HOME BUILDERS

Research Brief

SASB’s Industry Brief provides evidence for the disclosure topics in the Home Builders industry. The brief opens with a summary of the industry, including relevant legislative and regulatory trends and sustainability risks and opportunities. Following this, evidence for each disclosure topic (in the categories of Environment, Social Capital, Human Capital, Business Model and Innovation, and Leadership and Governance) is presented. SASB’s Industry Brief can be used to understand the data underlying SASB Sustainability Accounting Standards. For accounting metrics and disclosure guidance, please see SASB’s Sustainability Accounting Standards. For information about the legal basis for SASB and SASB’s standards development process, please see the Conceptual Framework.

SASB identifies the minimum set of disclosure topics likely to constitute material information for companies within a given industry. However, the final determination of materiality is the onus of the company.

Related Documents

- Infrastructure Sustainability Accounting Standards
- Industry Working Group Participants
- SASB Conceptual Framework

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INTRODUCTION

The Home Builders industry plays an important role in the national economy by constructing residences for individuals and families. Companies in the industry strive to deliver offerings that improve customer comfort. Home builders are directly responsible for how modern communities look and how well they serve the constantly evolving needs of residents.

Lifecycle environmental impacts of residential buildings are significant. Approximately one million new privately-owned housing units are completed in the U.S. annually. The Home Builders industry can play an important role in reducing negative externalities by improving the resource efficiency of buildings, implementing smart environmental and social development strategies for communities, and mitigating climate change-related risks. Cumulative reduction of energy and water consumption, as well as pollution from car use, makes a huge difference for society on its path to sustainable living environments.

Increasing population density in cities and suburban sprawl provide challenges for companies in the industry. Home builders need to find a balance between customers’ desire to own a spacious apartment with benefits of proximity to public transportation, work, shopping areas, and other amenities. Companies that successfully apply smart growth development strategies will likely have a positive impact on communities, and also capitalize on higher demand and price premiums.

At the same time, global concern over climate change continues to drive up resource prices, which translates into higher utility bills. Many home buyers are willing to pay premiums for sustainable homes. These trends create a need for more energy and water efficient buildings that can deliver significant savings to their occupiers and reduce carbon footprints.

Management (or mismanagement) of certain sustainability issues, therefore, has the potential to affect company valuation through impacts on profits, assets, liabilities, and cost of capital.

Investors would obtain a more holistic and comparable view of performance with home builders reporting metrics on the material sustainability risks and opportunities that could affect value in the near and long term in their regulatory filings. This would include both positive and negative externalities, and the non-financial forms of capital that the industry relies on for value creation.

Specifically, performance on the following sustainability issues will drive competitiveness within the Home Builders industry:

- Reducing the environmental impact of building construction;
- Ensuring the highest safety standards for construction workers;
- Improving resource efficiency in new buildings;

SUSTAINABILITY DISCLOSURE TOPICS

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• Evaluating long-term social externalities of new developments on communities; and
• Considering climate change risks in site selection and improving resilience of new homes.

INDUSTRY SUMMARY

The Home Builders industry is primarily involved in the development and sale of residential single-family homes. Home builders design and construct large residential neighborhoods on company-owned land, and, to a lesser extent, build multifamily homes, townhomes, and condominiums.1

Companies in the Home Builders industry listed on global exchanges generated $278 billion in revenue in 2015.2 In the U.S., listed companies include D.R. Horton, Lennar Corp, PulteGroup Inc., NVR Inc., and Toll Brothers. In 2015, revenue generated by these five companies ranged between $4.2 and $10.8 billion.3 The majority of industry revenue is generated from sales of single-family homes of various sizes in multiple markets, typically within the U.S.

For example, D.R. Horton, the largest home builder in the U.S., generates more than 90 percent of its revenue selling single-family homes in more than 27 states and more than 79 metropolitan markets; the remainder of its revenue comes from the sale of townhomes, condominiums, and duplexes. The company sells homes of varying sizes, typically ranging from 1,000 to 4,000 square feet, which sell for between $100,000 and $1,000,000. In 2014, the company sold more than 28,670 homes, with an average selling price of $272,200.4

Industry revenue is driven by multiple economic factors, including interest rate levels, employment rates, population, homeownership rates, and consumer confidence.5 The near-record low interest rates in recent years have made home ownership more economically attractive. Higher levels of employment and consumer confidence fuel additional demand. The rebound in home prices has made projects more profitable, so home builders are bringing more inventory onto the market. In 2014, new home starts hit 1.06 million, their highest levels since 2007, up 8.8 percent from 2013.6 In 2015, the number of starts rose another 11 percent, to 1.11 million new houses.7 Overall, increased demand in the residential real estate market generally leads to a rise in new developments, which drives industry revenue.

The industry’s performance is tied to the overall health of the economy; thus, home builders’ revenues are highly cyclical. In times of economic downturn, when demand from home buyers declines, home builders may be forced to sell inventory at reduced prices, reducing profit margins.8

Large industry cost drivers include construction costs, land acquisition, labor, and selling and general administrative expenses.9 Construction costs make up the bulk of the industry’s expenses—roughly 62 percent of revenues in 2015—followed by the cost of land, which accounts for close to 18 percent of revenue. Large construction expenses include site work, foundation work, framing, exterior finishes, installing major systems, and interior finishes.10

Since the end of the recession, industry margins have rebounded. In 2014, median gross and net income margins were 20.9 and 5.3 percent, respectively. In contrast, the 2009 median gross margin was 16.6 percent, while the industry

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1 Industry composition is based on the mapping of the Sustainable Industry Classification System (SICSTM) to the Bloomberg Industry Classification System (BICS). A list of representative companies appears in Appendix I.
largely operated at a net loss, with a -1.2 percent median net income margin.\textsuperscript{11}

The industry is largely fragmented, as there are a large number of major developers operating across the U.S. in targeted markets. Most large-scale home builders act as both property developers and prime contractors for large housing developments, using subcontractors to complete specific segments of these projects, like plumbing or electrical work.\textsuperscript{12} Industry competition is high, as new home developers compete with other national, regional, and local home builders as well as preexisting homes and rental units.\textsuperscript{13}

In order to succeed and capture larger market share, home builders need to closely monitor the evolving demands of home buyers. As an increasing number of millennials enter the market for new homes, resource efficiency may become increasingly desirable. In 2014, the energy and water efficiency of properties was an important factor for 80 and 78 percent of home buyers, respectively.\textsuperscript{14} Urban sprawl has driven much of residential development outside city centers into more rural, low-density areas.\textsuperscript{15} Population expansion outside city centers has created development opportunities for home builders, but it also has contributed to major environmental and social challenges faced by this industry, which are discussed later in this brief.

To gauge company performance, analysts typically compare home builders’ financial results based on the number of units delivered and average selling price per unit from year to year.\textsuperscript{16} The Home Builders industry is typically valued based on relative value analysis, using price-to-earnings ratios and other estimated target multiples to compare companies with peers and historical norms.\textsuperscript{17}

\section*{LEGISLATIVE AND REGULATORY TRENDS IN THE HOME BUILDERS INDUSTRY}

Regulations in the U.S. and abroad represent the formal boundaries of companies’ operations, and are often designed to address the social and environmental externalities that businesses can create. Beyond formal regulation, industry practices and self-regulatory efforts act as quasi-regulation and also form part of the social contract between business and society. In this section, SASB provides a brief summary of key regulations and legislative efforts related to this industry, focusing on social and environmental factors. SASB also describes self-regulatory efforts on the part of the industry, which could serve to pre-empt further regulation.\textsuperscript{18}

The Home Builders industry is subject to stable federal regulations, but state and local regulations vary depending on the regions in which companies operate. Operators in the industry must navigate various environmental, worker health and safety, and building code requirements that add to the costs of doing business in the industry.\textsuperscript{18}

As noted by D.R. Horton in its FY2014 Form 10-K, “[t]he Home Builders industry is subject to extensive and complex regulations. We and the subcontractors we use must comply with many federal, state and local laws and regulations, including zoning, density and development requirements, building, environmental, advertising, labor and real estate sales rules and regulations. These regulations and requirements affect substantially all aspects of our land development and home design, construction and

\textsuperscript{18}This section does not purport to contain a comprehensive review of all regulations related to this industry, but is intended to highlight some ways in which regulatory trends are impacting the industry.
sales processes in varying degrees across our markets.” 19

