

Raising the Roof

Full Report December 2012



The UK home building sector's contribution
to a sustainable future





*is an annual sustainability benchmark
of the 25 largest homebuilders in the UK.*

The benchmark allows homebuilders to understand the sustainability of their operations and the new homes they build, but also allows Government, investors and the public to see how the sector is delivering sustainable development.

2012 Facts



Berkeley Group
Crest Nicholson
Miller Homes

**top three most sustainable
homebuilders in the UK**



60% of new homes completed in 2012
covered by NextGeneration

85% highest score in the benchmark



10 billion turnover of top 25 homebuilders

71%

average score of NextGeneration members



Introduction

This Report

This report contains the findings of the 2012 NextGeneration benchmark and is the sixth year the benchmark has been undertaken. 2012 is the first time that two consecutive years' of comparable benchmarking data is available. Having this direct comparison provides greater understanding of the industry's progress over time and allows for companies to target improvements in performance more easily.

This report also highlights the industry's key strengths, weaknesses, challenges and opportunities in addressing the sustainability agenda. It also looks at key trends emerging in the industry's approach to sustainability and finally offers recommendations to both the industry and the Government on how to build upon the progress made to date.

Context

The UK home building sector continues to face complex economic challenges. Despite the Bank of England recently launching its Funding for Lending scheme¹, there is still a lack of mortgage finance across the country. Off the back of months of falling house prices² there has been a recent upturn in the average asking price³ for a home and some homebuilders are reporting improving profits, however, the well-known difficulties faced by buyers in the market, and summarized in previous NextGeneration reports, continued during 2012.

The political message remains consistent with the need for sustainable new homes resonating across all quarters, however, how a "sustainable home" is defined remains contentious. The recent past has seen the introduction of the National Planning Policy Framework ("NPPF") to give more power to local decision-makers and the review of many established housing standards. Next year will potentially see changes to Building Regulations Part L to change the energy efficiency standards of new homes again. However, there is still no definitive answer on the allowable solutions to achieve zero carbon and Level 6 of the Code for Sustainable Homes; a standard which currently all new homes are to be built to in a little over three years' time.

"Engagement with the NextGeneration benchmarking process provides Redrow with a comprehensive framework of recognised development related sustainable criteria, encouraging a disciplined approach to the monitoring of associated standards and performance across our company and informing our sustainability and climate change policy direction going forward. This brings benefits directly for our business, for our customers and for all our other stakeholders."

– Nigel Smith, Research and Sustainability Director, Redrow Homes



¹ <http://www.bankofengland.co.uk/markets/Pages/FLS/default.aspx>

² http://www.lloydsbankinggroup.com/media1/press_releases/2012_press_release_brands_halifax/0611_HPI.asp

³ <http://www.rightmove.co.uk/news/house-price-index/october-2012>

The NextGeneration Benchmark

Picture courtesy of Linden Homes

History

NextGeneration was launched in 2006 to drive best practice in sustainability into the heart of the residential development sector. Since 2006, the benchmark has been run annually and the number of companies assessed has increased from 20 to 25, whilst the breadth and depth of the benchmark has also grown from a focus on environmental sustainability to also cover social and economic sustainability.

During the last six years, the benchmark has also examined topical issues in particular years through focused benchmarking on climate change (2008) and sustainable communities (2010).

Figure 1: NextGeneration History



Executive Committee and Secretariat

NextGeneration is supported and directed by the Homes and Communities Agency through their role on the Executive Committee. The committee's role is to ensure the integrity and transparency of the initiative's governance. Upstream Sustainability Services at Jones Lang LaSalle acts as the secretariat to the initiative; carrying out the analysis and delivering a range of services to homebuilders who participate in the benchmark.

Executive Committee



Secretariat



Members



2012 Membership

Nine companies (from the top 25 largest homebuilding in the UK) accepted the invitation to join the benchmark. They have a combined annual turnover of over £10 billion and completions of over 57,000 units per annum.

These “member” companies benefit from the opportunity to raise questions on the benchmarking criteria before they are agreed each year, receipt of guidance on how to interpret the criteria, a more detailed analysis of their performance and access to detailed benchmarking data.

NextGeneration also facilitates quarterly events for members to discuss pertinent sustainability issues facing the sector. This is also a chance for other organisations to present to the NextGeneration membership. During the course of 2012 these events included:

- **Health & Safety:** NextGeneration held a session focusing on Health & Safety in the industry with the two objectives being to review this section of the criteria and to discuss standard metrics for reporting on the issue.
- **Flood Risk:** Another session was held looking into flood risks related to both home builder’s land banks and completed units following severe weather events in the UK during 2011/12.
- **Community Engagement:** The Princes Foundation for the Built Environment led a discussion with NextGeneration members on community engagement in response to the requirements of the Localism Bill and National Planning Policy Framework (“NPPF”).
- **Sustainability in Sales & Marketing:** NextGeneration members were presented with the results of a mystery shopper survey where sales offices were called to assess how sustainability is integrated into the sales and marketing of new homes.

Newsletters are also sent to members on a regular basis updating them on key sustainability, home building and benchmarking news and events.

Advocacy

Since its inception, NextGeneration has endeavoured to position itself as a voice on sustainability issues for its homebuilder members. This year, NextGeneration has been working to raise the profile of the benchmark and its members through participation in the Green Construction Board – Valuation and Demand Work Stream. Set up by the Business Minister, Mark Prisk, the Green Construction Board is made up of Government and industry and is examining how the UK completes the transition to a low carbon economy.

The Valuation and Demand workstream (domestic buildings) is examining the drivers for more sustainable homes, how valuers should build these into their valuation process and what intervention points are available in the property life cycle to influence stakeholders in terms of sustainability.

During the course of the year, NextGeneration has also engaged with the Royal Institution of Chartered Surveyors, the Good Homes Alliance, the UK Green Building Council and the UK Sustainable Investment Forum.

***“As a responsible developer, creating integrated and sustainable communities is a core part of our business strategy, and we place a great deal of emphasis on the contribution from urban planning in creating a genuinely sustainable place for our customers.*”**

Building a community starts with a thorough understanding of the particular needs and desires of the local people and other local stakeholders. We do this through a continuous programme of honest communication and engagement, building trusting relationships with a wide range of stakeholders – localism in practice.”

– Chris Tinker, Board Member and Chairman of Regeneration, Crest Nicholson

Methodology

Picture courtesy of Taylor Wimpey

Who we benchmark

The NextGeneration sustainability benchmark assesses the top 25 largest UK home builders⁴. The following list of companies represents these top builders and those included in the benchmark.

