Are Current Trends in Central Texas Providing a Model for the Future of the Sustainable Housing Industry?

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Introduction:
As climate change affects energy consumption and cost, many Americans have taken notice, but the average size of American homes continues to grow. Environmental footprints in the United States are among the highest in the world. This poster presents preliminary findings on traditional trends in the United States, current trends and initiatives in sustainable housing in Central Texas, and discusses the use of these trends as a model for the future of the sustainable housing industry.

Central Texas Study Area

Traditional Housing Construction Standards:
- Not focused on sustainability
- No company division for sustainable housing
- Requests for green building are generally denied due to costs and to a lack of specialization within the company for green building
- Rapid construction
- Focus on quick turnover time to maximize profit: 3 months from breaking ground to closing
- "Build them fast and cheap" (Interview response)
- Size of home dependent on pricing bracket
- New materials (due to required warranty standards), primarily non-local
- Standard non-local/non-sustainable materials: wood framing; pre-manufactured roofs; standard drywall shipped from the Midwest, origins unknown; tile from China or Mexico; wood flooring from the Southeast or North; carpet flooring; concrete-based siding; granite countertops from South America or Africa
- Local materials: sandstone, limestone, and brick masonry from local-regional quarries; pressed wood manufactured locally from pre-fabricated materials ordered from Dallas (origins of wood unknown); previously used Texas granite, but not currently in use
- Energy efficient materials: low-flow toilets; low-flow shower heads; Energy Star appliances; Energy Star windows; 25% of the interior light-bulbs are compact-fluorescent bulbs; exterior light-bulbs are compact-flourescent bulbs
- Must adhere to Austin Energy Standards in Austin and to Energy Star outside of Austin
- At least a minimal requirement for Energy Star standards to increase energy efficiency in new homes in the area
- Stringent and high standards make new homes more energy efficient within the Austin city limits

Examples of Current Trends in Central Texas Providing a Model for the Future of the Sustainable Housing Industry:

Examples of Current Sustainable Housing Initiatives:
- The Ally Flat Initiative (http://www.theallyflatinitiative.org/)
- Smaller homes: maximum of 850 sq ft
- Affordable housing initiative
- Tiny Texas Houses (http://www.tinytexashouses.com/)
- Smaller homes: 10' x 16' to 12' x 28'
- Built on Tiny Texas Homes site and transported to buyer’s land
- Green Builders Inc. (http://www.greenbuildersinc.com/)
- Larger homes: 1,683 - 3,864 sq ft
- Slightly above average pricing for similarly sized homes in the area
- Solutions Oriented Living (SOL) (http://www.solaustin.com/)
- Medium homes: 1,200 - 1,800 sq ft
- Affordable housing initiative
- SEED Coalition (http://www.seedcoalition.org/index.html)
- Sustainable Energy and Economic Development initiative
- No specific housing size
- Franklin Gardens (http://www.ci.austin.tx.us/housing/newslist.cfm?nwsid=1435)
- Smaller apartments: 540 sq ft
- Senior affordable housing apartments
- Green building standards
- The South 5th (http://austin.condodomain.com/The-South-5th/New-Developments/)
- Medium-sized condominiums: 2,000 sq ft
- Luxury housing

Home Values

- Rural Central Texas “green” standards seem to be truly sustainable.
- Sustainable housing costs only slightly more than traditional housing (an average of $20,000 more)
- Slightly above average pricing for similarly sized homes in the area
- At least a minimal requirement for Energy Star standards to increase energy efficiency in new homes in the area
- Stringent and high standards make new homes more energy efficient within the Austin city limits

Examples of Current Trends in Sustainable Housing:
- Small Size and Reclaimed/Recycled Material Homes
- Housing materials and construction technologies include: reused doors; salvaged lumber, usually Southern Yellow Pines, old growth Fir, and antique Pine beams; floors are all antique tongue and groove Long Leaf Pine, Cypress, antique Northern or Loblolly Pines; Oak, or Mesquite; insulation is either sprayed in isyone foam or EPS, environmentally friendly classic milk paint; Energy efficiency: low voltage wiring to use solar power options; Water efficiency: gray and black water separation waste systems so as to conserve water to be used for the garden or yard watering; composting toilets that convert waste into non-polluting fertilizer; cistern or other water storage systems; Propane on demand water heaters
- Medium Homes Using Green Technology, using examples from SOL
- Housing materials and construction technologies include: concrete exteriors; metal roofs; KCMA kitchen cabinetry certified environmentally sustainable; concrete floors; bamboo flooring; Energy Star appliances; FSC certified wood; energy efficient windows; low VOC paints, caulks, adhesives
- Landscaping materials include: low-impact and drought resistant vegetation
- Energy efficiency: Net Zero energy goal- efficient, operable windows; North-South facing; solar panels; structurally insulated panels using foam insulation; Geothermal HVAC; mature trees preserved and provide for shading; saplings planted for future shading
- Water efficiency: bio-filtration to handle run-off from impervious surfaces; sedimentation pond, filtering chambers, sand and gravel filtration; eventually filters back to aquifer; native, drought-resistant plants; rain-water collection capabilities
- Large Homes Using Green Technology, using examples from Green Builders, Inc.
- Housing materials and construction technologies used include: Icynene spray-foam insulation; HVAC system and ducts within insulated attic; non-ventilated attic; indoor air filtrations system; Energy Star appliances; Energy Star windows; deeper roof overhangs; raised window headers; 3-sided masonry exterior from local quarries, no bricks used, and only one side of siding; no paper-based products in foundation; low VOC paints and finishes; carpets from post-consumer recycled fibers; bamboo flooring; ceramic tile with some recycled content
- Landscaping materials used include: granite, mulch, and loam in flower beds, native Texas plants; chocolate loam beneath Bermuda sod for lawn; irrigation system
- Energy efficiency: gas-powered, tankless water heaters; compact fluoroscent bulbs; conduit for solar panels; foam insulation; energy efficient and programmable thermostat
- Water efficiency: rain barrels for water collection; native plants and efficient soils; gas-powered, tankless water heaters

Conclusions:
- Landscape Impacts
  - "Bringing a new character to the old neighborhoods that are being in-filled.
- Sustainable housing developments change the landscape due to modern design.
- Home Values
  - New sustainable housing causes surrounding prices to go up, leading to higher property tax in old neighborhoods, possibly enabling ongoing gentrification in these areas.
  - Sustainable housing costs only slightly more than traditional housing (an average of $20,000 more)
  - The success of sustainable housing, as with traditional housing, is currently driven more by economies than by buyer value systems.
  - In this economic downturn people are focused on what they can afford now and ignoring the savings that come over the life span of a sustainably built home.
- Building Standards
  - Developments in Austin have to meet Austin Energy standards, which are more stringent than Energy Star standards.
  - Rural Central Texas “green” standards seem to be truly sustainable.