Regulations are commonly implemented through the use of federal, state, and local building codes. These codes are based on standards for building design, the quality of materials, workmanship required in construction, and the ultimate safety of buildings. The International Code Council (ICC) endorses building codes relating to housing construction activities. The ICC publishes an International Building Code, an International Residential Code, and specific codes covering electrical and plumbing services. Compliance with codes is determined prior to and during the construction. To obtain permits for construction, project architects and consulting engineers must evaluate building design against codes and standards. Further, governmental code officials issue a permit after verifying compliance. Compliance with codes and standards is further inspected and enforced by local jurisdictions during the construction process. Upon completion, final compliance is confirmed and the occupancy permit is issued.20

The industry is exposed to specific environmental regulations and permitting at multiple levels of the government before, during, and after construction. The level of environmental regulatory exposure depends on the site and type of development. For example, “greenfield development,” or the construction of homes on undeveloped or agricultural land, has different environmental considerations than infill, or redevelopments on land that has already been developed.21

Home builders are exposed to federal environmental regulations on air quality, endangered species habitat, storm water runoff, and wetlands.22 Home builders have been scrutinized for violating the Clean Water Act (CWA) as enforced by the Environmental Protection Agency (EPA). The CWA requires operators of construction sites to obtain a National Pollutant Discharge Elimination System (NPDES) permit. To receive NPDES permit coverage, companies must properly install a Stormwater Pollution Prevention Plan (SWPPP).23 Failure to develop a SWPPP and minimize potential pollution from development sites could expose companies to the risk of regulatory fines.24

The EPA has proposed new regulations to expand the National Ambient Air Quality Standards for ozone under the Clean Air Act. This new regulation could influence home developers during their construction operations. The law aims to restrict pollution from the operation of diesel equipment during construction. In the San Joaquin Valley in California, air quality regulators implemented a $1,772-per-house impact fee on developments of more than 25 housing units. The measure was established to compensate for the impact of air pollution during construction and the estimated transportation emissions from future homeowners.25

While home energy and water efficiency is largely unregulated at the federal level, some state regulations exist. For example, California’s 2013 Building Energy Standards set energy-efficiency requirements for newly constructed buildings and renovations.26 Regardless of regulation, home builders are voluntarily building increasingly energy- and water-efficient new homes because of demand from home buyers.

Builders are also following industry standards and certifications, such as the EPA’s ENERGY STAR certification, which helps significantly reduce a home’s energy footprint and can even lead to higher home values.27 Similarly, WaterSense, an EPA partnership program, promotes the benefits of water efficiency.28 When home builders follow
voluntary standards and build homes that surpass code requirements, they may help to limit future regulation. Home builders may also receive energy tax credits for building energy-efficiency homes, which help offset the costs of these upgrades.29

The Home Builders industry is also exposed to worker health and safety regulation. Companies are required to comply with the employee health and safety standards set by the Federal Occupational Safety and Health Administration (OSHA). These include following safety protocols like protective attire, harnessing, proper scaffolding, and ventilation.30 Failure to properly follow safety codes and procedures can result in fines and liabilities.

**SUSTAINABILITY-RELATED RISKS AND OPPORTUNITIES**

Industry drivers and recent regulations suggest that traditional value drivers will continue to impact financial performance. However, intangible assets such as social, human, and environmental capitals, company leadership and governance, and the company’s ability to innovate to address these issues are likely to increasingly contribute to financial and business value.

As described above, the regulatory and legislative environment surrounding the Home Builders industry emphasizes the importance of sustainability management and performance. Specifically, recent trends suggest a regulatory emphasis on reducing environmental externalities of development and construction as well as life cycle impacts of properties, which will serve to align the interests of society with those of investors.

The following section provides a brief description of each sustainability issue that is likely to have material financial implications for companies in the Home Builders industry. This includes an explanation of how the issue could impact valuation and evidence of actual financial impact. Further information on the nature of the value impact, based on SASB’s research and analysis, is provided in Appendix IIA and IIB.
Appendix IIA also provides a summary of the evidence of investor interest in the issues. This is based on a systematic analysis of companies’ 10-K and 20-F filings, shareholder resolutions, and other public documents, which highlights the frequency with which each topic is discussed in these documents. The evidence of interest is also based on the results of consultation with experts participating in an industry working group (IWG) convened by SASB. The IWG results represent the perspective of a balanced group of stakeholders, including corporations, investors or market participants, and public interest intermediaries.

The industry-specific sustainability disclosure topics and metrics identified in this brief are the result of a year-long standards development process, which takes into account the aforementioned evidence of interest, evidence of financial impact discussed in detail in this brief, inputs from a 90-day public comment period, and additional inputs from conversations with industry or issue experts.

A summary of the recommended disclosure framework and accounting metrics appears in Appendix III. The complete SASB standards for the industry, including technical protocols, can be downloaded from www.sasb.org. Finally, Appendix IV provides an analysis of the quality of current disclosure on these issues in SEC filings by the leading companies in the industry.

**ENVIRONMENT**

The environmental dimension of sustainability includes corporate impacts on the environment. This could be through the use of natural resources as inputs to the factors of production (e.g., water, minerals, ecosystems, and biodiversity) or environmental externalities and harmful releases in the environment, such as air and water pollution, waste disposal, and GHG emissions.

Protecting environmental capital is critical to the success of the Home Builders industry. The industry builds large projects in the natural environment, which can impact on surrounding ecosystems, particularly in the case of greenfield developments.

Failure to comply with environmental regulations and to address environmental externalities in the design and construction of projects can potentially lead to material impacts on financial results. Companies may face significant fines for violating environmental laws and regulations, and they may also face project delays and reduced viability if developments raise concerns from environmental organizations or local communities.

**Land Use & Ecological Impacts**

Home builders acquire land for development, on which they build homes, and often entire residential communities, for resale to buyers. They typically conduct feasibility studies, which include environmental impact assessments. Since home builders are responsible for ensuring that construction is up to environmental standards, violations of laws and regulations can result in large fines.

Home builders face challenges directly related to the ecological impacts of development activities. Companies in the industry regularly perform clearing, grading, and excavation activities to construct residential developments. Home builders must comply with environmental laws and regulations by limiting emission or discharge materials into the environment, preventing stormwater runoff at construction sites, and by properly handling, using, storing, and disposing of hazardous substances.

Planning decisions encompass multiple initiatives and activities, including selecting the type and
location of land used for development. For example, companies may need to decide whether to develop sites on greenfield land or redevelop existing sites. Home builders developing on greenfield land may need to conduct more extensive assessments, as these projects are typically frowned upon environmentalists and are associated with the negative impacts of urban sprawl. While greenfield sites are typically less expensive to develop, heightened need to manage the ecosystem disruption of construction activities, as well as the regulations and permitting processes that accompany greenfield land development make such development more risky. Regardless of the siting decisions companies make, industry development activities generally carry risks related to land and water contamination, mismanagement of waste, and excessive strain on water resources during the construction and use phases.

These risks are heightened when developing on greenfield land, which has not been previously developed and includes agricultural land, grasslands, forests, and other undeveloped sites, whether in rural or urban areas. Additionally, residential development generates potentially harmful waste during project construction, which may disrupt local ecosystems and expose companies to strict federal and state environmental regulations. Violation of environmental regulations such as the CWA can result in costly fines and delays that decrease financial returns while potentially harming reputations. Companies with repeated violations or track records of prior activities with excessive ecological impacts may find it difficult to receive approval from local communities for new developments, thereby decreasing future revenue and market share.

Companies that concentrate development efforts in water-stressed regions may see further challenges to permitting approvals, and face risks related to land or home depreciation in connection with water shortage concerns. Environmental quality control procedures, proper waste management, smart growth strategies (discussed in the Community Impacts of New Developments topic later in the brief), and conservation strategies may mitigate risks and help ensure compliance with environmental laws.

Company performance in this area can be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Number of (1) lots and (2) homes delivered on redevelopment sites;
- Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress;
- Amount of legal and regulatory fines and settlements associated with environmental regulations; and
- Description of process to integrate environmental considerations into site selection, site design, and site development and construction.

**Evidence**

A 2012 study of U.S. residential construction revealed that the majority of new home construction is in greenfield developments. However, infill construction, or construction on previously developed land, increased in 36 out of 75 major metropolitan regions between 2005 and 2010. In the same period, construction in previously developed areas accounted for roughly 21 percent of all new home building in 209 metropolitan regions. Because these sites had been previously developed, home builders would likely face fewer environmental concerns and less criticism from outside stakeholders.
While greenfield development may have more risks associated with environmental externalities, companies should also consider those risks when planning to redevelop previously used sites or infill. For example, in its FY2015 Form 10-K, Hovnanian Enterprises disclosed a risk of potential environmental liability that may have a material impact on the company.

