Greener Pastures for America's Homebuilders?

A Survey of Sustainable Practices by the Homebuilding Industry

CALVERT GROUP, LTD. , WITH COLLABORATION FROM THE BOSTON COLLEGE INSTITUTE FOR RESPONSIBLE INVESTMENT MARCH 2008

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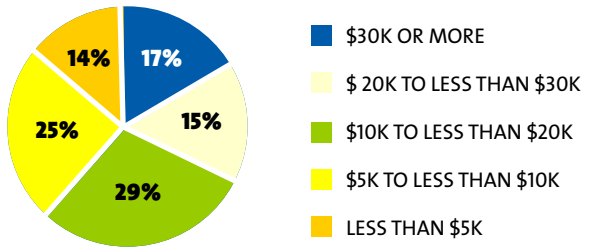
OVERVIEW

Consumer demand for greener housing is a bright glimmer on the horizon for the homebuilding industry. Both public awareness of environmental issues and the demand for environmentally-friendly products and services are growing exponentially and have resulted in a clear demand for sustainable home construction. Despite the slump in the overall housing market, the green building industry is seeing annual growth of as much as 30%. Green building features for new homes present a clear opportunity for the homebuilding industry– homeowners are willing to pay a premium of $18,500 on average for greener and cleaner homes[1].

Premium Price for Green Homes



McGraw Hill Construction, 2006, Home Preferences of Green Home Buyers: The Survey Says. NAHB, 2007.

Consumer and regulatory trends in environmental and social responsibility present both a challenge and an opportunity for high production builders. As consumers become more educated about environmental options and green residential construction, and as regulators increase incentives for green development and restrict conventional development efforts, some homebuilders may be at a competitive disadvantage if they have not integrated sustainable design and construction principles into their construction.

In the green building market there is likely a first-mover advantage: companies that make a concerted national effort to integrate sustainability into project siting, construction materials, and construction processes, as well as to provide energy, water, and habitat conservation options in finished products, will be able to build a brand image as the environmental choice for home construction. This brand will help environmentally conscious consumers make their selection of a homebuilder. It also will provide a signal to regulators at all levels about which companies are concerned about their environmental and community impact.

As an investor, Calvert sought to discern how major U.S. homebuilders compare on policies, programs, and performance relating to the environment and resource efficiency. Calvert measured which companies, if any, are prepared to manage the effects of changing public demand and regulatory realities. These companies are more likely to represent long-term value in our investment portfolios.

Our survey of the 13 largest publicly traded U.S. homebuilders finds that, while every major homebuilder has incorporated some environmental and efficiency programs and products into some of their new homes, none has fully embraced the emerging market of sustainable building design and construction.

We believe there are similar important factors associated with homebuilders' relationships with their workforces and the communities in which they build, as well as company guidelines concerning corporate governance and social responsibility. While mainly focusing on environmental data points, we intend this report to be a first step toward a wider analysis of fundamental environmental, social, and governance issues in the industry.

EXECUTIVE SUMMARY

Calvert's study of the sustainable policies, programs, and performance of the nation's largest homebuilders revealed that the industry has a long way to go before any of the companies can truly claim to be addressing the risks and opportunities

SECTION 1:
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inherent in the environmental and climate change dilemmas. While homes account for about 18% of U.S. greenhouse gas emissions, the housing industry is conspicuously years behind in comprehending the footprint of its products and the responsibility that society, regulators, and investors increasingly are demanding that it recognize.

Our survey of the 13 largest publicly traded U.S. homebuilders used four major 'green' indicators: Energy Use, Building- Material Use, Water Use, and Land Use. This analysis revealed the following key findings:

- Although every major homebuilder has incorporated some environmental and efficiency programs and products into some of their new homes, none has fully embraced the emerging market of sustainable building design and construction.
- Of the 13 major homebuilders, only six had explicit commitments to environmental sustainability, energy efficiency, water conservation, or responsible land management, and no company published a comprehensive sustainability report.[2]

MAJOR HOMEBUILDER GREEN RANKINGS[3]

Company	Ranking
KB Home	1
D.R. Horton	2
Pulte	2
Centex	4
Lennar	5
Ryland	6
Beazer	7
Meritage	8
Toll Brothers	9
K. Hovnanian	10
MDC Holdings	11
Standard Pacific	11
NVR Inc.	13

- Many of the companies had strong regional programs for environmental responsibility. Some of the strongest included:
  - Western U.S.—energy efficiency programs of Centex, Pulte, and KB
  - Southwest U.S.—water conservation programs of KB and D.R. Horton
  - National and state level—Centex's and D.R. Horton's participation in green building projects, including the U.S. Green Building Council's LEED program.[4]
- However, while some of these programs have had significant results (Pulte and KB each has built over 15,000 Energy Star homes), the major builders offer few of these environmental options nationwide.
- Many publicly traded homebuilders have committed to ambitious goals in energy efficiency, suggesting that major homebuilders' attitudes towards green building might be changing. In fact, 12 of the 13 largest homebuilders have now committed to building 100% Energy Star homes in certain markets. However, as of the publication of this report, no major homebuilder has publicly committed to environmental responsibility as a core business strategy.

