

# **HIGH PERFORMANCE BUILDING & PASSIVE DESIGN**

**Meera Parthasarathy, AIA, NCARB, LEED AP**

Principal, Spatial Synergy Studio LLC [www.green-bldg.com](http://www.green-bldg.com)

Founder, Columbus Green Building Forum [www.cgbf.org](http://www.cgbf.org)





Courtesy: Ministry of Tourism, Govt. of India <http://www.explorerruralindia.org>





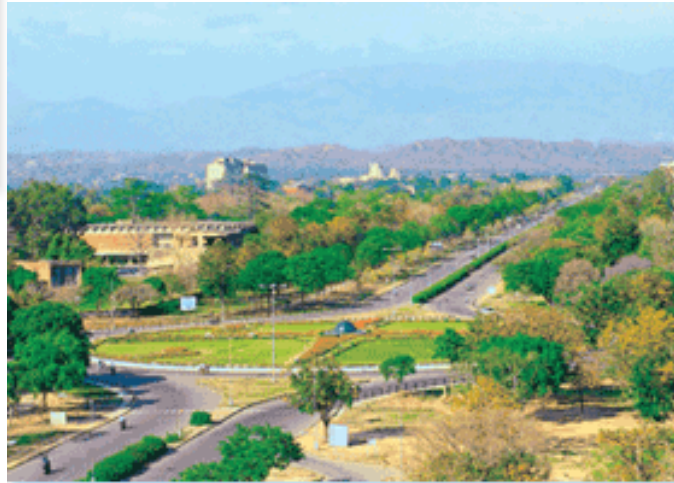


Courtesy: Ministry of Tourism, Govt. of India  
<http://www.explorerruralindia.org>





# MODERN INDIA – LE CORBUSIER’S CHANDIGARH



Courtesy: Administration of Chandigarh  
<http://www.chandigarh.gov.in/>

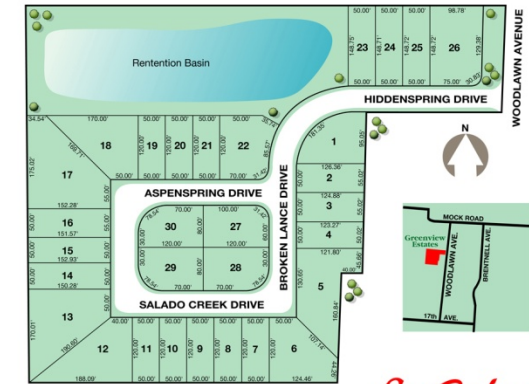








## Sovereign Homes Presents... Greenview Estates



**Sovereign  
HOMES**  
We'll build yours  
like it's ours.

- Columbus' first Green residential development
- Eleven acre development featuring 30 high performance homes to be built by local builders
- 15-year property tax abatement on building improvements





# Project Highlights

Builders required to meet:

- Building Performance
  - ENERGY STAR homes
  - Third party verified
- Building Durability
  - Moisture control
- Indoor Air Quality
  - Improved air quality







- Project initiated and facilitated by Columbus Green Building Forum (CGBF)
- CGBF brought in volunteers for designing the LEED-Home Pilot project
- 258 N. 21<sup>st</sup> Street, Columbus







# Summary of the **AWARE** Green/Universal Design Manual

Franklin County and the City of Columbus are adopting the **AWARE Green/Universal Design Manual** as the performance standard for the construction and renovation of federally-funded residential projects. **AWARE** stands for:

**A**ccessible  
**W**ater Conservation  
**A**ir Quality  
**R**esource Conscious  
**E**nergy Efficient

The **AWARE** Manual was designed to achieve Enterprise Green Communities Standards ([www.greencommunitiesonline.org](http://www.greencommunitiesonline.org)).

The **AWARE** Manual will provide new and existing housing stock to residents of Franklin County and Columbus that is healthier, more accessible, resource conscious, and environmentally friendly. The City and County are committed to promoting **AWARE** green and universal design standards of construction throughout Franklin County and Columbus.

## The **AWARE** Manual promotes:

### **Universal Design Accessibility Standards**

At least 20% of all Federally Funded Projects are to meet all Universal Design Accessibility Standards.