The liability arose in 2013, when the EPA sent a letter to the company requesting information about a project redevelopment it undertook in the 1990s in Newark, New Jersey. The land acquired by Hovnanian for redevelopment was in the vicinity of a former lead smelter. Although the smelter closed its operations many years before the home builder acquired the land, the company is considered a potentially responsible party by the EPA. Such determination may imply that Hovnanian could incur extraordinary expenses towards the cleanup of the contamination at the site. This could further result in a higher cost of operations as well as delays. As environmental codes and standards continue to evolve, the company anticipates stricter environmental requirements to be imposed on home builders, which could make it more difficult for companies in the industry to obtain and renew permits.

Residential development projects can face criticism from environmental groups, which can threaten project viability. For example, in 2012, the Los Angeles County Board of Supervisors approved a residential development project in Santa Clara, California, but the project faced criticism from environmental groups that claimed the development would permanently damage the Santa Clara River ecosystem. A number of environmental groups sued the Board of Supervisors and the project developer for allegedly violating the California Environmental Quality Act. The plaintiffs claimed that the environmental impact report improperly determined that the project would not have a significant impact on the environment and local plants and wildlife. The pushback significantly delayed the project until 2014, when the developers’ 5,828-page environmental impact report won court approval. But in November 2015, the California Supreme Court rejected the report, saying that it “failed to fully consider the project’s impact on greenhouse gas emissions and for not adequately protecting the endangered threespine stickleback [fish].” The court’s decision is likely to delay the construction by several more years.

Failure to comply with environmental regulations can result in large fines. The CWA is particularly relevant to companies in this industry, as the act requires builders to obtain permits and limit storm water runoff on development sites. For example, in 2008, four of the largest home builders in the U.S.—KB Homes, Pulte Homes Inc., M.D.C. Holdings, and Centex Corp—were fined $4.3 million for failing to control runoff at development sites in 34 states, a violation of the CWA. The EPA found that these companies failed to acquire the proper permits and did not prevent silt and debris from running off from construction sites.

Additionally, in 2011, Pulte Homes lost a lawsuit and was forced to pay $2.5 million in penalties and additional attorney fees for repeated violations of the Georgia Erosion and Sedimentation Act as well as the Georgia Water Quality Control Act. Pulte Homes has been notified more than 13,000 times by its third-party environmental consultant that it was not in compliance with its environmental permits, yet it failed to correct its actions. The company received hundreds of notices to comply and dozens of stop work orders.
Similarly, in 2010, Hovnanian Enterprises was fined $1 million for violating environmental permits and failing to use management best practices to minimize storm water runoff. The company was required to upgrade its pollution prevention efforts at 591 sites, comply with increased training, inspection, and reporting requirements, and implement a new management and internal reporting system. In 2012, the EPA subsequently fined the company an additional $120,000 for failing to comply with the above requirements. This case emphasizes the fact that violations can have costly consequences beyond direct monetary fines.

Nearly all companies in the industry recognize that compliance with environmental regulations represents additional operational costs. At the same time, home builders frequently state in their Forms 10-K that failure to comply with these regulations could result in significant extraordinary expenses.

For example, in its FY 2014 Form 10-K Pulte Group states, “[g]overnment regulations could increase the cost and limit the availability of our development and home building projects or affect our related financial services operations and adversely affect our business or financial results.” The disclosure goes on to state that “[w]e are also subject to a variety of local, state, and federal laws and regulations concerning protection of health, safety, and the environment. The impact of environmental laws varies depending upon the prior uses of the building site or adjoining properties and may be greater in areas where undeveloped land or desirable alternatives are less available. These matters may result in delays, may cause us to incur substantial compliance, remediation and other costs, and can prohibit or severely restrict development and home building activity in environmentally sensitive regions or areas.”

Companies may also view environmental performance as a potential competitive advantage. For example, KB Homes states in its 2014 Form 10-K, “We see environmental issues related to housing becoming increasingly important to consumers and government authorities at all levels, we intend to continue to research, evaluate and utilize new or improved products and construction and business practices consistent with our commitment. In addition to making good business sense, we believe our sustainability initiatives can help put us in a better position, compared to resale homes and home builders with less-developed programs, to comply with evolving local, state and federal rules and regulations intended to protect natural resources and to address climate change and similar environmental concerns.” This disclosure demonstrates that companies in the industry may view performance in this area as not only a risk, but also an opportunity.

Additionally, development in environmentally sensitive areas, such as regions with High or Extremely High Baseline Water Stress, can increase a company’s risk of regulatory pushback, as new communities would put additional stress on local water supplies. For example, in its FY2014 Form 10-K William Lyon Homes states that water shortages, like the drought in California, could impair the company’s ability to obtain regulatory approvals for new developments. Additional permitting costs and utility costs due to severe weather conditions could prevent the company from completing construction on time. If environmental conditions like these persist for prolonged periods of time, William Lyon Homes may see a significant drop in demand for its housing.

In 2014, severe drought prompted California Governor Jerry Brown to issue an executive order for mandatory statewide water restrictions—the
first of its kind in U.S. history. Water agencies that fail to reduce water use by 25 percent will be penalized with fines of $10,000 per day.44 Home builders worried that local water districts and municipalities would prevent new developments from connecting to their water systems, putting new construction at risk. However, industry participants argued that new buildings had become significantly more water efficient and, therefore, constituted “a solution, not a problem.”45

Value Impact

Effectively assessing environmental impacts prior to construction could help mitigate issues that could raise project costs and result in delays. Failure to comply with environmental regulations can result in costly fines, expensive delays, and a sullied reputation. Companies that are known to be repeat violators may have a difficult time receiving approval to build new developments from local authorities, presenting competitive challenges and resulting in decreased revenue and market share in the long term.

Companies with a higher share of projects on redevelopment sites (as opposed to greenfield sites) will likely face less exposure to the risks associated with ecological impacts, which could help avoid increased development costs and permitting challenges. Companies with a greater number of developments in environmentally sensitive regions, including water stressed regions, or less comprehensive approaches to manage ecological impacts may face greater risks. Risks include increased development costs, permitting and regulatory approval challenges, and potential liabilities associated with impacts. Analysis of historical fines provides further information on compliance track records in this area.

Evolving environmental laws and regulations, particularly in sensitive regions, will make successful management of this issue even more important in the future.

HUMAN CAPITAL

Human capital addresses the management of a company’s human resources (employees and individual contractors), as a key asset to delivering long-term value. It includes factors that affect the productivity of employees, such as employee engagement, diversity, and incentives and compensation, as well as the attraction and retention of employees in highly competitive or constrained markets for specific talent, skills, or education. It also addresses the management of labor relations in industries that rely on economies of scale and compete on the price of products and services. Lastly, it includes the management of the health and safety of employees and the ability to create a safety culture within companies that operate in dangerous working environments.

The physical labor requirements of the Home Builders industry generate worker health and safety concerns. Maintaining a healthy and productive workforce is crucial to retaining a company’s social license to operate and ensuring project success. A company’s ability to protect worker health and safety, and to create a culture of safety at all levels of the organization, can directly influence the results of its operations.

Workforce Health & Safety

The Home Builders industry requires a significant amount of manual labor for construction activities, from both company employees and subcontractors. Compared to other industries, it has relatively high fatality and injury rates. The physically demanding work of site excavation and home construction involves risks including falls and accidents from heavy machinery. Injuries and
fatalities can result in internal and external costs to both the company and workers’ families.

Poor health and safety records can result in fines and penalties, reputational harm, litigation, and an increase in regulatory compliance costs stemming from more stringent oversight. Furthermore, injuries or fatalities may result in higher insurance premiums as well as project delays and downtime. Establishing a safety culture, and, at a minimum, ensuring compliance with health and safety regulations are critical to mitigating risks associated with worker injuries and fatalities.

Companies can mitigate risk by implementing proactive safety management plans, developing training requirements for employees and contractors, and conducting regular audits of their own practices, as well as those of subcontractors. Company performance in this area can be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- (1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees.

Evidence

The overall construction industry (which includes both residential and non-residential construction) has the highest fatality rates of any industry in the U.S. In 2013, nearly one in five worker deaths were construction-related. More than half of construction deaths were attributable to workers falling, being struck by an object, being electrocuted, and being caught in/between objects. Failure to adequately protect workers from falls in construction sites was the number-one violation cited by OSHA in 2013. The residential construction industry experienced 145 fatal injuries in 2011 and 199 in 2012, a 37 percent increase. The number of fall fatalities in the residential construction industry increased by 81.5 percent between 2011 and 2012, a statistic that is largely attributed to the increase in home construction activity. In 2013, the fatality rate in the construction industry was 9.4 per 100,000 full-time equivalent workers, significantly higher the national average across industries of 3.2.