With the increasing importance of issues such as energy supply, climate change, and smart growth, investors will need far greater disclosure from homebuilders in order to understand their capacity to address these major drivers. Our survey reveals that these companies are not currently providing the information investors need. We believe that if these companies wish to continue as market leaders in new residential construction, they should embrace the opportunity to drive the market toward more green building. If they do not, they face the risk that smaller companies will surpass them in meeting this growing area of consumer demand.

SECTION 2
ANALYZING THE ENVIRONMENTAL RISKS, OPPORTUNITIES, AND IMPACTS OF THE HOMEBUILDING INDUSTRY

OVERVIEW

Since 2001, homebuilders have built an average of 1.5 million homes each year[5], directly employing nearly 1.5 million workers[6] and generating approximately $350 billion in revenues annually.[7]

Through their core business of providing shelter, homebuilders help meet a basic human need. In addition, by working to offer the majority of Americans the opportunity to buy a quality home, the industry can improve our collective quality of life and strengthen the U.S. economy.

But while the homebuilding industry plays an important and positive role in our economy and society, its practices can put a strain on the nation's natural resources and on the planet's ecosystem. The current impact of the homebuilding industry's activities on climate change, resource consumption, and open space and habitat preservation is cause for concern. Specifically, homes account for 21% of U.S. energy consumption[8]. In addition, new homes account for 33% of U.S. timber use[9] and consume over a million acres of previously undeveloped land each year.[10]

Homes (and their Construction) Account for:

21% of Residential Energy Use
33% of Timber Use
45% of Development of Previously Undeveloped Land

See footnotes 8-10

The homebuilding industry has the potential to be a catalyst for a national shift toward sustainable construction materials, energy efficiency, renewable energy use, and responsible land management. At the same time, the industry faces the possibility of significant resource constraints and regulatory changes related to changing and growing environmental risks.

There are signs that the homebuilding industry is moving in the right direction with regard to energy use and green buildings. A 2007 NAHB-McGraw-Hill study predicted that over the next decade, U.S. green building construction will increase on average 30-60% each year; by 2010 up to 10% of U.S. housing starts are predicted to be "green," up from 2% in 2005.[11] We already have seen marked increases in energy efficiency (with a doubling in the number of Energy Star-certified homes since 2001) as well as a number of regional builders switching to sustainably-forested wood, recycled steel, and concrete as building materials of choice. More companies also are developing corporate principles for community and stakeholders.

KEY AREAS OF ANALYSIS

For this study, we focused on four key areas of analysis in which recent research efforts have created the opportunity for substantial analysis of homebuilders' environmental impact and performance. They are:

1. Energy Use
2. Building Material Use
3. Water Use
4. Land Use and Conservation of Open Space and Habitat

While these four categories do not cover the entire range of environmental issues that homebuilders face, they do offer insight into the relative emphasis that a given institution places on the environment.

1. Energy Use

The total amount of energy used in the construction, operation, and maintenance of homes is important for a number of social, environmental, and economic reasons. These include air pollution, heating and cooling costs, and our current reliance on energy supplies that often exhibit significant

price volatility or come from unstable parts of the world. As noted, homes account for approximately 21% of energy use nationally.[12]

The issue of climate change has become increasingly important in analyzing the risks and opportunities associated with the homebuilding sector. In examining energy use in the homebuilding industry, we decided to use climate change mitigation in particular to evaluate energy conservation and renewable energy strategies. To gauge the effect of different scenarios for future energy consumption, we drew on the research of Princeton University's Carbon Mitigation Initiative (CMI). The CMI compares the effect of "business-as-usual" on global carbon emissions against an emissions reduction goal that would, if implemented immediately, significantly reduce the potential impacts of global warming.[13]

2. Building Material Use

Like energy consumption, building material use has important economic and social impacts, including an increase in air and water pollution across the production chain (i.e. extraction, processing, transporting, and installing). Materials also can involve hazardous chemicals or dangerous production processes, which can pose a risk to workers and consumers. Finally, many of these materials are either non-renewable or non-recyclable, so the efficiency with which these materials are put to use, the length of time they last, and their eventual re-use, recycling, or disposal can also have significant environmental consequences.