- 1 to 5 houses = 1 house
- 6 to 10 houses = 2 houses
- 11 to 15 houses = 3 houses

### **Healthier Homes**

- Testing and mitigating radon gas, if necessary, (a main cause of lung cancer)
- Active/forced or passive air systems to bring fresh air into the home
- Ventilation to remove moisture, which causes mold and mildew
- Integrated pest control using non-chemical methods
- Low/No VOC products:
  - Paints
  - Adhesives
  - Carpet
  - Floor tiles and sheet goods
  - Bathroom and kitchen cabinets

### **More Accessible Homes**

- No-step entry (making it wheelchair accessible)
- Wider doorways and halls (making them wheelchair accessible)

- Wider stairways (for future installation of a stair lift)
- 1<sup>st</sup> floor bath and bedroom (making home accessible to all)
- Providing floor space and fixtures to accommodate wheelchair access in bathrooms and kitchens
- 1<sup>st</sup> floor laundry (accessible to all)
- Lever handle faucets (easy operation for all)
- Lever handle door locks/latches (easy operation for all)
- Wood blocking in the walls (for future installation of grab bars)
- Positioning the height of wall outlets, switches, thermostats, door locksets and cabinet handles (accessible to all)

### **Resource and Energy Conscious Homes**

- 90% + gas forced air furnaces
- Water-saving plumbing fixtures
  - commodes
  - faucets
  - shower heads
- Better house insulation
- Using Energy Star-Rated:
  - Windows and doors
  - Appliances
  - Light fixtures
  - Fans
  - Hot water heaters

### **Environmentally-Friendly Homes**

- Recycling construction waste
- Using recycled materials/products
- Using a detailed framing plan to reduce material waste wood without compromising structural integrity
- Creating a framing order waste factor limit holding the waste material to 10% or less
- Using pre-cut or pre-assembled building systems or methods
- Use materials from renewable resources or agricultural byproducts



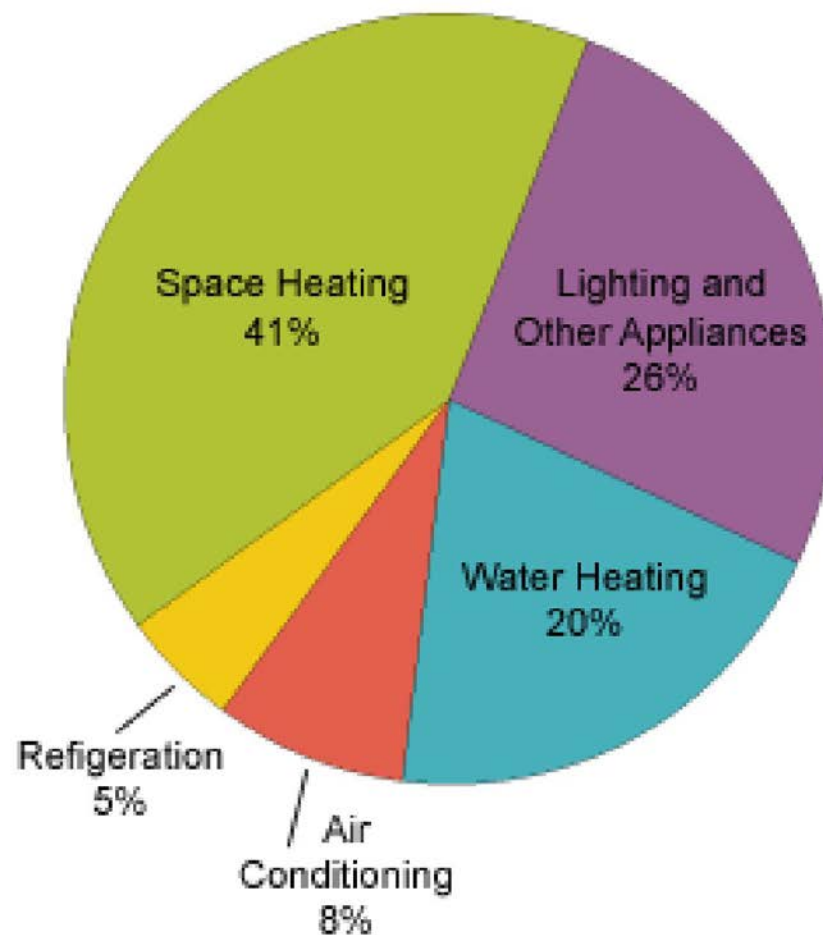
*No-step entries allow everyone to easily enter a home*