NextGeneration members are highlighted below:

Barratt Developments	Kier Homes
Bellway Homes	Linden Homes
Berkeley Group	Lend Lease
Bloor Holdings	McCarthy & Stone
Bovis Homes	Miller Homes
Cala Group	Morris Homes
Countryside Properties	Persimmon
Crest Nicholson	Redrow Group
Croudace	Stewart Milne
Fairview New Homes	Taylor Wimpey
Galliard Homes	Telford Homes
Gladedale	Willmott Dixon
Keepmoat Group	

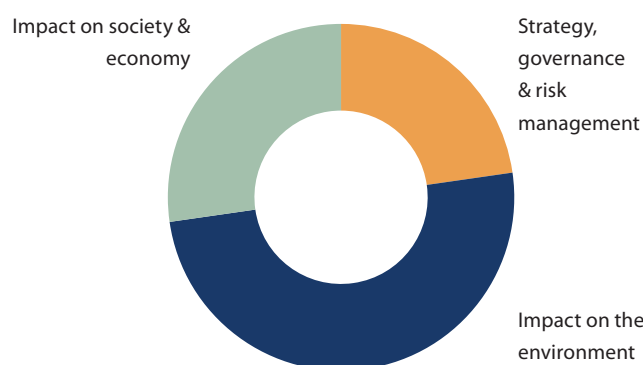
What we benchmark

To achieve NextGeneration's core aim to drive best practice in sustainability into the heart of the residential development sector, the criteria on which the industry is benchmarked are of paramount importance. Whilst ensuring these criteria accurately reflect the issues facing the industry, it is also critical to ensure comparability over time.

In 2012 there are in excess of 250 benchmarking criteria that fall into the following three categories:

- **Strategy, governance and risk management;** which looks at policy and strategy, commitment to sustainability from all levels of the organisation, internal communication and training, the quality of public disclosure and data assurance, risk management and research and development.
- **Impact on the environment;** which examines environmental management and 10 key impact areas, including energy and climate change, water, waste, ecology, sustainable building standards, transport and sustainable procurement.
- **Impact on society and economy;** which reviews six key areas including health and safety, considerate construction, economic development, stakeholder engagement, customer engagement and sustainable communities (environmental infrastructure, place making, quality and design standards and post-occupancy evaluation).

Figure 2: Criteria Weighting



The criteria are weighted so that approximately 75% of the points are awarded for a company's 'performance' with a lesser amount available for its 'commitment', so that the benchmark recognises what companies actually do rather than what they say they will do.

During the criteria development process in 2012, consultation on the criteria was undertaken to identify areas for update (e.g. due to changes in legislation). However, we believe this is the first year from which we can draw meaningful comparisons across two consecutive sets of data because the criteria are broadly the same (estimated 90% similarity with the 2011 criteria).

Continuing our assessment against these criteria going forward will also allow NextGeneration to draw out further performance trends over time.

⁴ This was calculated through analysis of turnover and volume of dwellings built based on the latest financial data available from each company at the beginning of 2012.

How We Benchmark

Phase One: All 25 home builders included in the assessment were subject to Phase One of the benchmarking process. Under Phase One, NextGeneration evaluates the publicly available information of the 25 home builders. This includes a detailed analysis of:

- Sustainability (or Corporate Responsibility/ Environmental/Health and Safety) reports
- Annual reports and accounts
- Sustainability coverage on corporate websites (excluding marketing websites and press releases, unless specifically referenced in the sustainability information)

The data analysed during this phase had to be publicly available before 31 May 2012. All companies were provided with a copy of their Phase One analysis and score. They were then given the opportunity to respond to the analysis, query scores and highlight any additional publicly available information not captured.

Phase Two: This looks at information which is not disclosed publicly and is a level of scrutiny that is only undertaken with NextGeneration members. It provides a fuller assessment of a company's performance and allows NextGeneration to build up a more detailed picture of performance in the industry. We undertake face-to-face meetings with members in order to discuss the criteria and they are then able to submit further evidence against the benchmark criteria.

Having evaluated the Phase Two evidence, a second report is then produced for member companies only, outlining their updated score in light of any further information disclosed. All 25 companies are then ranked according to their final score.

A score of 100% in either phase would indicate that a company had achieved best practice as defined by the NextGeneration criteria.

Each year NextGeneration strives to achieve best practice in terms of benchmarking methodology and techniques to ensure the credibility and viability of our assessment. In our 2011 report, we highlighted the importance of SustainAbility's 'Rate the Raters'⁵ report on sustainability benchmarks and its key recommendations, which included articulating objectives and motivations, striving for greater transparency and concentrating on quality control.

To ensure ongoing improvements in quality, transparency and fairness, this year NextGeneration is sharing a selection of the criteria used to assess home builder's sustainability performance throughout this report. The main driver for doing this is to ensure that as a 'rater' of companies, we are continually seeking opportunities to enhance how we benchmark and also to engage with the broader housing industry.

One area where we have decided to share our benchmark criteria is related to Health & Safety in the home building industry. By providing detail on this section, the hope is that the best practice recommendations developed in conjunction with our Members can be used by all homebuilders, leading to improvements in this vital area.

NextGeneration Benchmark criteria for Health & Safety

Company does not measure performance

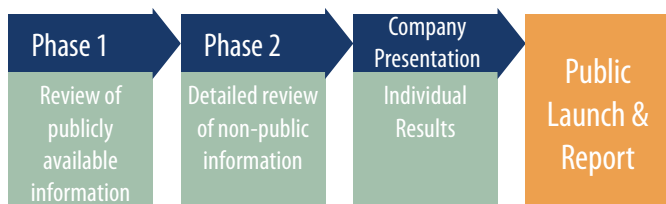
Company records Accident Incidence Rates (AIR)

Company AIR over the past 3 reporting years is within 10% of published HBF AIR and shows continuous improvement.

Company has achieved better than published HBF AIR over the past 3 reporting years and shows continuous improvement.

Company records work related health absence using the metric 'days absence per 100,000 employees'

Figure 3: Benchmarking Process



⁵ Please see the following website to download the report and for further information on this project: <http://www.sustainability.com/library/rate-the-raters-phase-three>