Timber is an especially useful point of analysis for building material use. Homes are built with a number of important natural resources, but none is used more extensively than wood. Homebuilding accounts for more than one-third of all softwood lumber consumption in the United States as well as a significant amount of a number of other wood products.[14] The average single family home in the United States uses the equivalent of 2.9 acres of forest in its production.[15] In 2002, new home construction accounted for 13.5 billion board feet - 20% of all lumber used in the United States that year.[16] With forest certification systems and product tracking still in early stages, it is difficult to determine how much of this wood comes from sustainable forests – estimates range from around 5% to nearly 50%.[17]

Many timber and paper products companies are beginning to switch to independently certified sustainable forestry. Timber company Potlatch Lumber, printing companies RR Donnelly and Quad Graphics, and others have certified wood or paper products to the Forest Stewardship Council standard (FSC).[18] Use of third-party certified timber – and the concurrent development of the third-party certification market – would significantly decrease the negative environmental impact of new home construction. If major homebuilders launched certification programs in 2008 and if the industry increased the percentage of sustainably-forested wood by just 2.5% per year, within 20 years half of all wood in new homes would come from sustainable forests.[19] These efforts could have far-reaching environmental benefits, from reducing soil erosion and water pollution to dramatically increasing the amount of carbon sequestered in forests.

3. Water Use

Homes consume nearly 11% of all fresh water in the United States—a sizable amount, although a great deal less than that consumed by agricultural and industrial use.[20] Reducing water consumption offers a number of benefits. Using less water may lead to lower water bills for consumers and reduce the overall cost to the community from water treatment processes. In areas where water is scarce, water conservation helps protect community resources and can alleviate pressures

to unsustainably pump groundwater or divert freshwater resources from other areas. Indirectly, lower water consumption may result in lower energy use associated with the pumping, heating, and cooling of the water and also can reduce water pollution from chemicals used to treat the water or created as byproducts of the purification process.

Over the next 20 years, the penetration of water-efficient technologies into the homebuilding industry will likely have the greatest impact on water consumption. Low flow showerheads and toilets can reduce water use by over 75%; heating and cooling technology such as advanced evaporator coils can shave an additional 50% off water loss and as much as 25% off energy use as well.[21] As more than half of all home water use is outdoors, the developers' choice of landscaping can have just as significant an impact as the choice of indoor water-saving technology.

4. Land Use

Land use planning inherently covers a range of social, environmental, and economic issues. Land use planning determines residential patterns and can put a strain on local infrastructure and social services (i.e. police, fire, schools, and utilities) or create additional time and economic challenges for residents. These challenges include extra vehicle miles traveled, less access to community resources, and less public transportation and open space.

Land use planning decisions may compromise water quality by affecting the amount and sources of runoff that enters rivers, lakes, and streams. Often, land conversion, or development for housing, reduces the amount of vegetation buffers that previously prevented significant runoff in the area. Land conversion also has an effect on forest cover, wildlife habitat, soil erosion, and a host of other environmental issues. Furthermore, conversion of farmland and rangeland may decrease domestic agricultural production, and conversion of forests into residential areas may decrease domestic timber supplies, making our economy more reliant on imports.

In benchmarking the effect of the homebuilding industry on land use, we chose to use 'total new acreage developed' to assess the effect of new development on environmental quality and "smart growth." Total new developed acreage is one component affecting crucial questions: how can growth be supported more efficiently, projects that revitalize urban centers, increase access to public transportation, and reduce commute times, while simultaneously protecting farming communities, open space, and natural areas?

Note that for each of these factors, achieving socially desirable outcomes – reduced resource consumption and the preservation of desirable space – can have a material impact on a corporation's bottom line. The challenges of global warming and resource depletion likely will lead to new government regulations restricting energy and other resource use. Homebuilders' corporate reputations and the desirability of their products are likely to be connected to their ability to take advantage of new technologies that create higher-quality environmental performance. Last, but certainly not least, careful attention to energy and resource use, as well as land conservation, can lead to reduced building and operating costs and higher returns for investors.

SECTION 3
RANKINGS, RATIONALE, AND DISCUSSION OF KEY FINDINGS

This ranking scored companies according to their management of the four key areas of energy use, timber use, water use, and land use. To get a better understanding of how they managed these issues, we analyzed three key areas:

- Policies: formal commitments from the management team to explicit goals
- Programs: integrated methods for implementing policy commitments
- Performance: reported data on companies' progress towards stated goals.

While there is overlap within these areas, the distinct challenges and opportunities within each of the four categories (Energy Use, Building Material Use, Water Use, and Land Use) merited a focus on these metrics and inclusion of all of them.

Our goal was to identify the extent to which publicly-traded homebuilders had integrated strategies and performance measures that both made the most efficient use of resources and anticipated what we believe to be the growing importance of sustainability challenges to the homebuilding industry.