*Pull-out work surfaces make kitchens more accessible*



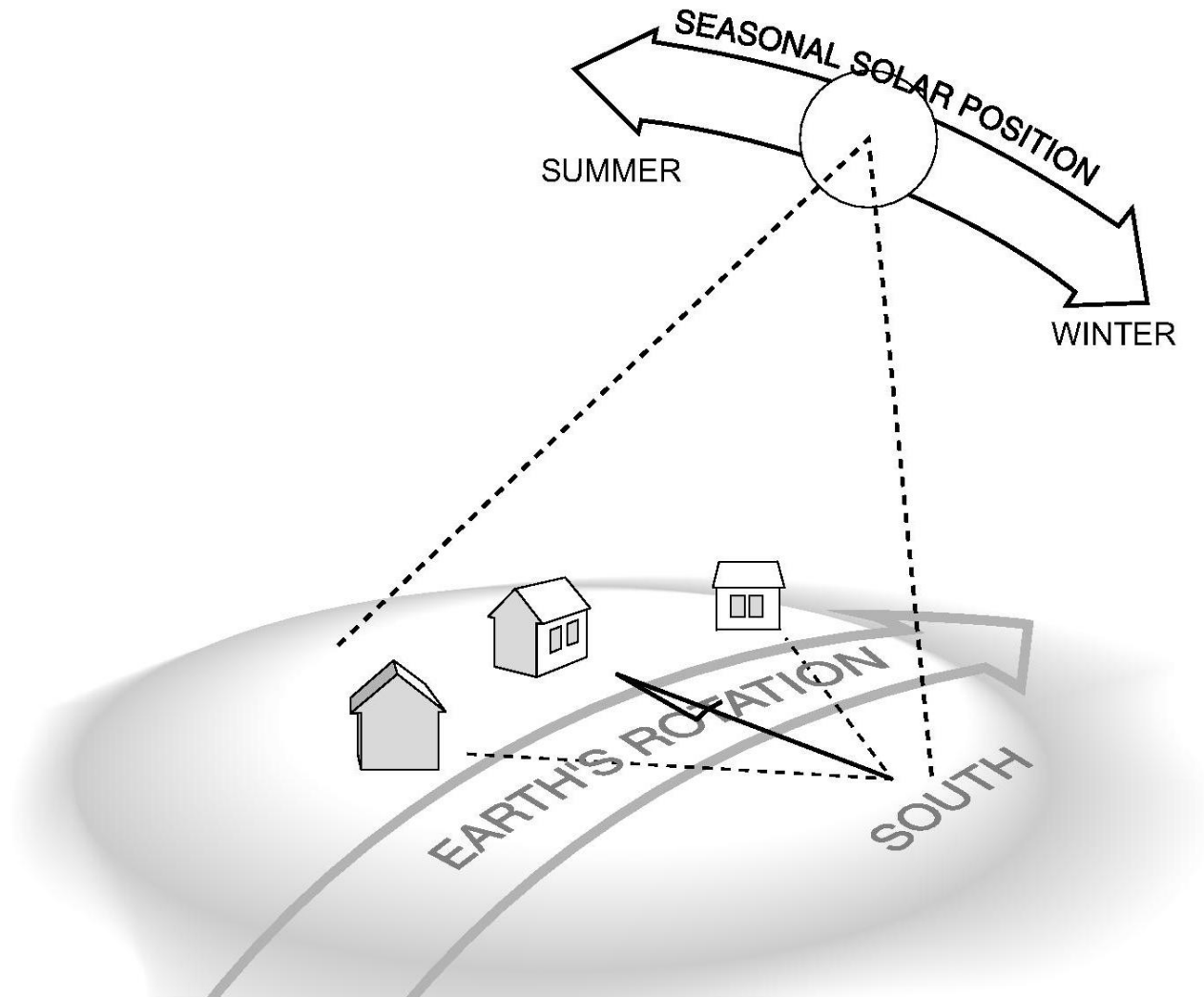
## How Energy Is Used in Homes (2005)



Source: U.S. Energy Information Administration, *Residential Energy Consumption Survey 2005*.



# PASSIVE SOLAR DESIGN









**Diagram of Leaky Home:** In typical homes, air leaks are often found at holes and penetrations for plumbing, wiring, lighting, and ductwork.





Infrared Image of House Exterior: In this infrared photo of a typical house, the yellow shows excessive heat loss in winter because the house was not built with the comprehensive air barriers and proper insulation details found in ENERGY STAR homes.