Picture courtesy of Miller Homes

The Results

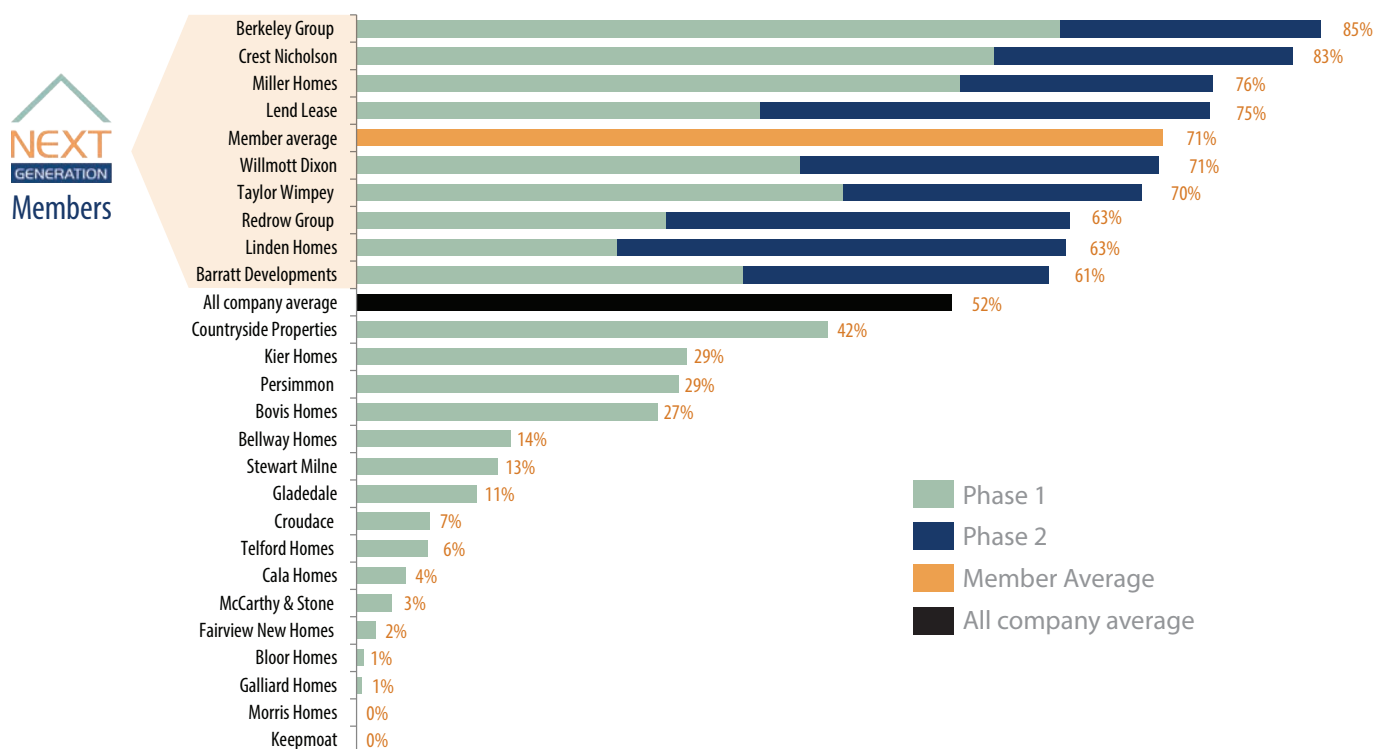
Company Rankings in 2012

The Berkeley Group is the most sustainable homebuilder in the UK in 2012, with the highest score recorded by a company during six years of benchmarking of 85%. In second place is Crest Nicholson who achieved a commendable improvement in their scores from 2011 (8%) and Miller Homes secured third place in the benchmark for the fifth consecutive year.

Homebuilders participating in the benchmark have risen to the top of the ranking during 2012, forming a leading group of homebuilders who are delivering sustainable homes, whilst the score for other homebuilders has slipped by 5%, suggesting a decline in the overall level and transparency of sustainability reporting in the sector and opportunities for further improvement by these companies.

All companies in the benchmark and their respective scores are shown in Figure 4 below:

Figure 4: 2012 Results



The range of scores in the 2012 benchmark shows an increase in the maximum score recorded to 85%, moving closer to the 100% score which is best practice in sustainability. While the group of top 25 home builders has slightly changed between 2011 and 2012, the results show continued variance in the sustainability performance of the industry year-on-year.

There has been a significant increase in the average score for member companies between 2011 and 2012. The average has increased by 10% from 60% to 70% (compared to the 2% increase between 2009 and 2011). However, the average score for non-members has fallen from 17% in 2011 to 12% in 2012 (which is below the 2009 average score of 13%).

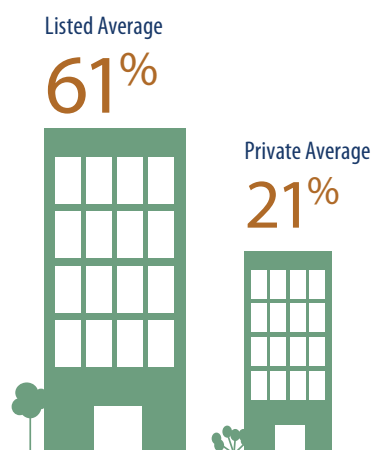
Included in the non-member average were nine companies all scoring less than 10% overall. As stated in previous iterations of the benchmark, NextGeneration would like to clearly note that the scores of non-members are not necessarily reflective of actual performance, but could represent a lack of disclosure in this area. As with any company that is not currently a member of NextGeneration, we would encourage these developers to join their peers and engage with the initiative to showcase their approach to sustainability.

Listed vs. Non-Listed Companies

Of those companies benchmarked, 11 companies are listed and 14 non-listed. In 2012, listed home builders have continued to score higher on average when compared to non-listed companies (61% versus 21% respectively). Of the lowest 12 performers, 11 are non-listed. As recognised in previous years, this variance is partially driven by the transparency demanded by both shareholders and legislative changes from listed companies.

Nevertheless, there remains no barriers for private companies to outperform listed companies and examples of private companies who chose to publicly disclose a high level of sustainability information are Crest Nicholson, Miller Homes and Willmott Dixon.

Figure 5: Company-type split

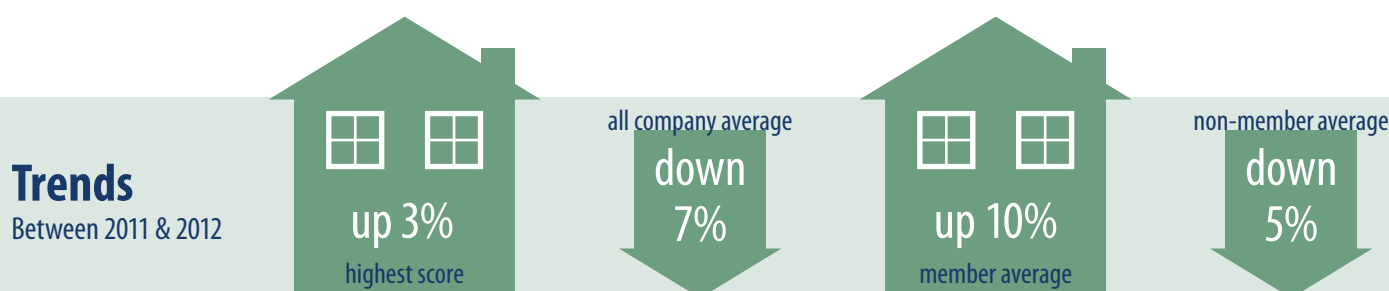


“We remain committed to the principles of regular and transparent disclosure of our CR strategies, initiatives and performance indicators. As such, we will continue to publish the details of the biennial CR Strategy on the Miller Group CR website, along with our annual KPI data. Where relevant, additional progress updates or news will also be posted on the website. The Homes CR content within the AR&A will continue to be determined by the Miller Group.”⁶ – Chris Endsor, Chief Executive, Miller Homes

Trends Over Time

Whilst there has been the potential to compare benchmarks in the past (notably the benchmarks undertaken in 2007, 2009 and 2011), we believe this is the first year we have two consecutive sets of data for analysis and comparison against broadly the same criteria (estimated at 90% similarity). Before now, NextGeneration has been able to offer opinion on progress of the sector while allowing for notable differences between the benchmarking years.

As previously mentioned, some adjustments have been made to the criteria between 2011 and 2012 in order to reflect legislative changes and significant shifts in best practice. These changes are estimated to affect less than 10% of the criteria, allowing greater confidence in comparability between years.