Our ranking of major U.S. homebuilders is based primarily upon publicly available data, although in two cases we did include information that was provided to us directly by the companies. Calvert and the Institute for Responsible Investment wrote to all of the companies to first invite them to participate in the survey and later to provide them with our findings. In addition, we followed up by e-mail and phone in order to make sure that the report would credit companies for the initiatives they have underway.

We reviewed company websites, annual reports, and financial filings, as well as mainstream media and the websites of organizations such as the Environmental Protection Agency, the Department of Labor, and the U.S. Green Building Council. This report and these rankings should be viewed as preliminary and read with the caveat that our data collection was impeded by inadequate reporting by the companies. It is possible that homebuilders are doing more in these areas than they are reporting to investors and other stakeholders.

Our research found that while all 13 homebuilders have made some effort to develop environmental principles and programs or to offer environmental products, there is a great deal of differentiation in their level of commitment to sustainability and the number of "green" homes each company offers.

MAJOR HOMEBUILDER GREEN RANKINGS

COMPANY	POLICY	PROGRAMS	PERFORMANCE	OVERALL
KB Home	1	1	2	1
D.R. Horton	2	5	3	2
Pulte	6	3	1	2
Centex	3	2	6	4
Lennar	7	7	3	5
Ryland	7	6	5	6
Beazer	7	4	8	7
Meritage	7	8	7	8
Toll Brothers	3	11	11	9
K. Hovnanian	7	9	10	10
MDC Holdings	3	13	12	11
Standard Pacific	7	12	9	11
NVR Inc.	7	9	13	13

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Industry-wide, there is considerable variance in environmental policies and programs. By far the greatest progress on environmental sustainability in the homebuilding industry has been in the companies' commitment to building Department of Energy-certified "Energy Star" homes – homes that are at least 15% more efficient than the industry average in their electricity and heating fuels use. All 13 of the major homebuilders are currently building and receiving certification for Energy Star homes, and 12 of the 13 have committed to making 100% of new homes built meet Energy Star requirements in at least one of their markets.

While the industry has become increasingly engaged in energy efficiency issues, it has room for improvement in other resource use categories. For example, while KB has a fairly strong national commitment to exploring alternative building materials, reducing and recycling waste in home construction, and using certified, sustainable wood products, the company is the exception rather than the rule. Less than half of all homebuilders have a policy concerning resource use (other than energy use) and less than a third have a policy to seek out recycled and sustainable-certified wood products. In terms of water conservation, the companies fare somewhat better, with half of the homebuilders offering either water-saving appliances or drought-resistant landscaping (or both) in some markets.

While there definitely is room for improvement in sustainable practices in the homebuilding industry, there are notable exceptions in which a company has taken a stand on an important environmental issue, developed an innovative program to limit its environmental impact, or educated consumers about how they can limit their own energy use and environmental impact in their new homes. Examples for this include the following:

- D.R. Horton and Toll Brothers recently joined KB Home in acknowledging the risk posed to the homebuilding industry by climate change.
- Toll Brothers and D.R. Horton have promised to begin reporting both their carbon impact and the strategies they will pursue to mitigate this impact.
- Centex has done a tremendous job marketing its Energy Star homes in California and Nevada, incorporating environmental impact into its sales messages to consumers in these markets, and providing interested customers with brochures detailing the potential energy savings of the company's homes.
- D.R. Horton and Pulte have become leaders in advancing renewable and energy-efficient technology, with D.R. Horton being the first major homebuilder to build a LEED-certified home, and Pulte completing over 100 projects through the Building America advanced environmental technologies program.[22]
- Finally, KB Home has developed an internal, cross-functional environmental task force of employees who meet regularly to evaluate and expand the company's efforts in the areas of energy and water conservation, waste reduction, and increased recycling.

All of these regional and national efforts are encouraging, and we believe indicate a growing awareness of and attention to sustainability issues.

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DISCUSSION OF RESULTS

We have divided the homebuilders studied here into four groups, based on the information we were able to gather on their sustainability practices.

The Current Leader – KB Home

As noted in the table above, one company is clearly leading the homebuilding industry in terms of environmental sustainability: KB Home. Although KB still has plenty of room for improvement, and while other homebuilders have begun to excel at various aspects of sustainable development, this company leads the pack because of its comprehensive approach to sustainability at the policy, program, and performance levels.

- **Sustainability Strategy**
  KB's commitment to sustainability starts near the top of the company, with a clear internal strategy to minimize environmental impact and adopt renewable and energy efficient technologies.

- **Environmental Task Force**
  The company convenes an internal environmental task force, in which participants from across the company meet regularly to discuss ways for the company to improve environmental performance and to evaluate the company's progress on key environmental metrics.