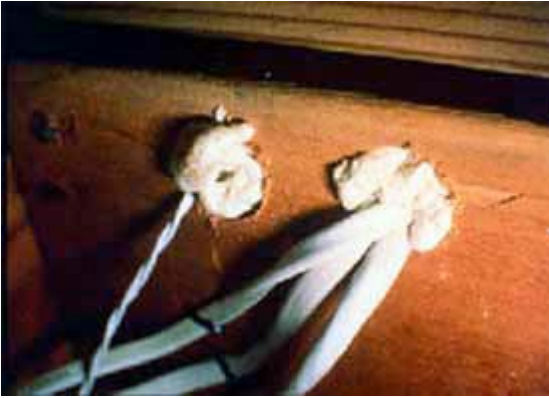




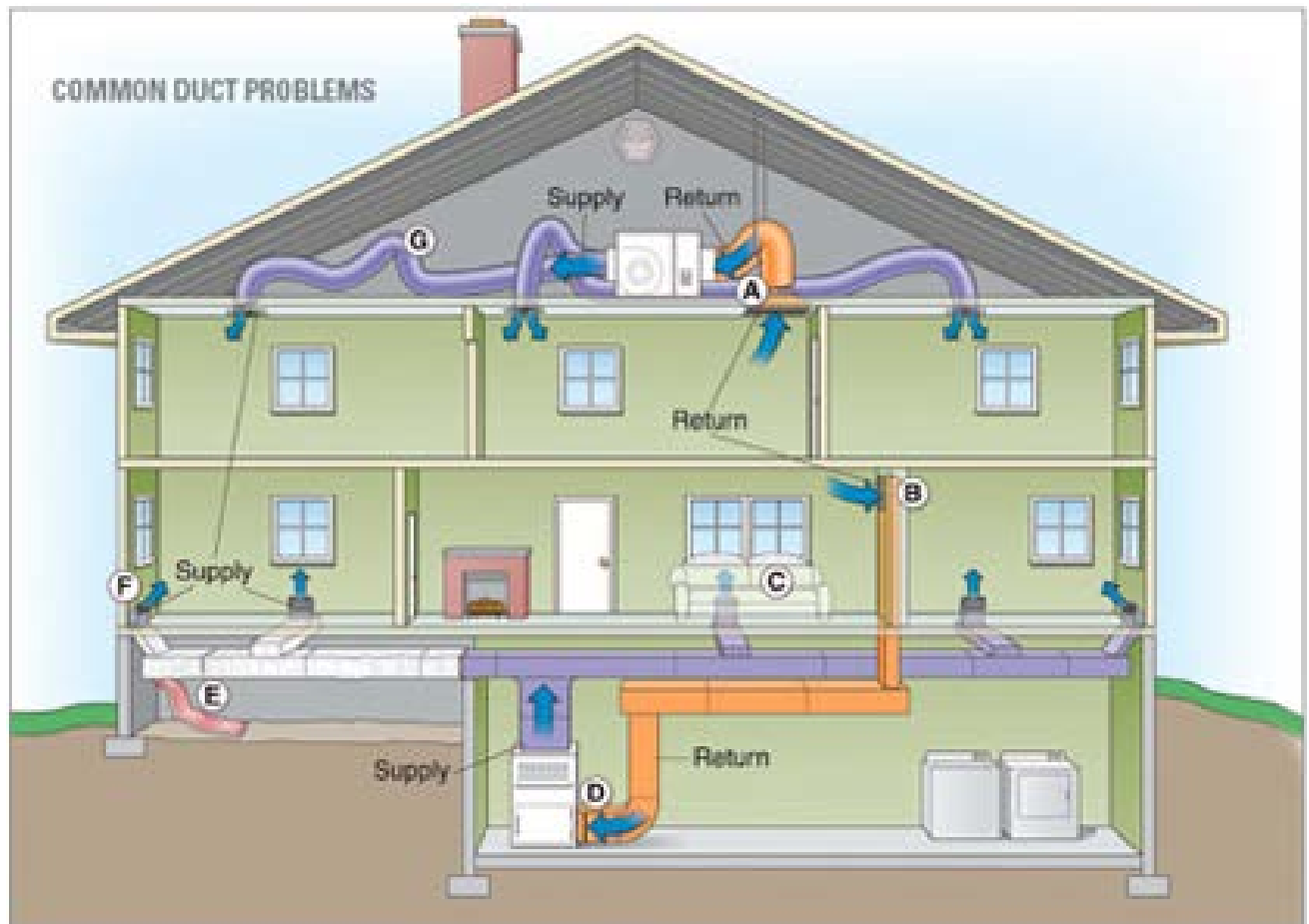












Courtesy: [www.energystar.gov](http://www.energystar.gov)





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