The broader financial implications of safety performance are well established. According to the National Safety Council, each lost-time injury or illness costs a company an average of $37,000, while each fatality costs $1.4 million. Furthermore, in a survey of CFOs conducted by Liberty Mutual Insurance, 60 percent of respondents reported that $1 of investment in injury prevention returned $2 or more in savings, and more than 40 percent said that productivity is the chief benefit of strong workplace safety programs.

A study based on 2002 data found that the estimated total costs for worker-related fatalities and injuries, including both direct costs (hospitalization) and indirect costs (wages lost, workers compensation, quality of life costs), were more than $1.2 billion. While these costs were incurred by the entire construction industry, their magnitude emphasizes the economic costs for individual companies stemming from construction-related worker fatalities and injuries.

In 2011, OSHA fined D.R. Horton, along with four subcontractors, for failure to properly manage a residential project jobsite and failure to prevent construction workers from exposure to serious fall hazards. It was a repeat violation for D.R. Horton; the company previously had been cited for similar hazards in Colorado in April and September of 2006. OSHA imposed penalties in the range of
While stand-alone fines may be insignificant relative to a company’s size, repeated violations may be detrimental to company performance.

Companies in the industry recognize the potentially significant impact that worker fatalities and injuries can have on company operations. For example, Ryland Group, the sixth-largest company in the Home Builders industry, acknowledges the risk of worker health and safety incidents in its FY2014 Form 10-K, stating that a “major health and safety incident relating to our business could be costly in terms of potential liabilities and reputational damage.” The company goes on to say that “health and safety performance is critical to the success of all areas of our business. Any failure in health and safety performance may result in penalties for non-compliance with relevant regulatory requirements, and a failure that results in a major or significant health and safety incident is likely to be costly in terms of potential liabilities incurred as a result. Such a failure could generate significant negative publicity and have a corresponding impact on our reputation, our relationships with relevant regulatory agencies or governmental authorities, and our ability to attract customers, which in turn could have a material adverse effect on our business, financial condition and operating results.”

Value Impact

Poor health and safety records can result in extraordinary expenses from fines, penalties, and worker compensation costs, and can increase regulatory compliance costs. Additionally, a company’s health and safety record can affect its insurance premiums, and therefore its operating costs. Health and safety incidents can also result in delays and downtime that raises project costs. Serious incidents are rare, but they can lead to acute, one-time costs and contingent liabilities from legal action or regulatory penalties that can have a serious impact. Analysts may consider home builders with high or increasing recordable injury and fatality rates to be riskier, due to potential acute and chronic costs associated with safety incidents. On the other hand, companies that employ the highest worker health and safety standards are likely to see these rates decline over time, which could result in lower risk of extraordinary expenses and/or indirect operational costs from project delays.

BUSINESS MODEL AND INNOVATION

This dimension of sustainability is concerned with the impact of environmental and social factors on
innovation and business models. It addresses the integration of environmental and social factors in the value-creation process of companies, including resource efficiency and other innovation in the production process. It also includes product innovation and efficiency and responsibility in the design, use-phase, and disposal of products. It includes management of environmental and social impacts on tangible and financial assets—either a company’s own or those it manages as the fiduciary for others.

The Home Builders industry has a large impact on the environment, not only through construction, but also because homes consume large amounts of energy and water. Home owners spend billions of dollars on utility bills. Home builders thus have a unique opportunity to reduce their offerings’ impact on the environment and their occupants by improving energy and water efficiency.

At the same time, new developments have significant long-term social externalities. Therefore, home builders employing smart growth strategies are likely to be better positioned to meet the expansion needs of municipalities while at the same time providing social benefits to communities.

Developments in areas exposed to physical risks from climate change may be particularly challenging for home builders. There is increasing demand for homes that reduce environmental and social impacts and are more resilient to the long-term risks of climate change; this demand creates opportunities for home builders to differentiate themselves from competitors.

**Design for Resource Efficiency**

Residential buildings consume significant amounts of energy and water throughout their use phase. Companies in the Home Builders industry can improve the resource efficiency of homes over their lifecycle through sustainable design practices and materials choices.

Home builders are increasingly building new developments with energy efficiency in mind. They are following industry standards for energy efficiency in home construction in order to certify new homes on their energy performance, which is a selling point for customers. As home sizes have grown and retail electricity prices have risen, energy efficiency has become increasingly important to home buyers as they look to cut costs.

In the absence of energy-efficient construction, more energy is needed for lighting, heating, and cooling. Appliance choice plays an important role in reducing the total cost of ownership through lower energy and water consumption. Using energy-saving products and techniques, such as designing homes for efficient heating and cooling, can help to reduce dependence on energy, whether electricity from the grid or onsite fuel combustion. This in turn, can lower utility bills. Because a lot of energy generation comes via fossil fuels, energy efficiency can have multiple environmental benefits, including reduced GHG emissions from electricity generation at utilities, improved air quality, lower water use, etc.

Similarly, water-saving features such as low-flow faucets can help alleviate water stress in local communities, while also lowering home owners’ water bills. Long-term increases in water costs, and projected continued price increases due to overconsumption and constrained supplies—in part due to climate change—indicate the heightened importance of water management.

Customers are increasingly aware of the importance of resource efficiency in the home. At the same time, third-party programs that assess home builder performance in this area are
emerging. As a result, companies in the industry that focus on designing resource-efficient homes have an opportunity to meet demand from their target market and grow their revenue.

Although implementing resource efficiency design principles into home design and construction may raise the initial costs of building a home, these can be offset via tax credits and higher home values. Effectively applying these design principles in a cost-effective manner could serve as a competitive advantage, especially when companies are successful in systematically educating a broader group of customers on their long-term benefits.

Company performance in this area can be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- (1) Number of homes that obtained a certified HERS® Index Score and (2) average score;
- Percentage of installed water fixtures certified to EPA WaterSense® specifications;
- Number of homes delivered certified to a multi-attribute green building standard; and
- Discussion of risks and opportunities related to incorporating resource efficiency into home design and description of how benefits are communicated to customers.

Evidence

In 2014, the residential sector accounted for roughly 22 percent of total U.S. energy demand, including demand for natural gas, electricity, petroleum, and renewable energy. The average size of homes in the U.S. has grown roughly 19 percent since 1980, placing a greater demand on the nation’s energy infrastructure to heat and cool larger spaces. Between 1980 and 2009, the residential sector’s overall energy use increased 8.9 percent, mainly because of the number of housing units and the size of homes. However, over the same time period, the aggregate energy intensity per household declined by 24.2 percent due to improvements in energy efficiency.

Energy-consuming industries seldom face direct GHG mitigation regulations if they do not have significant Scope 1 GHG emissions. However, if utilities face higher costs due to emissions reduction regulations, they are likely to pass these costs on to their consumers. Therefore, as GHG regulations expand, electricity consumers could face even more cost increases in the future. While real prices of electricity have remained relatively stable in recent years, the U.S. Energy Information Administration’s long-term projections show that average end-use prices for electricity across sectors will increase by around 4.5 percent between 2013 and 2020, in 2013 cents per kWh, and by 12.5 percent between 2013 and 2035, in the reference case. In fact, compared to 2013 prices, real electricity prices are expected to increase across various scenarios, including low- and high-economic growth, as well as low- and high-oil prices. Therefore, energy efficiency can be particularly beneficial to home buyers, making these homes more attractive to them.