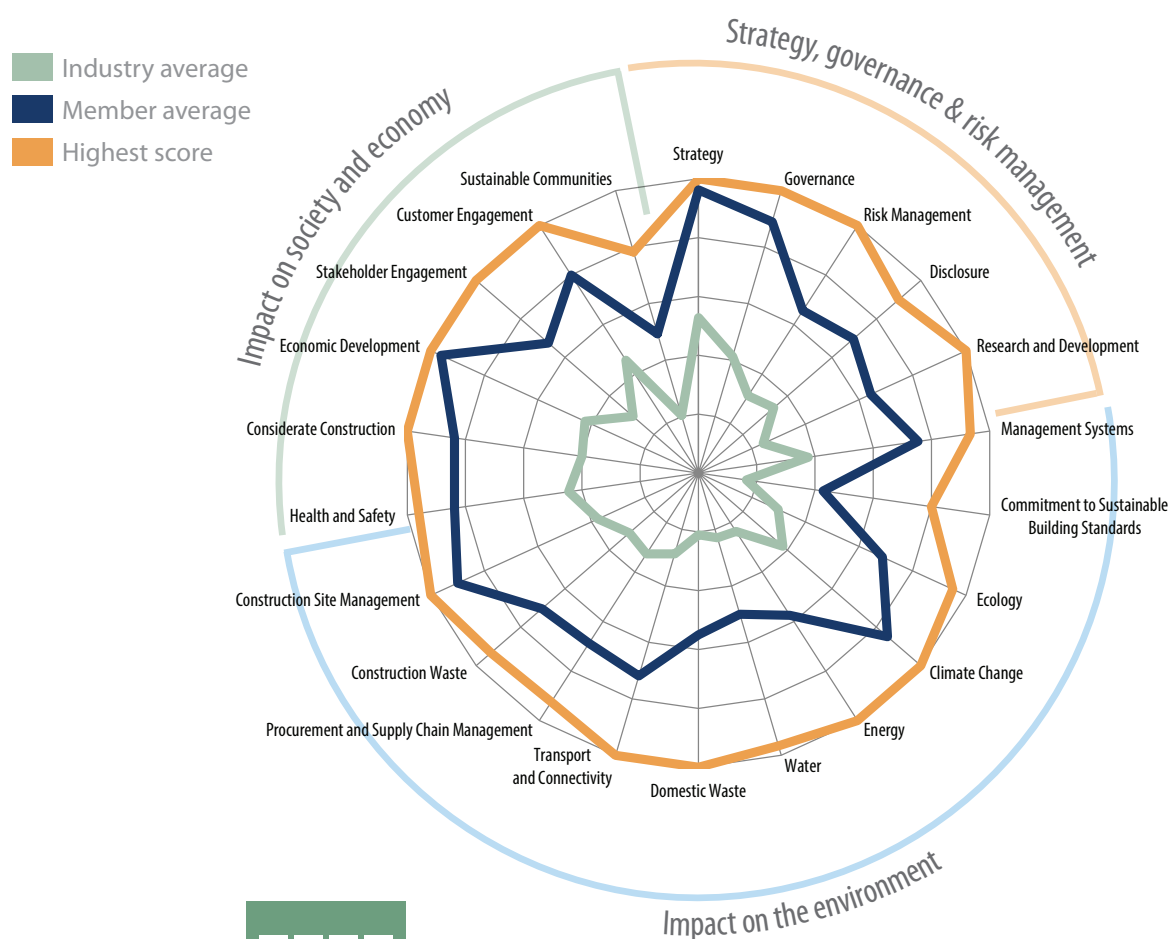
⁶ Please use the following website link to find Miller Homes' latest CR Strategy document: <http://www.miller.co.uk/uploads/2011divisionalcorporateresponsibilitystrategy.pdf>

Average and High Scores

Figure 6 below shows the highest score, member average and all company average against all sub-sections within the benchmark.

Performance in some of the individual sub-sections will be explored in the remainder of the report and further detail is available on the [NextGeneration website](#).

Figure 6: 2012 Results Breakdown



Strengths & Weaknesses

Strengths
 Strategy
 Health & Safety
 Customer Engagement

Weaknesses
 Water
 Commitment to Sustainable Building Standards
 Sustainable Communities

Public Transparency

As outlined in the Methodology section, the benchmarking is undertaken in two phases. Phase One is an assessment of companies' public transparency, with both members and non-members analysed on a like-for-like basis. Phase Two is an assessment of information from Member companies only that is not publicly disclosed.

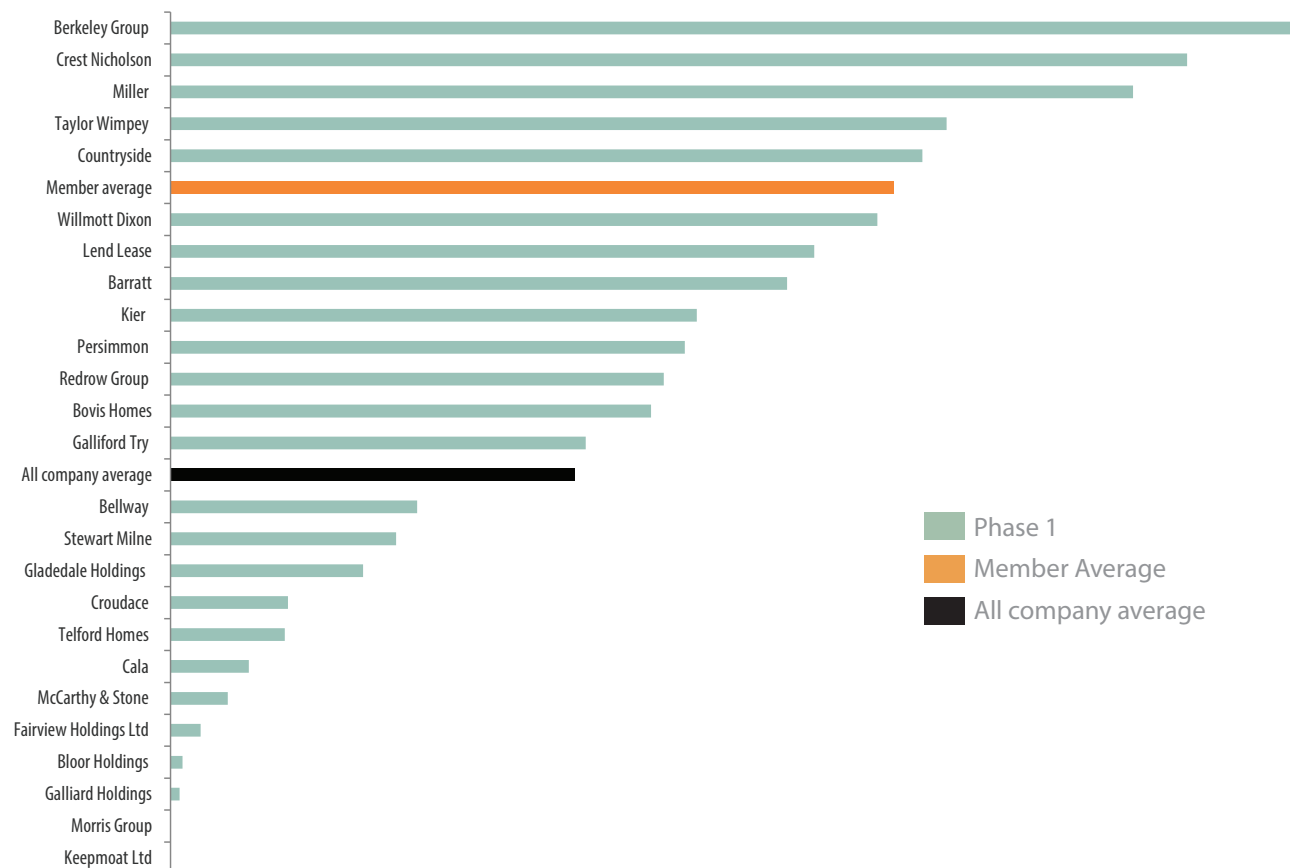
In terms of the top 25 companies' public transparency (Phase One of the benchmark), the average score has dipped slightly from 24% in 2011 to 23% in 2012. This is reflected by a slight decrease in the highest Phase One score between 2012 and 2011 from 64% to 62%.