- **Project and Partnerships**
  KB is an active participant in a number of government and private projects to develop green building technologies and integrate them into new home design and construction, including being a pioneer in the California Water Savers program and an early participant in the Department of Energy's Energy Star program.

- **Sustainable Sourcing**
  KB has active programs for sustainable sourcing of wood and other building materials, with KB adopting the rigorous Forest Stewardship Council international standards for wood sourcing for many of its products. In certain markets, the company is also leading in water conservation programs.

- **myEarth**
  KB has recently launched a "myEarth" design studio, which offers customers more than 20 environmental design components they can integrate into a final home, including recycled and sustainable building materials, solar water heaters, and water and energy-efficient appliances.[23] These homes will soon be available in 31 markets across the country.

- **Energy Efficient Homes**
  KB Home announced in late 2007 that it will only provide Energy Star-qualified appliances in its homes beginning in 2008. The company cited a desire to curb homeowners' GHG emissions and resource consumption in a manner that will also reduce utility bills. This commitment is the first major action of its kind that will cover all of the company's homes—KB is the only homebuilder reviewed in this analysis that has made such a sweeping commitment. KB also ranks first in percentage of new homes built to Energy Star specifications. KB has a green line of homes, which offer many of the environmental elements found in a U.S. Green Building Council LEED-certified home.

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- **Sustainability Report**
  KB has made public its intentions to publish its first sustainability report in 2008. While exact details are not known, KB has announced that it has hired a consulting team—consisting of experts from ERS Global and InterfaceRAISE—to help the company prepare this report. KB's sustainability report will be the first of its kind to be published by the major homebuilders analyzed in this report.

Even as an emerging leader of the industry, there are a number of additional steps that KB could take to improve its environmental performance. While KB is integrating environmental design and energy efficiency into a number of its homes, it still builds a very small percentage of urban infill and mixed-use properties (although with the launch of KB's new urban division, this could change.) In addition, although the company has stronger environmental reporting than the rest of the industry, it does not track some important environmental factors, such as the number of acres consumed by development each year, the projected energy use and carbon footprint for new homes, or its breakdown by volume of sustainably sourced building materials.

Finally, while the company does a fairly good job of advertising its green options and educating consumers about the environmental benefits of this building strategy, it should produce a comprehensive sustainability report, address the risks it faces related to climate change, and be even more public about its environmentally preferable products.

Sustainability Second-Tier: Pulte, D.R. Horton, and Centex

While these companies do not have the same overall commitment to sustainability as KB, each excels in certain areas.

- These were the first three of the surveyed group to have LEED-certified developments.
- Centex is a leader in energy-efficient marketing in California and has made a corporate philanthropic commitment to land preservation, spending more than $5 million on land acquisition and preservation.
- D.R. Horton was the first major homebuilder to build a LEED home and, along with KB, has been a leader in water conservation programs.
- Pulte has built more Energy Star homes (over 15,000) than any homebuilder.
- Pulte has trained thousands of employees, from site contractors to senior vice presidents, in green building philosophy and techniques through three to four day training sessions led by Building America.
- Centex trains all of its sales people in marketing its energy options as part of its general sales strategy.

The second tier companies can build upon their areas of strength and expand the markets within which they offer greener homes, but they have laid the foundation for improvement. An immediate next step might be to develop comprehensive policies and programs to address a wide range of environmental issues.

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Sustainability Third-Tier: Beazer, Ryland, Toll Brothers, Meritage, and Lennar

The companies in the third tier show a strong commitment to a narrow set of environmental goals or positive growth and a developing commitment to sustainability that could rapidly move them into a higher tier. The key issue for these companies is finding a way to develop their overall corporate commitments and implement their strong local and regional programs nationwide.

Highlights from the third tier include the following:

- Ryland had the highest growth rate in number of Energy Star homes from 2004-2006.
- Beazer has a commitment to build 100% Energy Star homes in over half of its markets.
- Toll Brothers has made a commitment to report on its climate change impacts and to develop strategies to address the issue.
- Lennar is helping to advance residential solar technology, although most of its leadership in this area is limited to California.

These companies have a lot of potential, but have not yet fully delivered. Beazer, for instance, has the most environmental violations in this group[24]; Hovnanian, Toll Brothers, and Lennar have yet to move from the recognition of environmental responsibility to significantly increasing the number of sustainable homes they offer.

Sustainability Bottom Rung: MDC, NVR, Hovnanian, and Standard Pacific

The biggest challenge facing this group is that, for the most part, they have not acknowledged that there is a market for green homes or that they have a role in serving or promoting it. These companies make virtually no mention of the environment on their websites or in other reports and have few programs to mitigate their environmental impacts. Not surprisingly, they lag behind the rest of the field in developing green homes. They are not very involved in the Building America program, are near the bottom in Energy Star, and have not been engaged in LEED. These companies may score lower because they are simply not public with their environmental goals or neglect to report their environmental successes.