Home builders are implementing energy-efficient design into new home construction to help offset the levels of energy consumption from new units and provide further value to home buyers. Builders are using different methods to improve energy efficiency, including energy-efficient roofing materials, siding, windows, furnaces, lighting fixtures, and air conditioners, as well as using home design methods that allow for efficient insulation and heating, ventilation, and air conditioning (HVAC) systems.
There are numerous efficiency-certification programs available for residential homes, including ENERGY STAR, LEED, BuiltGreen, and Environments for Living, among others, which specify standard levels of energy efficiency in home construction. Furthermore, the Home Energy Rating System (HERS) Index Score provides a standardized method for measuring a home’s overall energy efficiency relative to similar homes. The HERS system has become the industry standard, and home builders increasingly seek ratings for new homes. For example, approximately half of the homes built by PulteGroup in 2014 were HERS rated.61

Large home builders are using the HERS index to compete on the relative overall energy performance of new units. For example, KB Homes conducts an independent HERS analysis on every home it builds and has scored an average rating of 65 across its homes compared to a score of 100 for a typical new home (a lower score represents a more energy-efficient home).62 Through sustainability initiatives, the company has been able to deliver homes that are an average of 65 percent more energy efficient than resale homes, and 35 percent more efficient than new homes.63 Furthermore, the company estimates that in 2013, its 82,000 ENERGY STAR-certified homes helped save homeowners more than $24 million in utility bills.64

Many companies have committed to building new homes to energy-efficiency standards. For example, KB Homes builds all its new homes to the most rigorous EPA’s ENERGY STAR Version 3.0 standards. Additionally, under its Double ZeroHouse program, the company is offering homes that use zero net energy in select markets.66

Many companies view energy-efficient homes as a way to differentiate their business from other home builders and resale homes. Lennar Corp. stated in its FY 2014 Form 10-K that “[w]e differentiate our new homes from those homes by issuing new home warranties, updated floor plans, our Everything’s Included marketing program, community amenities and in certain markets by emphasizing energy efficiency and new technologies.”67 Beazer Homes Inc. specifically stated in its FY 2014 Form 10-K that energy efficiency is one of three key differentiators for its homes, along with personalization and lender choice.68

Domestic, commercial, and industrial uses account for the total withdrawals of public-supply water, which domestic deliveries being the largest component.69 This equates to an average of nearly 100 gallons per person, per day. Water efficiency is important to reduce the strain on local water sources, particularly in water-stressed regions. For example, following the drought in California, water bills in Santa Barbara rose between $13 and $120, depending on water use. Conservation measures mandated by Governor Jerry Brown led to community-wide reductions in water use, but also resulted in higher rates and drought surcharges, as water departments started losing money due to lower consumption.70 In this environment, owners of water efficient homes would be better positioned to achieve conservation goals and significantly reduce their utility bills.
Home builders are also adding features that improve a home’s overall water efficiency, such as low-flow faucets, showerheads, and toilets; efficient landscaping; and advanced heating and cooling technologies. These features can help reduce water use by more than 75 percent compared to standard fixtures. In order to provide a standard for water efficiency, the EPA established the WaterSense for New Homes program. Homes built to the standard can help save more than 10,000 gallons of water per year and generate annual water savings of at least $100—and in some cases up to $600—per household. WaterSense products must use at least 20 percent less water than standard models without sacrificing performance.

Home builders need to clearly communicate the benefits of resource efficient homes to their consumers. Education programs help companies in the industry better market their homes, as informed home buyers are more willing to pay a premium on such homes when they understand the lower total cost of ownership. “Green”-rated homes also have the added benefit of commanding higher selling prices, according to a University of California, Los Angeles study. The study analyzed more than 1.6 million homes sold in California between 2007 and 2012 and found that green certifications added an average of nine percent to a home’s selling value.

A research project carried out in Oregon also found that, in the six-county Portland metropolitan area, newly built homes with third-party sustainability certifications sold for an average of 8 percent more than newly built noncertified homes. For existing houses with certifications, the premium was significantly higher, at 30 percent. Another study found that price premiums for certified homes were 9.6 percent in Seattle and 4.2 percent in Portland. Moreover, in Portland, certified houses were also sold faster than their less efficient counterparts, spending 18 days less on average on the market after listing.

These statistics are also supported by various polls that show that customers take resource-efficiency into consideration when making home-buying decisions. In 2014, a study of 2,009 Americans that mirror the U.S. population found that energy and water efficiency would impact home-buying decisions of 80 and 78 percent of respondents, respectively, assuming price, size, location, and other major amenities were comparable. More than 70 percent of the total respondents were also likely or very likely to pay more for homes built to standards that are higher than ENERGY STAR.

Additionally, home builders may receive tax credits for building energy-efficient homes, which translate directly into higher earnings. Meritage Homes Corp stated in its 2014 Q4 conference call with investors that it had received more than $20 million in energy tax credits over the past few years by building “industry-leading energy efficient homes,” which helped translate into a seven percent increase in net profits compared to the fourth quarter of 2013.

**Value Impact**

Improving the sustainability performance of new homes can lead to higher home values, as these homes typically help buyers save on utility bills and lower the total cost of ownership. Additionally, energy and water efficiency can be a differentiator from resale and less efficient new homes, which helps raise demand and leads to increased revenues. Companies that are successful in expanding their green building offerings are likely to capture a greater market share. The probability and magnitude of this issue is likely to increase as environmental concerns around energy and water grow, and supplies become...
increasingly constrained due to climate change and other factors.

Potentially higher costs of building market-leading resource efficient homes are likely to be more than offset by increased home selling prices and potentially tax credits when companies have a strong process and significant experience in incorporating resource efficiency into home design. Energy and water-saving home certifications indicate the value and quality of construction to the buyer, and differentiate them from their less efficient counterparts. This can raise the level of quality assurance for home buyers, improving home builder reputations.

Home builders that deliver a higher number of homes with HERS® Index Scores and other multi-attribute green building standard certifications, as well as those that installed water fixtures certified to EPA WaterSense® specifications, indicate their performance in delivering market-leading homes in resource efficiency, as validated by third party ratings and certification providers. These companies are likely to meet customer demand for resource efficient homes, allowing them to realize higher selling price premiums on their properties.

As resource efficiency regulations grow over time, leading to higher utility costs, home buyers will increasingly value resource efficiency of homes they purchase. Therefore, the ability to successfully deliver homes that reduce the total cost of ownership for occupants will rise in importance for companies in the industry.

Community Impacts of New Developments

Residential communities have significant direct and indirect life cycle externalities. Urban planning gives home builders the opportunity to create new residential developments in a way that benefits the customers as well as the surrounding community. New home development can bring economic and workforce growth, moderating the impacts on cost of living, and can provide communities with safe, vibrant, family-oriented neighborhoods. Some examples of “smart growth” strategies in new developments include improved traffic flows, access to public transportation, and better walkability.

All these strategies focus on preventing sprawl of new developments. The benefits of more compact/dense development include lower costs of providing public infrastructure and services, improved accessibility and lower car use, therefore, lower costs associated with it. Furthermore, compact developments often have indirect social benefits in the form of improved public fitness and health.

Positive and negative social impacts of new developments can affect residents of those communities as well as surrounding communities. Therefore, companies in the industry that consider these impacts and externalities holistically, and assess how new developments fit in the existing communities, may be positioned for more long-term sustainable growth.

The responsibility for implementing techniques to address issues associated with new residential development lies with multiple stakeholders including local governments, communities, and the home builders themselves. While the impetus for implementing smart growth strategies can come from multiple stakeholders, it is the home builders who ultimately have the expertise in residential development and should understand the social and environmental implications of the projects they design, as well as the resulting financial impacts to company value.
The EPA has established its Smart Growth Program to help home builders and communities address many issues associated with development and urban planning. The Smart Growth Network, a partnership of government, business, and civic organizations that support smart growth, has established a set of 10 principles to help guide smart growth strategies. Topics include addressing mixed-land use developments, facilitating neighborhood walkability, fostering attractive communities, preserving open space, protecting agricultural lands, and strengthening community relations, to name a few.79

Sprawl is characterized by the shifting of populations between urban, suburban, and rural areas, and it can be the driver of many social, environmental, and economic issues that can be addressed through smart urban planning strategies. According to Cornell University, sprawl traditionally is associated with the “poorly planned shift of development from urban areas, to suburban and rural areas.” New communities are often more spread out, and using more land and space per person in workplaces, shopping locations, and recreation areas, which can have negative impacts on the environment and society.80 Several public health studies have found that urban sprawl can have adverse human health effects due to lower levels of physical activity and high dependence on automobiles. These include obesity, diabetes, cardiovascular disease, and respiratory disease.81

In most metropolitan regions, greenfield home developments continue to outpace infill developments an average of five to one, increasing the expansion of populations outside city centers and into new undeveloped areas.82 This trend toward sprawl can lead to negative impacts including degradation of natural land, displacement of wildlife (these environmental externalities are covered in the Land Use & Ecological Impacts topic of the brief), higher GHG emissions due to dependence on automobiles, increased strain on municipal services, and increased pollution from transportation.83 Effective urban planning fundamentals can help limit the harmful effects of sprawl. Experts are increasingly advocating for “Smart growth” to reduce the negative impacts from sprawl.84

Additionally, local governments and community leaders are beginning to recognize the potential costs of poorly planned community development, as well as the benefits of smart growth strategies. To address these externalities, some local regulators have imposed certain development and land-use restrictions. While these strategies may encompass more than just residential developments, they can help to influence job growth, improve local economies, and increase a community’s ability to attract investment and talent.85 Home builders that align with the interests of local communities may be more likely to receive development approvals than other builders.