Similar to the 2011 benchmark, the results show that the overall top-performing companies in the benchmark, Berkeley Group, Crest Nicholson and Miller Homes, are also amongst the most transparent in their disclosure.

Despite some improved performance by the top companies, between 2011 and 2012 there has been a slight stagnation in the overall transparency of the homebuilding sector. The number of companies scoring above 30% in Phase One has reduced from eleven to nine. This is partially due to some significant restructuring taking place during 2012 in some companies, for example following Keepmoat Group's merger with Apollo Housing, and some new entrants in to the top 25 sample. Encouragingly, the number of companies scoring 0% has remained at two, compared to five in 2009.

The overall results of the benchmarking indicate that the quality and quantity of data collected by the home builders continues to remain high, but in light of the slight reduction in overall transparency seen this year, the importance of monitoring the transparency of the sector remains.

Figure 7: Phase 1 Scores



Multi sector companies vs. pure homebuilders

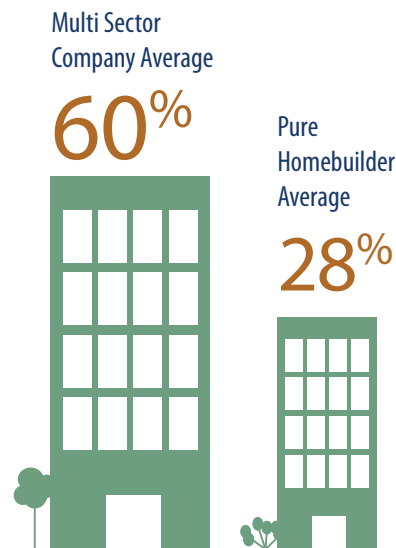
There are many ways to analyse the NextGeneration benchmarking data and this year, we have decided to look at the performance of companies working in multiple sectors (i.e. home building is one of many construction activities they undertake and may not be their main activity) compared to “pure” home builders (i.e. predominantly undertaking homebuilding).

When analyzing the data, there is a significant difference in performance between the multi-sector companies and the pure home builders with overall averages of 60% and 28%, respectively. Whilst part of this difference could be apportioned to the three out of four multi-sector companies being NextGeneration members, when looking just at Phase One scores, there is still a marked difference. The multi-sector companies scored 32% on average versus 21% scored by the pure home builders.

This difference in performance could be attributable to a variety of factors with some of the criteria naturally lending themselves to multi-sector companies. For example, these companies are likely to score highly on the section of the criteria related to Environmental Management Systems (“EMS”). This is usually a requirement of all tendering processes and, therefore, companies will have an integrated EMS across all operations.

On the other hand, there are many other criteria that equally lend themselves to the pure home builders. This difference in performance could also possibly be related to the cross-industry experience gained by the multi-sector companies and lessons learnt from other sectors, but also the size of these companies, as they are amongst the largest in the benchmark. This will be an area for further analysis in future benchmarks and could become more notable as multi sector companies increase their homes output (e.g. Lend Lease) and new entrants enter the market e.g. Skanska.

Figure 8: Company-sector



“The recognition Government has given to the importance of sustainability is beginning to change business culture and society. For Barratt Developments PLC Sustainability is embedded in our policies and procedures. Our commitment is detailed in our Sustainability Policy, integrating sustainable business practice into everything we do. Working with our suppliers and partners, we continue to play an industry leading role in ensuring that we develop sustainably to reverse natural resources, to improve our environmental, social, and financial performance whilst creating communities where people aspire to live.”

– Danielle Michalska, Sustainability Co-ordinator, Barratt Homes

Top Performers

Strategy, Governance and Risk Management

Overall: The 25 companies benchmarked achieved an average score of 37% for strategy, governance and risk management. As with the 2011 benchmark, this was the highest scoring area across the three benchmarking sections and encouragingly shows a strategic approach to sustainability within the sector. Last year, the average score was also 37% for this section.

Leaders: The three leading companies in this section were Crest Nicholson (88%), the Berkeley Group (84%) and Lend Lease (83%). All three have a comprehensive strategy in place to guide their sustainability activities, however, it is their approach to risk management of sustainability risks that sets these companies apart, with all three reporting publicly the sustainability risks they face as a business, the mitigation measures taken and in some instances the commercial implications of these risks.

- 1 Crest Nicholson
- 2 Berkeley Group
- 3 Lend Lease



Impact on the Environment

Overall: The 25 companies benchmarked achieved an average score of 30% in the evaluation of their impact on the environment. As with the 2011 benchmark, this was the lowest scoring area across the three benchmarking sections and also represents a slight decrease in performance of 2% compared to 2011. This slight reduction is attributable to more demanding construction waste criteria introduced in 2012 to reflect the waste hierarchy.

Leaders: Three companies topped this section all with a score of 80%; Berkeley Group, Miller Homes and Lend Lease. All three lead the industry in the areas of climate change, energy, water and construction site management. In particular, these companies all follow best practice in relation to their approach to managing carbon and achieve high levels of waste reduction and recycling on site.

- 1 Berkeley Group
- 2 Miller Homes
- 3 Lend Lease

Impact on Society and Economy

Overall: The 25 companies benchmarked achieved an average score of 34% in the evaluation of their impact on the economy and society. This compares to a score of 35% achieved in this section in the 2011 benchmark. Although the average score for this section is not the lowest, the range of scores in this section is narrower with no single company scoring close to maximum points in this section.

Leaders: The Berkeley Group, Crest Nicholson and Taylor Wimpey make up the top three in this section with a score of 76%. All three companies perform strongly in the three areas of stakeholder engagement, customer engagement and sustainable communities. In particular, these companies have a standard approach they follow on all sites in relation to project-based stakeholder engagement.

- 1 Berkeley Group
- 2 Crest Nicholson
- 3 Taylor Wimpey



Strengthening Areas

Assurance

Within the home building industry, there has traditionally been a low level of both internal and third-party assurance processes in place for information disclosed through sustainability reporting. Having these processes in place and disclosing how a company undertakes assurance adds a level of credibility to any data collated and released publicly. Without this, it is difficult to fully understand the reliability of information reported internally or put into the public domain.

NextGeneration Benchmark Criteria for Assurance

Company has no assurance for publicly available information.

Company has internal assurance processes which it describes in its publicly available information.

Company has external assurance processes which it describes in its publicly available information.

Company has a third-party independent assurance statement which covers all company sustainability activities.

