy Code  
Building Science  
Architecture 2030 (future 2008-2009)

## **LEED Accredited Professionals and Certified Projects**

Currently 80% of our employees (28 total) are LEED AP and over 28 projects in house are LEED certified or pursuing LEED certification.

LEED (Leadership in **E**nergy and **E**nvironmental **D**esign) is one of the more effective programs resulting in positive measurable reductions in energy and resource use within buildings.

## **In House green building consulting and LEED Administration staff**

As consultants for more responsive design, we internally and externally manage documents for LEED projects and help to guide projects to higher energy efficiency and greater connectivity within community resources and spaces.

## **SD GREEN**

A division of Smith Dalia Architects, soon to launch, providing identification and management guidelines for more efficient operability and use.



# SUSTAINABLE and AFFORDABLE PROCESSES

## Ed Mazria (Creator of Architecture 2030) states:

“Design is the first strategy that should be used to reduce the need for fossil-fuel energy. Within this category there are a number of design techniques that are **no-cost or low-cost**. These strategies can dramatically reduce your home’s need for fossil-fuel energy.

The following are just some examples of energy-efficient design strategies:  
Air Sealing, Proper Insulation, Passive Solar, Day-lighting, Natural Ventilation, Landscaping and Material Selection.”

## David Baker (DB+P Architects) in *Street Logic*:

- Use low cost, tactile materials with longevity
- Introduce cost effective custom details
- Collaborate locally
- Place design value in people instead of cars
- Respect site specific orthogonal systems
- Engender a collective identity and strong sense of place
- Welcome Community input and participation
- Consider the progression of spaces public and private
- Provide and fully explore the potential of courtyards
- Consider place and context in massing and proportions
- Provide for individuality and a sense of ownership