Development strategies that impose excessive costs and negative impacts onto surrounding communities may face direct risks associated with permitting and assessments. Local authorities may deny permits or impose costly conditions, including assessments related to funding utilities and infrastructure. Development strategies that strive to improve communities’ social (and often environmental) impacts may include siting decisions based on providing access to public transportation and/or not overburdening existing transportation infrastructure, providing access to green spaces, developing mixed-use spaces, and incorporating walkability. These strategies can help increase overall selling prices and demand for homes, reduce risks related to permitting denials and compliance, and reduce the risk of community or stakeholder opposition.
Company performance in this area can be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Discussion of how proximity and access to infrastructure and community services affect site selection and development decisions;
- Number of (1) lots and (2) homes delivered on infill sites; and
- (1) Number of homes delivered in compact developments and (2) average density.

**Evidence**

Externalities created by new developments can be assessed by measuring economic costs and benefits imposed on existent and new communities as a whole. Studies show that compact developments that employ smart growth strategies have net positive economic impacts over the long term. For example, a study in Sarasota County, Florida found that 3.4 acres of urban mixed-use development accommodates as many homes as 30.6 acres of suburban developments. Aside from using only about one-tenth of the land, the urban development’s infrastructure costs are 43 percent lower, while generated tax return is over eight times higher. Other studies show that doubling county-level density increases state-level productivity by 6 percent, and that increasing population density leads to higher per capita GDP. For example, a 2015 study found that allowing smart growth infill development in Boston, New York, Seattle, San Francisco, and Washington D.C. could increase aggregate national economic output by 13 percent, or more than $1 trillion annually.86

To build developments, home builders must obtain approvals from numerous government authorities on zoning, density, and other permitted land use and building design. Furthermore, companies in the industry have to meet additional regulatory requirements regarding the construction and installation of utility services and roads, as well as requirements about the dedication of acreage for open space, parks, schools, and other community services.87 According to Taylor Morrison Home Corporation’s FY 2014 Form 10-K, these laws have increased overall costs for the company, and in some cases, made the development of certain communities unfeasible, even if all government approvals were obtained.88

Some cities and counties have approved or approved for inclusion on their ballot various initiatives focused on preventing sprawl. These initiatives may reduce the amount of land available for development, and therefore, impact home builders’ opportunities.89

For example, in its Form S-1, Taylor Morrison Home Corporation writes that smart growth initiatives implemented in Ontario, Canada in 2005 restricted development on approximately 1.8 million acres of land, regulation that will likely have negative impacts on the company’s operational performance and the financial conditions. Specifically, the company stated that development restrictions could impair its ability to open new home communities and to build and sell homes on land already owned by the company. Moreover, such regulations create additional costs and administrative requirements, which could negatively impact the company’s future sales, margins, and earnings.90 If such initiatives become more widely adopted, home builders will have to be incorporating new residential development techniques in order to mitigate the risks described above.

Similarly, in its FY2014, Standard Pacific stated that “Approval of slow or no growth measures
would increase the cost of land and reduce our ability to open new home communities and to build and sell homes in the affected markets and would create additional costs and administrative requirements, which in turn could harm our future sales and earnings.”  

In 2014, the Stockton Planning Commission voted to halt the development of a suburban residential development on agricultural land outside of Stockton, CA city limits. A local activist group, Campaign for Common Ground, claimed the project would contribute to the city sprawl and was not aligned with the city’s long-term expansion strategy. 

The overall level of influence home builders have on local communities depends on the location and type of projects being built. For example, greenfield developments may face different urban planning issues than redevelopments and infill developments. Companies can understand some of these issues by engaging with local communities before projects are designed and construction begins. For example, to positively engage local communities at early stages and improve project outcomes, Barratt Developments held public consultations for 46 percent of its new developments.

Creating positive externalities through the thoughtful planning of residential communities can lead to enhanced business value for home builders. A 2009 study analyzed more than 90,000 home sales in more than 15 markets across the U.S. and found that those with more walkable access to daily shopping and social destinations commanded premiums of $4,000 to $34,000 more than houses with average walking scores.

A 2007 study analyzed the demand for homes located in smart growth neighborhoods and found that one-third of home buyers would prefer a home in a neighborhood that incorporates smart growth principles. The study found that 600,000 out of the two million houses built in 2007 would need to considered “smart growth” in order to meet home buyers’ demand. Unfortunately, production of such homes was lagging demand. According to another study, based on the sales of more than 4,700 single-family homes in Montgomery County, Maryland between 1997 and 2005, houses in smart growth developments were sold at premiums ranging from 6.5 to 16 percent on average, depending on a neighborhood. Another study comparing 18 smart growth and 18 conventional suburban developments found that 56 percent of the smart growth developments had higher resale appreciation than their suburban counterparts, while 33 percent had lower, and 11 percent had the same.

A conservation subdivision design strategy allows developers to build neighborhoods preserving green spaces while placing the same amount of buildings. In Indiana, such strategy raised the value of individual lots by $20,000 without decreasing the total number of lots. At one particular 80-lot development in Texas, designing around existing green space helped a developer to cut grading costs by 83 percent, or $250,000, compared to a conventionally engineered plan.

Home builders may benefit from incorporating smart growth features into development design to meet the growing demand for these homes. Additionally, home builders can differentiate themselves from their competition through proper marketing. According to Branding and Marketing Smart Growth Communities, an EPA publication, “[b]uilders and developers that successfully package the benefits of good placemaking with good environmental stewardship will demonstrate the value of their communities not only to home buyers, but also to municipalities that are

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increasingly interested in making sure that new
development is environmentally sound and good
for the community as a whole.” 100 This suggests
that home builders may have opportunities to
increase their market share, as these projects are
likely preferred by both home buyers and local
municipalities.

KB Home applies smart growth principles to
maximize use of and return from each site. The
company often repurposes sites to achieve the
best outcome. As an example, KB Home acquired
an overflow train station parking lot in Lafayette,
California and developed a condo complex.
Attractive features including close proximity to
public transportation, two-level garages, and a
nearby shopping center significantly increased the
selling value of apartments in the complex. The
company also acquired an over flow mall parking
lot in San Jose “to turn into multiple product lines
of 243 units.” 101

Value Impact

Thoughtful, comprehensive planning of residential
communities can help improve the desirability of
homes in these neighborhoods, which can lead to
greater demand and higher selling values. Such
planning, that also takes into account how well
new communities are integrated into the pre-
existing, surrounding communities, could help
home builders differentiate their communities.
These more holistic planning strategies can
therefore contribute to increases in revenue and
market share.

Smart growth strategies and well-performing
communities can help improve the reputations of
home builders. These strategies may provide a
source of competitive advantage, as it could
reduce the barriers to entry in certain
municipalities that value urban planning principles
associated with smart growth, which can lead to
stronger long-term revenue potential.

Analysts can determine projected development
costs by considering proximity and access to
infrastructure and community services. As
regulations may require companies to ensure
public access to these services, construction in
areas without them could lead to additional
expenditures for home builders. These costs could
make certain projects infeasible.

Companies that have a higher share of
developments on infill sites are increasingly likely
to be aligning their strategy with the long-term
 expansion goals of local communities. As infill
developments tend to provide net benefits and
reduced negative externalities to the surrounding
communities, such projects are more likely to be
approved by local regulators, therefore, reducing
a company’s risk of future revenue and leading to
more growth opportunities.

In light of population growth and reduced
availability of land, communities are increasingly
looking for sustainable expansion strategies.
Therefore, the importance of managing the
impacts of new development on communities is
likely to become more important for home
builders over time.

Climate Change Adaptation

Extreme weather events and changing climate
patterns play an increasingly key role in
development site selection. Although home
builders generally sell off their home and land
inventory relatively quickly, lowering long-term
asset value exposure to climate change risks,
material impacts are likely to come through other
channels, such as selling prices and the ability to
obtain development permits. A company’s
dedication to incorporating ongoing assessments
of climate change risks—and its adaptation to
such risks—could be increasingly connected to
company value over the long term.
More specifically, home development activities in floodplains and coastal regions that are exposed to inclement weather have increased the need for business model adaptation to climate change, especially considering long-term challenges with flood insurance rates, the financial stability of government-subsidized flood insurance programs, and financing stipulations. At the same time, development in water-stressed regions represents additional risks, as the impacts from climate change may increase the frequency and longevity of droughts.

In areas experiencing severe droughts or flooding, regulations often mandate stricter development standards or of additional flood insurance. Rising climate risks and increasing costs of occupying properties in such regions may translate into reduced long-term demand, land value depreciation, and concerns over understated long-term costs of home ownership. In water stressed regions, water restrictions may prevent home builders from obtaining development permits.