Company has a third-party independent statement which covers company sustainability activities and which provides details of the completeness, materiality and responsiveness of the publicly available information and includes stakeholders in the assurance process (e.g. following AA1000 approach).

During the 2012 benchmark, we have seen a marked improvement in the assurance processes put into place by the home builders. We reported in 2011 that 48% of companies have processes in place for assuring their sustainability data, including both internal and third-party assurance. This has risen to 56% this year with notable improvements in assurance:

- **Willmott Dixon's** data is now assured by a third party consultancy
- **Redrow's** auditors assess sustainability information included in its annual accounts
- **Crest Nicholson** has now achieved GRI Plus and sustainability information in annual accounts is audited alongside financial data



Crest Nicholson recently released their 10th annual Sustainability Report and has consistently scored well under the NextGeneration benchmark for the completeness, quality and transparency of their public information. Their most recent report has been GRI checked against the GRI G3 guidelines on reporting and their carbon data is verified against international guidelines.

Carbon Smart has undertaken three iterations of its 'Report on the state of sustainability and carbon assurance within the FTSE 350'⁷. The key finding of the report agrees with the NextGeneration benchmarking that 'there is an upward trend in the take-up of sustainability assurance'. The study also reports an increase in assurance of carbon data; 'the number of assurance statements that do explicitly mention carbon has increased from 45% to 69%'. NextGeneration also found a trend for assurance focusing mainly on carbon data with three of the homebuilders assuring carbon data only.

While this increase in assurance is very encouraging, there is a need to broaden the scope of issue coverage during the assurance process. It is clear that the legislative drivers behind carbon data reporting has some effect in this area. For example, a small number of homebuilders were included as participants in the Carbon Reduction Commitment ("CRC") scheme and listed homebuilders will be subject to Mandatory Carbon Reporting from April 2013.

NextGeneration challenges the industry to go further with the disclosure of its assurance processes. This year's benchmark found a number of companies undertaking internal assurance only, either assurance by staff within the company itself, but in a few cases an external auditor reviewed data, although their findings and opinions were not made public. A further challenge to the home builders is to explore more stringent and highly recognised assurance standards, for example, Accountability's AA1000 standard⁸.

⁷ Please use the following website for detail of the report: <http://www.carbonsmart.co.uk/wp-content/uploads/2012/10/The-State-of-Sustainability-Assurance-in-2011.pdf>

⁸ <http://www.accountability.org/standards/index.html>

Carbon data collection and reporting

The CRC Energy Efficiency Scheme (formerly the Carbon Reduction Commitment) is a mandatory UK government initiative first advocated in the Energy White Paper released in 2007.

The original purpose of the scheme was to provide one way for the government to drive its' carbon emissions reduction targets through policy and to capture emissions from large public and private organisations falling outside of the European Union Emissions Trading Scheme. In addition to the CRC, from April 2013, listed companies, including listed homebuilders, will be required to report their carbon emissions alongside their financial data.

The home building industry has been expanding and improving its approach to collecting carbon data over recent years, arguably as a direct effect of this legislative drive from the Government.

There is a cut off defined within the CRC scheme ('organisations that have a half-hourly metered electricity consumption greater than 6,000 MWh per year') and much of the attention from the industry was initially focused on trying to verify whether or not they qualified for the CRC. Not all homebuilders qualified for the CRC scheme as qualification largely depended on the size of office space occupied and the number of homes awaiting sale where the homebuilder was paying the energy bills. In total, six of the top 25 homebuilders qualified for and made submissions under the first phase of the CRC.

The preparation home builders have undertaken in advance of and in response to the CRC and mandatory carbon reporting legislation has paid off, with over 90% of all listed companies already collecting and/or reporting on carbon data.

While the home builders have been working to improve the understanding of their carbon data baseline, the next challenge is to work out meaningful metrics as construction output begins to increase again. As the industry gains traction in its recovery, the home builders may find their carbon emissions increasing and they will need to find a way to understand and report how "carbon efficient" they are, not just their absolute carbon emissions.

This needs to be done against the backdrop of the variance in energy intensity of different unit types (e.g. increased

intensity of high rise developments versus low rise, low density housing lead schemes), locations, technologies and construction methods in order to really understand carbon efficiency in homebuilding.

This trend for better understanding of a company's carbon emissions can already be seen in the commercial property sector, examples of this including SEGRO's Energy Intensity Indicator⁹ which reports on energy intensity of offices (and other business space) and SEGRO occupied offices.

The home building industry can also learn from the broad guidance offered in both the Global Reporting Initiative Construction and Real Estate Sector Supplement ("GRI CRESS") and the European Public Real Estate Association Best Practices Recommendations for Reporting ("EPRA BPR").

While not specific to home building, these organisations and guidelines lead the way when it comes to best practice reporting and provide an indication of where the sector should be heading for in terms of understanding carbon efficiency.



Linden Homes set a carbon reduction target which is linked to output – a 15% reduction per £100,000 turnover, against a 2008 baseline. As a listed company, they also made their fourth submission to the Carbon Disclosure Project ("CDP") and had their carbon emissions verified by an independent third party consultancy.

⁹ Please use this website for detail: <http://www.segro.com/33900/57147/Sustainability-Report-2011> Page 11



Sustainable Building Standards

In last year's benchmark, the average score across the home builders for this section was 10%. There has been an improvement this year of 6% across all homebuilders and the average of NextGeneration members is up to 43%. There are still 12 companies failing to score in this section as they do not provide any publicly available information related to the number of homes built to the Code for Sustainable Homes.

The data shows that the majority of units are still being built to EcoHomes standards. However, it also shows that the number of Code 4 units has slightly increased this year compared to 2011, although from a low baseline, and the number of homes built to this level is still comparatively low given the potential update to Building Regulations in 2013 which could make Code 4 mandatory.

Going forward, there is still ambiguity around the definition of 'zero carbon' and level six of the Code for Sustainable Homes. Even once this has been defined, there is still a significant gap between current Building Regulations and those required to deliver this new standard of housing. It remains to be seen whether the industry is ready to close this gap and the Government needs to ensure the route for home builders is laid out as soon as possible.



The scale and scope of the Athletes Village provided Lend Lease with the opportunity to achieve a number of important sustainability 'firsts', including more than 2,800 homes delivered to Code for Sustainable Homes Level 4 and the largest project ever in the world to be built with 100% FSC-certified timber. The focus on materials and energy efficiency means a reduced carbon footprint and reduced on-going costs for residents



Another company who is leading the approach in building to higher building standards is Barratt Homes, who are part of the AIMC4 project alongside Crest Nicholson and Stewart Milne. AIMC4 is a partnership to develop a new design of efficient homes to minimise their carbon emissions to Code for Sustainable Homes Level 4 standards. In addition to AIMC4, Barratt are also developing cutting edge schemes at Hanham Hall, Bristol (Code Level 5 and 6) and Derwenthorpe, York (Code Level 4 and 5).

Picture courtesy of Willmott Dixon

Ecology

Ecology continues to be an area of weakness for the home building sector. Last year, NextGeneration reported that the average score across the companies assessed was just 31%; this year it has reduced further to 29%. There continues to be a large gap between the policy statements provided by companies and actual performance in terms of encouraging biodiversity and protecting local ecology.