There are some positive signs:

- MDC has a corporate commitment to limiting land conversion and using sustainable materials, while half the industry still does not recognize their responsibility on these issues.
- Hovnanian has made a commitment to report on its climate change impacts and to develop strategies to address the issue.
- NVR has generally avoided major environmental and OSHA violations, showing that even if they do not want to go above and beyond, they take their compliance responsibilities seriously.

However, these companies have yet to recognize both the market opportunities and their community responsibilities related to developing forward looking environmental programs.

SECTION 4
CONCLUSION AND SUGGESTIONS FOR NEXT STEPS

There are still opportunities for any company to become the leader in sustainable residential construction. For 10 of the 13 major homebuilders, simply expanding strong local energy, water, and land conservation programs nationwide could establish their credentials as an environmental alternative. For all of the homebuilders, a significant first step toward establishing themselves as an environmentally conscious company is to monitor and report on their environmental impact and set benchmarks for reducing their energy and resource use. They also should limit pollution and habitat destruction in their land conversion activities. Finally, in order to sell environmentally sustainable homes, companies need to market these homes and educate consumers about their environmental and utility bill advantages – the more consumers who become aware of sustainable construction and the benefits of energy and water conservation and efficiency, the stronger the demand will be for these options.

There are areas of environmental sustainability, most notably smart growth and building materials selection, where the industry has a long way to go before it could be considered sustainable. In these areas, businesses may need incentives from regulators and a consumer market willing to pay a slight premium for sustainable development improvements. Regulators need to do a better job of creating incentives for sustainable building materials and re-development to help make it cost competitive with new development.

The market also needs the emergence of a brand that is associated in consumers' minds with sustainable building, much as Energy Star is associated with energy efficiency and energy savings. Both the U.S. Green Building Council and the National Association of Home Builders should be commended for their advocacy for green building, but their advocacy should be matched with a commitment by governments at all levels to reward sustainable construction. As LEED and NAHB develop their best practice guidelines for residential construction, hopefully one or both will emerge to help consumers identify residential green building leaders.

While this report has developed a fairly comprehensive system for evaluating companies' investment in environmentally sustainable residential construction, there are many areas of both social and environmental sustainability that require further research. To build a true picture of homebuilders' impact on sustainability, studying the companies' investments in urban infill and smart growth developments will help determine a fuller picture of how the companies' plans and practices may cause environmental concerns ranging from open space preservation to commute times and use of public transportation. We were unable to benchmark the companies on these important social criteria that should be considered in evaluating a company's impact due to the very poor quality of disclosure on these issues. In the future, we hope to have the information necessary to evaluate a range of social policies and practices in this industry, such as the workplace protections the companies provide employees and the employees of contractors, investment in local labor and local suppliers, and stakeholder involvement in the planning and development process.

SECTION 5
BEST PRACTICES IN THE HOMEBUILDING INDUSTRY

This section lists environmental best practices for companies in the homebuilding industry—while ambitious, these practices are successfully being carried out by forward thinking companies today. In developing our best practices, we focused on projects and processes that use existing technology and resources currently available to the major homebuilders. We also looked at projects that were cost-competitive with traditional housing developments.

In certain markets, many of the companies we discuss already have implemented best practices in the areas of energy use (Centex, D.R. Horton, Pulte, and KB), land and water use (KB and D.R. Horton), and affordable housing (Pulte).[25] Many of the smaller home builders are integrating sustainability principles into their corporate model, and therefore are developing products and processes that achieve many of the best practices we recommend.

Our best practices fall into two broad categories: Governance and Environmental Impact.

GOVERNANCE

A company's environmental and social commitment begins with its management and board. The best companies in the homebuilding industry will have good institutional controls, effective and consistent data collection and reporting, relatively transparent operating processes, and board members and senior managers who are responsible for monitoring and promoting sustainability from within.

Transparency/Disclosure – Leading companies analyze and report on their social and environmental impacts and disclose performance data and benchmarks for these metrics. Here the major U.S. homebuilders could learn from their counterparts in the United Kingdom. Taylor Woodrow, The Berkeley Group, and Countryside Properties have published comprehensive reports on their company's ESG policies, programs, and performance.

ENVIRONMENTAL IMPACT

The homebuilding industry's environmental impact is tremendous, accounting for one third of national softwood use and a fifth to a quarter of all energy use. Leading companies will be those that actively seek to limit their environmental impact. This involves such steps as taking advantage of water- and energy-efficient technologies, using materials that are recycled, salvaged, or sustainably-forested, and limiting air, water, and hazardous waste pollution.

A number of certification programs address environmental impact.