Home builders that actively assess climate change risks and incorporate changing home buyer demand in lot selection and climate-resilient development may be able to successfully adapt to such risks. Company performance in this area can be analyzed in a cost-beneficial way through the following direct or indirect performance metrics (see Appendix III for metrics with their full detail):

- Number of lots located in FEMA Special Flood Hazard Areas or foreign equivalent; and
- Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks.

Evidence

Climate change can impact home builders in many ways. Regulatory restrictions or physical impacts from climate change can reduce the value of a company’s assets (including land inventory), affecting its ability to develop its lots. In other cases, impacts may be indirect, such as increased insurance premiums for properties with higher exposure to flooding. A higher cost of insurance translates to a higher cost of ownership for potential home buyers, which could impact their purchasing decisions. Reduced demand is likely to put downward pressure on home prices and ultimately lower revenue for home builders.

Home builders do not carry developed properties on their books for extended periods of time, and therefore, physical risks to these assets are less of an issue for the industry. On the other hand, the value of land acquired for development and carried on balance sheets may be exposed to extreme weather events, which could hinder a company’s ability to obtain permits. Impacts associated with climate change are likely to affect home builders though increased costs of doing business.

As discussed in the Land Use & Ecological Impacts issue, companies may face difficulties in obtaining development permits when new communities are likely to put an additional stress on the existent water supply. Planning developments in sensitive areas could affect a company’s future revenue, as certain inventories of land may become stranded (devalued and/or unusable for intended development). At the same time, as noted in the Design for Resource Efficiency topic, regulatory restrictions on water use ultimately lead to higher utility bills and higher demand for resource efficient homes. Furthermore, drought can lead to stricter building codes, making it more difficult for home builders to obtain development permits. Following the drought, the California Building
Standards Commission reduced the amount of allowable landscape water use by 20 percent, forcing home builders to plant less turf and more drought-friendly foliage. Similar regulations could increase home builder construction costs, either directly through stricter development standards or indirectly through project delays or permit denials. There are two strategies that companies in the industry can use to manage these risks. One, improve the resource efficiency of new buildings to meet strict standards (this strategy is discussed in the Design for Resource Efficiency issue above). Two, reduce the amount of development in areas at risk of extreme weather events.

Financial analysts view extreme weather as potentially material factors to companies in the industry. Investors often ask questions about the expected impacts of climate change on a company’s operations, financial conditions and, mitigation strategies. On one investor call, Toll Brothers responded to a question by stating that communities it has developed in California use reclaimed water for irrigation and gray water for washing machines and toilets to increase efficiency.

As climate change increases flood risk, the areas where flood insurance is required to obtain a mortgage are constantly expanding. Insurance premiums increase the total occupancy costs for home buyers. In the U.S., the Federal Emergency Management Agency’s (FEMA) Risk Mapping, Assessment and Planning (MAP) program “identifies flood hazards, assesses flood risks, and partners with states and communities to provide accurate flood hazard and risk data to guide them to mitigation actions.” The National Flood Insurance Program (NFIP) bases its regulations and flood insurance requirements on flood hazard mapping. The NFIP sets standards for floodplain management requirements—including the use of FEMA maps and base flood elevations—and permit requirements; it also ensures that new development does not cause increased flooding elsewhere, and that new buildings are protected from the base flood. FEMA defines a Special Flood Hazard Area (SFHA) as an area that requires enforcement of the NFIP regulations and where the purchase of flood insurance is mandatory.

In 2013, a climate change study conducted by AECOM for FEMA, concluded that the SFHA in riverine and coastal environments is expected to increase by about 45 and 55 percent, respectively, by 2100. According to the study, which used the receding shoreline assumption, the total number of NFIP insurance policies may increase by 80 percent, the number of riverine policies may double, and the number of coastal policies may increase by 60 percent by 2100. The average loss cost per policy may increase by 50 percent over the same period. Assuming fixed coastal shorelines, the number of total, riverine, and coastal NFIP policies may increase by 100, 80, and 130 percent, respectively.

Mortgage finance and property insurance providers are increasingly pressured to incorporate climate change in their models. This pressure leads to increases in the cost of financing and insuring properties associated with climate risks. These increased costs further impact home builders by putting downward pressure on home selling prices, reducing company revenues.

One of the key valuation impacts from climate-related events stems from their inclusion in insurance provider risk models, and the characterization and level of risk associated with specific coastal areas. Flood insurance premiums vary significantly based on the riskiness of the area in which properties are located, according to NFIP, which is administered by FEMA.
According to a report from the Urban Land Institute, increasing storm severity and rising sea levels are leading to adjusted flood risk models, and to a higher proportion of living areas being reclassified as high flooding risk zones.\(^{109}\) This rezoning can significantly impact the valuation of existing properties, as a high-risk designation will command higher insurance premiums, reduce land value, and increase building costs. The report cites a New York University study that compared flood hazard maps in New York City from 1983 and 2013 and found that during that time period, two-thirds of New York City’s properties initially considered at medium risk for flooding had shifted into the high-risk category. The study further emphasized, “95,000 buildings and 397,000 housing units are at high and medium risk for flooding, including 87,000 high-risk housing units on the ground floor.”\(^{110}\)

In light of the climate change impacts, homebuilders not only need to improve efficiency to avoid exacerbating resource constraints (as discussed in the Design for Resource Efficiency topic), they also need to increase the resilience of new developments to physical risks from events such as hurricanes. Arverne by the Sea project on the Rockaway Peninsula of Queens is one example of a resilient project. Hurricane Sandy hit the Rockaway Peninsula hard in 2012, but the development was not significantly impacted by the storm. The wide beach, the boardwalk, and the dunes provided considerable protection for the community. The developers further strengthened and built up the dunes after the storm. Prior to the storm, the developers also brought in more than a half million cubic yards of fill dirt, raising the grade of the site by about eight feet. This measure was critical to preventing flooding of the area during the hurricane. Additionally, the decision to place all utilities underground helped to maintain the electrical systems within the Arverne community, allowing it to restore electricity as soon as power was brought back to the area.\(^{111}\)

**Value Impact**

Climate-related risks may increase operating costs for homebuilders. These increases could come in the form of measures to increase resiliency, and/or resource efficiency improvements that are required in order to obtain development permits from regulators. While these measures may represent significant expenses to companies in the industry, prudent resource allocation and effective development strategies could mitigate these risks.

Focusing on the resilience of new developments may help homebuilders to increase the attractiveness of their properties. These improvements would also create significant value for potential residents, which could increase the selling prices of these homes. On the other hand, failure to account for climate change-related risks during development and land acquisition could result in permit denials, and, therefore, acquired land could lose value. For that reason, site selection plays an important role in mitigating exposure to climate change. Properties in areas where climate change effects are particularly prominent carry added costs of ownership, and could be sold at a discount to market prices.

The number of developments in FEMA Special Flood Hazard Areas, as well as in regions with High or Extremely High Baseline Water Stress,\(^{111}\) could give analysts an indication of a company’s risk to future revenue. In areas with high flood risk, homebuilders may fail to realize expected home prices, as additional insurance costs imposed on home buyers could reduce demand. At the same time, homebuilders may fail to obtain development permits in areas where water access and availability is an issue, as new

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\(^{111}\) The metric is included in the Land Use & Ecological Impacts disclosure topic.
communities would put additional stress on water supply. Moreover, in both cases, companies in the industry could incur higher development costs due to stricter resource efficiency and resiliency requirements.

Environmental externalities associated with climate change are likely to increase in frequency and magnitude over time. Therefore, it will become more important for companies in the industry to adapt to such risks in the future.
APPENDIX I

FIVE REPRESENTATIVE HOME BUILDERS COMPANIES

<table>
<thead>
<tr>
<th>COMPANY NAME (TICKER SYMBOL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.R. Horton Inc (DHI)</td>
</tr>
<tr>
<td>Lennar Corp (LEN)</td>
</tr>
<tr>
<td>PulteGroup Inc (PHM)</td>
</tr>
<tr>
<td>NVR Inc (NVR)</td>
</tr>
<tr>
<td>Toll Brothers (TOL)</td>
</tr>
</tbody>
</table>

This list includes five companies representative of the Home Builders industry and its activities. This includes only companies for which the Home Builders industry is the primary industry, companies that are U.S.-listed but are not primarily traded over the counter, and for which at least 20 percent of revenue is generated by activities in this industry, according to the latest information available on Bloomberg Professional Services. Retrieved on March 15, 2016.
APPENDIX IIA:
Evidence for Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Sustainability Disclosure Topics</th>
<th>EVIDENCE OF INTEREST</th>
<th>EVIDENCE OF FINANCIAL IMPACT</th>
<th>FORWARD-LOOKING IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HM (1-100)</td>
<td>IWGs</td>
<td>EI</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>Priority</td>
<td>Revenue &amp; Cost</td>
</tr>
<tr>
<td>Land Use &amp; Ecological Impacts</td>
<td>57</td>
<td>90</td>
<td>3</td>
</tr>
<tr>
<td>Workforce Health &amp; Safety</td>
<td>63*</td>
<td>90</td>
<td>4</td>
</tr>
<tr>
<td>Design for Resource Efficiency</td>
<td>71*</td>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>Community Impacts of New Developments</td>
<td>N/A</td>
<td>80</td>
<td>2</td>
</tr>
<tr>
<td>Climate Change Adaptation</td>
<td>63*</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**HM**: Heat Map, a score out of 100 indicating the relative importance of the topic among SASB's initial list of 43 generic sustainability issues. Asterisks indicate “top issues.” The score is based on the frequency of relevant keywords in documents (i.e., 10-Ks, 20-Fs, shareholder resolutions, legal news, news articles, and corporate sustainability reports) that are available on the Bloomberg terminal for the industry’s publicly listed companies. Issues for which keyword frequency is in the top quartile are “top issues.”