In the 2011 benchmark, NextGeneration reported a gap between words and actions in the areas of:

- Demonstrating action to put in place recommendations of studies, planning requirements and corporate commitments into project design and delivery on site
- Evidencing that recommendations from ecologist reports are incorporated into the design
- Understanding of how ecology is managed on site
- Capturing the aggregated lessons and insights on ecology issues on a 'site by site' basis

Of these gaps, the one of most concern remains the predominance of a "site by site" approach to ecology. It is common for engagement with stakeholders on ecology to occur at the project or local level, however, there remains a lack of strategic and systems thinking on this topic amongst homebuilders.

For example, there are a number of high profile national organisations in this area (for example, the Royal Society for the Protection of Birds, the National Trust, the Woodland Trust and the Wildlife Trust) and, although some home builders have chosen to work with them at a local level, there is still unexploited potential for collaboration at the national level.

The 'site by site' approach also leads to a lack of consistent data and reporting on ecology issues. There are no standard metrics for home builders to report on their ecological impact and of the possible suitable metrics below, none are widely used within the industry:

- Amount of metres squared of space protected, enhanced or reprovided
- Number of new species introduced to sites (verified by an ecology survey)
- Amount of metres squared of green roof space

- Amount of green space per home, person, and/or site
- Number of sites with access to green space

Implementing these metrics in combination with reporting on the number of sites being built on brownfield land could provide a fuller picture of a homebuilder's ecological impact.

The importance of meaningful and comparable data regarding the ecological and biodiversity impacts of developments will also become increasingly important for homebuilders and local authorities if there is a re-consideration of greenfield development policies under the new NPPF. 2011 also saw the release of the most comprehensive survey of land use in the UK and although this found that 7% of land is covered by urban areas, 30% of eco-systems were declining across the UK¹⁰.

Encouragingly, the study also included new modeling of the influence of green space on home values and found a positive relationship between the two, providing homebuilders with further incentive to consider how green space is integrated into their developments.

In addition, DEFRA will be piloting an accounting system to value eco-system services in 2013 and such a system would provide homebuilders and decision makers with a key tool to understand changes to eco-systems¹¹ going forward.

"Willmott Dixon Housing is pleased to have remained amongst the top five housing developers in the NextGeneration benchmark. We are particularly pleased that we achieved leading scores for the Health and Safety, Considerate Construction and Construction Site Management categories. This is testament to the standards we apply to our projects and our investment into engaging with and enhancing local communities."

– Charlie Scherer, Chief Operating Officer, Willmott Dixon Housing

¹⁰ UK National Ecosystem Assessment (2011), The UK National Ecosystem Assessment: Synthesis of the Key Findings, UNEP-WCMC, Cambridge.

¹¹ The Natural Choice: securing the value of nature, White Paper, June 2011

Stakeholder Engagement

Stakeholder engagement at the project level was identified as a weakness in last year's benchmark when the average company score was 35%; this year it has dropped significantly to 21%. This reduction in the average has probably been exacerbated by the continued negotiations around the new planning system. While the majority of the sector is lagging behind, there have been some positive results from the leaders in this area. Last year only Taylor Wimpey showed a comprehensive approach in this area, whereas another two companies have joined them this year and scored full marks against the criteria; The Berkeley Group and Crest Nicholson.

As discussed, the lack of improvement in this section of the benchmarking is against a backdrop of ambitions to increase the level of engagement with local communities, specifically through the NPPF. There are a number of reasons why this might not yet be reflected in the industry's performance, including the time taken to effect the changes required as well as limited experience amongst homebuilders of best practice tools designed for such engagement processes (for example, Planning for Real¹²).

It has been seen through the benchmarking that engagement is mainly taking place after the design stage and NextGeneration would like to build on one of the recommendations from the 2011 report and encourage the sector to engage with stakeholders earlier in the development cycle. It was also reported last year that there is little innovative use of technology to encourage engagement and participation during the development process and that more companies should be exploring the use of social media and other digital platforms when working with stakeholders.

In order to improve the communication flow at the project level, home builders could look to the Housing Association sector for ideas on how to represent the views of these important stakeholders, such as tenant or community representation at the Board level. In addition, companies could also consider implementing resident or community panels who review all schemes, starting at the design phase.

The industry is well versed in the need for stakeholder engagement at the project level and there are undoubtedly examples where not undertaking this has had a negative result. NextGeneration challenges the home builders to consider more interesting and innovative ways to address this important issue and take real action to improve in this area over the coming year.

**Taylor
Wimpey**

During 2011, Taylor Wimpey presented its Community Led Planning Strategy to UK employees at a series of 14 events. They also provided training for 219 employees including all Managing Directors plus senior management and employees working within relevant functions. This training focused on developing listening, communication and engagement skills.

Water

An area where little to no improvement has been observed since the 2011 benchmark is the home builders' approach to water. The industry average score in this section in 2011 was 23% compared to 22% in 2012.

This lack of progress is particularly marked compared to the vast improvements made across the industry in relation to carbon during 2012, possibly as there is no equivalent scheme to the CRC for water.

However, this does not negate the importance of water as a sustainability issue across the UK. During the first half of the year, the country saw unprecedented drought levels and widespread hosepipe bans put into place. Drought levels were only saved by equally unprecedented rainfall and accompanying flooding. It is, therefore, surprising that home builders have gaps in their water data in relation to both operations and their products.

Despite the industry's overall disappointing performance in this area, there are some companies with targets in place to close this gap in 2012 and onwards. Five companies have operational performance targets in place to make reductions to both site and office water consumption (with two companies committing to at least a 10% reduction) over the coming year. These home builders also all have data monitoring processes in place in order to understand the viability of setting these targets; however, there are varying levels of estimation used in calculating some homebuilders' water consumption.

While measuring water consumption is important, it is just a starting point. Water consumption in homes remains a neglected area, with the focus still on how to achieve the carbon targets in the Code for Sustainable Homes and eventually zero carbon. Home builders also need to be considering how to mitigate against adverse weather conditions, such as those experienced this year, as their frequency increases with climate change. Such actions include using drought resistant plants in landscaping, installing green roofs, implementing means for greater rain water collection and reducing surface run off.

millerhomes

Miller Homes has adopted an exemplar approach to the issue of water, from setting reduction targets for water use in their sites and offices to monitoring water consumption in completed Code Level 6 units at their Miller Zero Development. Their approach also extends to working with utility companies to explore the use of automatic water metering and working with Government on issues such as surface water flooding and sustainable urban drainage.

¹² <http://www.planningforreal.org.uk/>

Best practice to Local practice?

NextGeneration was established to promote the concept of “best practice” sustainability in homebuilding. When deciding what constitutes best practice, a number of factors need to be considered, including current minimum legislation standards e.g. Building Regulations, Homes and Communities Agency design guidelines etc.

Planning legislation provides a particularly strong benchmark against which to identify best practice in homebuilding and with the presence of a national planning system, this made identification of best practice on a UK scale much simpler.

However, the removal of the previous planning guidance and its replacement with the NPPF, alongside the ambitions of the Localism and Decentralisation Act, the Cutting Red Tape¹³ challenge and reviews of standards, gives local authorities much greater control over what standards they set within their own areas. This makes the creation of UK wide best practice benchmarks much harder as best practice will vary by local authority.