The National Association of Homebuilders publishes a comprehensive set of green building guidelines (NAHB Model Green Homebuilding Guidelines), as does the U.S. Green Building Council and a number of international green building associations. Many states, cities, and counties also have adopted their own green building guidelines that supplement these programs (see Marin County, City of Santa Monica, or state of Washington). In addition, other federal and NGO ratings programs (including EPA's "Energy Star" program, Forest Stewardship Council's sustainable wood certification, and USDA's "BEES" program) evaluate the environmental lifecycle costs of specific raw materials. In developing best practices, we looked at all these programs, paying special attention to the environmental criteria set forth in the LEED standards.

Energy use – The best companies will aim to have every home they build Energy Star certified and will have a significant number of homes powered by 100% renewable energy in markets where this is available. Pulte and Beazer have made a commitment to build 100% Energy Star homes in at least three major metropolitan markets. Centex

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and KB are leading the way in renewable energy home construction, offering these options in a number of markets. However, no company has yet made a commitment nationwide to a specific energy efficiency goal or to using alternative energy in all of their markets.

Resource selection and use – The best companies will pay close attention to the environmental impacts of materials sourcing and will use salvaged, recycled, or sustainably-harvested materials as part of their core practices. These companies will avoid using hazardous materials in construction and will safeguard against indoor air pollution. The best companies also will consider energy use in transportation of materials and try to source materials locally. Of the major homebuilders, only KB has made a significant public effort to use sustainably-harvested wood. KB has taken steps to advocate for public policy to support better sustainable wood sourcing, by issuing a public letter in support of protecting roadless areas within our national forests.

Construction and pollution prevention – The best companies will have a commitment to reduce, reuse, and recycle throughout building construction. These companies will avoid excessive waste, use building materials efficiently, work to salvage excess materials for re-use on other projects, and recycle and/or safely dispose of waste materials. They also will try to ensure that their construction has no adverse impact on the surrounding environment through air, soil, and water pollution, habitat destruction, or soil erosion. DR Horton's efforts to address these issues in Sacramento are a strong example of how a company can mitigate pollution issues in construction. For this action, the company has received praise from the city and an award from Environments For Living.

Water conservation – The best companies will use water-efficient fixtures and systems as well as water-conscious landscaping. They also will offer the option of water collection and wastewater recycling for some customers. D.R. Horton has been a pioneer in water conservation on its Davis, California certified LEED project, integrating both super-efficient appliances and drought-resistant landscaping into its designs. KB and Centex have significant water conservation home designs in many of their markets in the Southwest.

Transportation and smart growth – The best companies will plan developments with a view toward limiting vehicle miles traveled (VMT), providing bike paths and access to public transportation, and pursuing mixed-use and urban infill whenever possible. Conversely, companies building in outer suburbs and rural areas will work to limit sprawling development, conserve open space, and preserve rural character. None of the major homebuilders has a very strong record on smart growth, but there is the potential for KB to make significant investment in this direction with the launch of KB Urban – a division focused exclusively on urban infill projects.

Climate change – The best companies will acknowledge their responsibility in reducing greenhouse gas emissions and will disclose their climate impact. They will integrate climate mitigation into their development processes with an aim of reducing greenhouse gas emissions. These companies also will try to limit development in areas that could be affected by global warming (flood plains, forest fire zones, etc.) and adopt adaptive design strategies to secure homes against threats posed by global climate change. D.R. Horton and Toll Brothers have agreed to voluntarily disclose their greenhouse gas emissions, becoming the first major homebuilders to do so.[26] KB may also disclose this and other data in their 2008 sustainability report.

Green buildings and design – The best companies will pursue LEED certification for their homes, working to integrate all environmental sustainability issues into their construction

processes. One of the 13 major homebuilders, D.R. Horton, became the first major homebuilder to complete a LEED-certified home in Davis, California. Centex and Lennar are both currently pursuing much larger LEED projects, integrating comprehensive conservation principles across entire complexes and development projects.

Homeowner environmental and energy education – The best companies will provide homeowners with information on environmental remediation technologies in the house as well as information on reducing energy and water use. Centex's "PowerSave" and KB's "myEarth" are small-scale but innovative programs to educate homebuyers about the benefits of energy-efficient and environmentally responsible homes. Expanding these projects nationwide would be an important step toward increasing consumer awareness and demand for these products.