**IWGs**: SASB Industry Working Groups

**%**: The percentage of IWG participants that found the disclosure topic likely to constitute material information for companies in the industry. (-) denotes that the issue was added after the IWG was convened.

**Priority**: Average ranking of the issue in terms of importance. 1 denotes the most important issue. (-) denotes that the issue was added after the IWG was convened.

**EI**: Evidence of Interest, a subjective assessment based on quantitative and qualitative findings.

**EFI**: Evidence of Financial Impact, a subjective assessment based on quantitative and qualitative findings.

**FLI**: Forward Looking Impact, a subjective assessment on the presence of a material forward-looking impact.
## APPENDIX IIB:
Evidence of Financial Impact for Sustainability Disclosure Topics

<table>
<thead>
<tr>
<th>Evidence of Financial Impact</th>
<th>Revenue</th>
<th>Operating Expenses</th>
<th>Non-operating Expenses</th>
<th>Assets</th>
<th>Liabilities</th>
<th>Cost of Capital</th>
<th>Industry Divestment Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Market Share</td>
<td>New Markets</td>
<td>Pricing Power</td>
<td>Cost of Revenue</td>
<td>R&amp;D</td>
<td>CapEx</td>
<td>Extra-ordinary Expenses</td>
</tr>
<tr>
<td>Land Use &amp; Ecological Impacts</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Workforce Health &amp; Safety</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Design for Resource Efficiency</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Community Impacts of New Developments</td>
<td>☐</td>
<td>☐</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Climate Change Adaptation</td>
<td>☐</td>
<td>☒</td>
<td>☒</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

![MEDIUM IMPACT](MEDIUM IMPACT.png) ![HIGH IMPACT](HIGH IMPACT.png)
## APPENDIX III

### SUSTAINABILITY ACCOUNTING METRICS—HOME BUILDERS

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use &amp; Ecological Impacts</td>
<td>Number of (1) lots and (2) homes delivered on redevelopment sites</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-01</td>
</tr>
<tr>
<td></td>
<td>Number of (1) lots and (2) homes delivered in regions with High or Extremely High Baseline Water Stress</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-02</td>
</tr>
<tr>
<td></td>
<td>Amount of legal and regulatory fines and settlements associated with environmental regulations*</td>
<td>Quantitative</td>
<td>U.S. Dollars ($)</td>
<td>IF0401-03</td>
</tr>
<tr>
<td></td>
<td>Description of process to integrate environmental considerations into site selection, site design, and site development and construction</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>IF0401-04</td>
</tr>
<tr>
<td>Workforce Health &amp; Safety</td>
<td>(1) Total recordable injury rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees</td>
<td>Quantitative</td>
<td>Rate</td>
<td>IF0401-05</td>
</tr>
<tr>
<td></td>
<td>(1) Number of homes that obtained a certified HERS® Index Score and (2) average score</td>
<td>Quantitative</td>
<td>Number, Index score</td>
<td>IF0401-06</td>
</tr>
<tr>
<td></td>
<td>Percentage of installed water fixtures certified to EPA WaterSense® specifications</td>
<td>Quantitative</td>
<td>Percentage (%)</td>
<td>IF0401-07</td>
</tr>
<tr>
<td></td>
<td>Number of homes delivered certified to a multi-attribute green building standard</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-08</td>
</tr>
<tr>
<td></td>
<td>Discussion of risks and opportunities related to incorporating resource efficiency into home design and description of how benefits are communicated to customers</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>IF0401-09</td>
</tr>
<tr>
<td>Community Impacts of New Developments</td>
<td>Discussion of how proximity and access to infrastructure and community services affect site selection and development decisions</td>
<td>Discussion and Analysis</td>
<td>n/a</td>
<td>IF0401-10</td>
</tr>
<tr>
<td></td>
<td>Number of (1) lots and (2) homes delivered on infill sites</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-11</td>
</tr>
<tr>
<td></td>
<td>(1) Number of homes delivered in compact developments and (2) average density</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-12</td>
</tr>
</tbody>
</table>

*Note to IF0401-03—Disclosure shall include a description of fines and settlements and corrective actions implemented in response to events.*
## APPENDIX III (CONTINUED)

### SUSTAINABILITY ACCOUNTING METRICS—HOME BUILDERS

<table>
<thead>
<tr>
<th>TOPIC</th>
<th>ACCOUNTING METRIC</th>
<th>CATEGORY</th>
<th>UNIT OF MEASURE</th>
<th>CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
<td>Number of lots located in FEMA Special Flood Hazard Areas or foreign equivalent</td>
<td>Quantitative</td>
<td>Number</td>
<td>IF0401-13</td>
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<tr>
<td>Adaptation</td>
<td>Description of climate change risk exposure analysis, degree of systematic portfolio exposure, and strategies for mitigating risks</td>
<td>Discussion and</td>
<td>n/a</td>
<td>IF0401-14</td>
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<tr>
<td></td>
<td></td>
<td>Analysis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX IV: Analysis of SEC Disclosures | Home Builders

The following graph demonstrates an aggregate assessment of how representative U.S.-listed Home Builders companies are currently reporting on sustainability topics in their SEC annual filings.

<table>
<thead>
<tr>
<th>TYPE OF DISCLOSURE ON SUSTAINABILITY TOPICS</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Builders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land Use &amp; Ecological Impacts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90%</td>
</tr>
<tr>
<td>Workforce Health &amp; Safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>90%</td>
</tr>
<tr>
<td>Design for Resource Efficiency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Community Impacts of New Developments</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>80%</td>
</tr>
<tr>
<td>Climate Change Adaption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

IWG Feedback*

*Percentage of IWG participants that agreed topic was likely to constitute material information for companies in the industry.

1 The "Climate Change Adaptation" disclosure topic was introduced after SASB convened IWGs and per stakeholder feedback.
REFERENCES

2 Author’s calculation based on data from Bloomberg Professional service accessed on January 22, 2016, using the ICS <GO> command. The data represents global revenues of companies listed on U.S. exchanges and traded over-the-counter in the Home Builders industry, using Levels 3 and 4 of the Bloomberg Industry Classification System.
3 Data from Bloomberg Professional service accessed on January 22, 2016, using the FA <GO> command. The data represents company FY2015 Revenues
11 Author’s calculation based on data from Bloomberg Professional service, accessed January 22, 2016, using Equity Screen (EQS) for U.S.-listed companies and those traded primarily OTC that generate at least 20 percent of revenue from their Home Builders segment and for which Home Builders is a primary industry.
17 Information from the Bloomberg Industries portal of the Bloomberg Professional service using the <BI HOMB> function: Homebuilders Dashboard: Key Indicators; Drew Reading, “Homebuilders Trading at 11.8x as Stocks Gain on Spring Optimism,” Bloomberg Industries Industry Primers, April 2, 2015, accessed April 10, 2015 using the <BI HOMB> function.


54 Barratt Developments PLC, 2014 Sustainability Report, p. 5.


58 Ibid., p. 1.


63 Ibid., p. 4.

64 Ibid., p. 11.


71 Calvert Investments, A Survey of Sustainable Practices By the Homebuilding Industry, p. 7;


87 From analysis of the SEC filings of companies in the Home Builders industry.


90 Taylor Morrison Home Corporation, Form S-1/A (filed April 8, 2013).


101 KB Home, Shareholder Meeting Call for the Period Ending February 28, 2013 (uploaded July 8, 2013).


110 Ibid.
