Accounting for Sustainable Features in Housing Appraisal: The Green MLS Toolkit

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March 2016
Problem Statement

- homes are responsible for 21.53% of total energy consumption
- Sustainably designed homes are still considered to be costly
- Some of the sustainable design features such as north-south orientation are low cost

Figure 1. U.S. Energy Flow, 2014 Image
Source: www.EIA.gov.
The Case of Central Pennsylvania

- A recent study by the authors, “The Effect of Orientation and Elongation on the Price of the Homes in Central Pennsylvania” showed that Home-buyers are not necessarily aware of opportunities such as proper orientation and elongation that are cost-free choices in the design and can be highly effective in saving energy and promoting the quality of interior spaces.

- Necessity of educating homebuyers and marketing agent

| Orientation (degree) | Log price difference | Std. Err. | T   | P>|t|   |
|---------------------|----------------------|-----------|-----|-------|
| Small elongation group |
| Orientation (0.25-0.50) | 0.0396 | 0.0187 | 2.12 | 0.03   |
| Orientation (0.50-0.75) | 0.0193 | 0.0174 | 1.11 | 0.27   |
| Orientation (0.75-1.00) | 0.0362 | 0.0169 | 2.15 | 0.03   |
| Large elongation group |
| Orientation (0.25-0.50) | 0.0118 | 0.0156 | 0.76 | 0.45   |
| Orientation (0.50-0.75) | 0.0037 | 0.0134 | 0.27 | 0.79   |
| Orientation (0.75-1.00) | 0.0010 | 0.0131 | 0.07 | 0.94   |

Table 1. Log price difference between groups of large orientation values and the group of the smallest orientation value in single family homes of Centre County.
Technical Sustainability and Market

• There is a more clear relationship between technical sustainability and price/ more research is done in this area

• Bloom, Nobe and Nobe (2011) studied a sample of 300 homes in Fort Collins, Colorado consisting of 150 ENERGY STAR qualified homes and compared them to 150 non-ENERGY STAR qualified homes concluded that ENERGY STAR homes originally sell for approximately $8.66 per square foot more than conventional ones

• Yoshida and Sugiura (2013) used transaction prices of 1,452 green projects and 10,481 non-green ones in Tokyo. They report that the initial transaction premium of green buildings might be negative due to higher expected maintenance costs of these buildings. However, the premium becomes positive after two years due to slower depreciation of green buildings.
But What Is a Better Solution?

- The **green premium** relates to specific energy efficient characteristics and other environmentally-sensitive features.

- “The Green Premium exists when homes with environmentally-sustainable features sell for more, or sell more quickly, relative to otherwise identical homes lacking these feature.”

- The green premium can be a strong motivators for homebuilders and home-buyers to incorporate sustainable features in the homes.
MLS and Green MLS

- The MLS is the primary source of information about properties and neighborhoods for real estate agents, appraisers, and ultimately for consumers.

- A "green" Multiple Listing Service (MLS) system offers data entry fields to identify green features and certifications. This helps agents search for sustainable homes and properties, and allows builders and sellers to market their green endeavors.

- Benefits of Green MLS:
  - Home-buyers can quickly find green homes
  - Makes it easy to fully promote the special features of a green home, or a brown home with green retrofits
  - Supports apples-to-apples comparison when it is time to appraise a green home
Categories and Fields

There are 3 types of fields of entry in the Green MLS Toolkit:

1. 3rd party verified fields (certifications and labels)
   - Green Building Verification
   - Green Verification Body
   - Green Year Verified
   - Green Verification Metric

2. Green search/marketing fields
   - Green Energy Efficiency
   - Green Energy Generation
   - Green Sustainability
   - Green Water Conservation
   - Green Indoor Air Quality
   - Green Location

3. Specific/technical fields
   - Property Fields
   - Structure Fields
How to implement the Green MLS toolkit?
Example of Implementation: Fayetteville, AR.

In 2013, Green MLS adopted by the Northwest Arkansas Board of Realtors (NABOR). They found out that changing the drop down menus in the software would require 4 hours of effort and only $787.92.
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The following information exists in regards to Green Data Fields in the Northwest Arkansas Board of REALTORS® MLS:

- 110 listings in the MLS that utilize Green Efficiency Ratings (HERS, LEED, etc.)
- 709 listings utilizing green efficient amenities (recycling curbside, LED lighting, etc.)
- 1 listing utilizing green efficient exterior values.
- 54 listings utilizing energy efficient heating values.
- 186 listings utilizing green efficient insulation values.
- 4 listings utilizing green efficient landscaping values.
- 14 listings utilizing green efficient lot description values.
- 4 listings utilizing green efficient roof values.
- 9 listings utilizing low flow faucets.
- 8 listings utilizing low flow showers.
- 11 listings utilizing low flow toilets.
- 133 listings utilizing energy efficient window values.
Multiple Listing Services that Have Implemented the Toolkit

• More than 125 multiple listing service including:

  Tucson MLS Green Plans
  Phoenix MLS Green Plans
  Santa Barbara MLS Inputs
  Lehigh Valley Residential Profile Sheet
  Memphis Green Features Checklist
  Middle TN MLS Inputs
  San Antonio MLS Inputs
  Houston MLS Green Plans
  Central Virginia Regional MLS Green Fields

• Local Customization Based on Climate and Business Practices

• Implementation is not hard!
Future Research Topics

- Frequency of using specific fields?

- Outcomes of the Green MLS so far?
Acknowledgment

This research is supported by Energy Efficient Housing Research group (EEHR) and Institute for the Arts and Humanities (IAH) at Penn State. The authors are also grateful for help of Michele Halsell, Marilyn Shoffit and the support of Hamer Center for Community Design Assistance at Penn State Department of Architecture.
References

• Stovall, J., J. Beldock, R. LeBaron, and K. Saul Rinaldi. "Unlocking the Full Value of Green Homes: Why Green Multiple Listing Services are the Key to Residential Energy Efficiency.” (2011).