END NOTE

A number of resources were used in determining best practices for the homebuilding industry, including corporate, national, state, and municipal guidelines, and benchmarks developed by local and national NGOs. A partial list of sources is below:

- NAHB green building guide
- National Green Building Council criteria (LEED)
- Healthy Buildings Initiative/Building America
- BEES – life-cycle material evaluation tool from USDA
- Athena – Canadian environmental impact calculator used by some U.S. companies
- Energy Star (EPA)
- PATH (DOE/homebuilder partnership)
- Design Matters (NGO in IL, affordable housing evaluation criteria)
- Global Green (international. NGO)
- WWF/Insight UK report
- The Green Building Initiative, Portland, Oregon

Footnotes:

1 McGraw Hill Construction, 2006, Home Preferences of Green Home Buyers: The Survey Says. NAHB, 2007.
2 KB Home has recently announced that it will produce its first Sustainability Report.
3 As of 1/31/08 KB Home represented 0.026 %; D.R. Horton represented 0.061%; Pulte Homes represented 0.045%; Ryland Group represented 0.016%; MDC Holdings represented 0.021%; and NVR Inc. represented 0.041% of the Calvert Social Index Fund.
4 The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings.
5 U.S. Census, "New Privately Owned Housing Units Started in the United States by Purpose and Design" http://www.census.gov/const/www/quarterly_starts_completions.pdf
6 National Association of Homebuilders, Employment - States and Metropolitan Statistical Areas (MSAs) , 8/7/07, http://www.nahb.org/fileUpload_details.aspx?contentID=55105
7 Hoovers, 9/11/07, http://www.hoovers.com/residential-real-estate-construction/--ID__19--/free-ind-fr-profile-basic.xhtml
8 U.S. Department of Energy Statistics, 2006, obtained through EnergyStar report on sustainable homebuilding: http://www1.eere.energy.gov/femp/sustainable/news_detail.html?news_id=11127
9 Forest Products Industry Analysis brief, 9/10/07. http://www.eia. doe.gov/emeu/mecs/iab98/forest/index.html. Should be noted that the USDA and the Forest Products Laboratory have not released a comprehensive report on commercial wood use by sector since 2007, and the Forest Products Industry Association does not cite this statistic, but similar numbers are used by NAHB and according to the 1994 report by the Forest Products Laboratory, approximately 33% of all lumber and 20% of non-structural lumber panels made in the U.S in 1994 were used for residential construction. http://www.fpl.fs.fed.us/documnts/pdf1994/mckee94a.pdf. Another estimate, by the American Forest and Paper Association, puts the total at 40% of all softwood lumber use. http://www.afandpa.org/Content/NavigationMenu/Forestry/Forestry_Facts_and_Figures/forest_health.pdf
10 Land development estimate based on USDA 2001 resource inventory: http://www.nrcs.usda.gov/Technical/land/nri01/nri01dev.html estimate of 2.2 million acres converted annually, and conversion estimate caused by new home construction based on American Farmland Trust, 9/13/07. http://www.farmland.org/resources/fote/default.asp
11 http://www.realestatejournal.com/buildimprove/20070222-carlton.html?rejpartner=mktw
12 See note 8.
13 http://www.princeton.edu/~cmi/
14 Howard, James L. U.S. Timber Production, Trade, Consumption, and Price Statistics 1965.2002 estimates 33% of all softwood use is for residential construction. Compare to American Forestry and Paper Association figure of 40% of all softwood use in 2001. http://www.afandpa.org/Content/NavigationMenu/Forestry/Forestry_Facts_and_Figures/forest_health.pdf
15 Estimated number of trees, and number of acres of forest land required to build a single family house, 1988 and 1996, from wood products council 1999 statistics.
16 Howard, James L. U.S. Timber Production, Trade, Consumption, and Price Statistics 1965.2002
17 Environmental NGOs RAN and Forest Ethics provide low estimates), while higher numbers come from industry sources- Weyerhaeuser (sustainability report).
18 The Forest Stewardship Council (FSC) has developed a comprehensive program of forest land and forest products manufacturing facilities certification. Certification is awarded to landowners who conduct logging operations in a manner that protect forest ecosystems and the communities that depend on them www.fsc.org

19 Calculation based on homebuilders moving from 0 to 2.5% FSC or SFI wood in the first year, then converting an additional 2.5% each year from non-certified to certified wood.
20 National Atlas, 9/10/2007. http://nationalatlas.gov/articles/water/a_wateruse.html
21 www.energystar.gov water use information
22 U.S. Department of Energy, Energy Efficiency and Renewable Energy, Building Technologies Program, http://www.eere.energy.gov/buildings/building_america/related_links.html
23 http://www.nahb.org/news_details.aspx?newsID=4503
24 Data on company violations of federal and state environmental regulations were gathered from the EPA database.
25 http://www.fairhousing.com/index.cfm?method=page.display&pageid=3604
26 http://www.environmentalleader.com/2007/04/12/dr-horton-toll-brothers-others-expand-climate-related-reporting/

This report was written by Stu Dalheim, Rebecca Henson, and Billy Grayson of Calvert with support from David Wood of the Boston College Institute for Responsible Investment. This report is based upon research conducted through year end 2007.

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