For example, one local authority may set a minimum target of 10% Code Level 4 units and another a minimum target of 20%. How can a judgement be made between two different homebuilders, meeting these different targets in different areas, as to which achieved best practice? The problem expands once subtle differences in the wording of targets are also considered, for example one authorities' target may only apply to developments over a certain size or to social units only.

Such variations in local planning guidance already exist, with the London Plan¹⁴ the most notable example, requiring homebuilders operating in London have to meet higher standards than the rest of the country, such as delivering Code 4 units on large scale schemes, Lifetime Homes units and higher levels of renewable or low carbon energy. Likewise, different sustainability requirements exist in Scotland and Wales through devolution of responsibility for building standards.

An analysis of the current NextGeneration criteria has been undertaken to explore the impact of this guidance on the scores of developers with a strong geographical focus. This has found that they are statistically insignificant. The greatest percentage increase in score which could be attributed to regional standards was 0.16%.

However, if greater variation in planning guidance facilitated by the NPPF emerges, how NextGeneration

and the homebuilding industry define best practice in sustainability will have to change. This will present a real and constant challenge for all homebuilders to set and update company level sustainability targets, but particularly for those with national or wide areas of operation.



As a national homebuilder with nine divisions in England and Wales, Redrow Homes already engages with a range of different local regulations. Headquartered in Wales and one of the largest developers in the Principality, the company is contributing to discussions regarding changes in Wales to sustainability regulation, including new sustainable drainage regulations arising from the Flood and Water Management Act 2010, stepped progression towards zero carbon and associated skills working groups. In addition, it is undertaking specific research on its completed developments to better understand the impact of these regulations on the performance of new homes which will help to inform the wider industry as it increasingly engages at the local level on sustainability issues.

“Lend Lease continues to participate in the NextGeneration benchmark because we believe in leading the way in both how we build and what we build. On the one hand we want to minimise our environmental impact during the construction and development process and on the other hand our aim is to design the most sustainable homes and communities for people, planet and profit”.

– Pascal Mittermaier, Head of Sustainability EMEA, Lend Lease

¹³ Cutting Red Tape Challenge:
<http://www.redtapechallenge.cabinetoffice.gov.uk/home/index/>

¹⁴ <http://www.london.gov.uk/who-runs-london/mayor/publications/housing/london-housing-design-guide>

Sustainability and Value

The link between a more sustainable home and a higher sales value remains one of the key “pull” factors in leading homebuilders to create sustainable homes. However, with potential changes to “push” factors in this area, such as the legislative changes and standards reviews mentioned previously, the importance of understanding this link will increase. Much of the commercial and academic research into this link has to date proved inconclusive.

However, one of the key requirements to better understand this link is the availability of data on both the sustainability and value of a home. The introduction of Energy Performance Certificates (EPCs) and the Code for Sustainable Homes have provided data points to classify a homes’ sustainability and allow data analysis against its value. However, data on EPC or Code level remains largely separate from valuation data and doesn’t exist in easily exportable or ready to analyse formats. Encouragingly, during 2011 the Royal Institution of Chartered Surveyors (“RICS”) launched an Information Paper¹⁵ on valuing sustainability in residential property which provided much needed guidance to valuers on how the sustainability of a home could be factored into a valuation and also what information to collect as part of the survey process. The Green Construction Board task force is also examining this issue in its Valuation working group which NextGeneration and some of its members are contributing to.

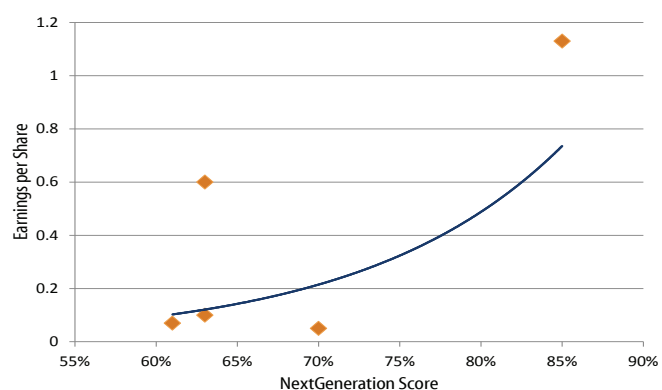
This goes someway to creating the data required for valuers or organisations to understand the link between sustainability and value, however, in the commercial sector the ECOPAS initiative launched in 2012 has ambitions to create an industry wide index to explore the value of sustainable commercial property. The feasibility and benefits of a similar initiative in the residential sector will be something that the industry should also consider moving forward.

As well as the value of a sustainable home, there is also the question of the value of a company that builds sustainable homes to investors. When NextGeneration was first established with the assistance of Halifax Bank of Scotland and Insight Investment, this was one of the key questions that it sought to address, however, the lack of consistent criteria between years has limited the extent to which this can be done. This was one of the factors in deciding to fix the criteria in 2011.

With an expanding set of trend data, this is an area where NextGeneration wishes to conduct further analysis in the years ahead, however, as with the sales value of homes, the isolation of the influence of sustainability factors on value with confidence is the key challenge in any analysis. As a start of this analysis, the following graph has been created for the first time showing the NextGeneration ranking of listed homebuilders plotted against their earnings per share.

This is a rudimentary analysis using raw data from a snapshot in time which does not take into account the effect of many other factors on share earnings e.g. profits, market sentiment, management performance, geographical focus, earnings from other activities etc and makes no assessment of long term profitability or historic performance. It is presented to start the discussion in this area and demonstrate the complexity of undertaking this analysis.

Figure 9: NextGeneration score compared to Earnings Per Share



New entrants, new delivery models & sustainability

The 2010 NextGeneration Sustainable Communities benchmark report discussed how different delivery models for homes, such as Local Authority Housing Trusts, the Homes and Communities Agency's Private Rented Sector Initiative ("PRSI"), development for private rent and Real Estate Investment Trusts ("REITs"), could have an impact on the homebuilding industry and its view of sustainability. The predicted trend is that these models could help drive further sustainability into new homes as homebuilders, or other organisations, retain a longer term financial interest in a development, as opposed to the "private trader" model currently adopted by home builders.

These models are also periodically put forward as methods to increase the number of new homes in the UK by overcoming the problems caused by a lack of development and mortgage finance. However, their use remains low, meaning that their potential contribution to housing supply and sustainability remains delayed.

Although use of these models is not wide spread, there are some innovative schemes to unlock new development, such as Willmott Dixon's venture to create a portfolio of rented homes and Berkeley Developments agreement with the Homes and Communities Agency to build new homes for private rent. Homebuilders are also increasingly using mechanisms to capture the longer term income from their developments, such as through the establishment of energy centres as an income generating investment asset, as well as considering how to improve the social sustainability of their assets.

The barriers to entry to home construction are high and new entrants into the industry are rare, however, the previous year has seen a number of high profile new entrants into the UK homebuilding market, including Skanska Homes and Ikea. New entrants have the ability to bring new ideas, designs and philosophies to a market in order to build their market share and based on the corporate sustainability strategies of these two companies, it can be expected that they will make exciting new contributions to the idea of what makes a sustainable home and community. Similarly, a number of existing homebuilders who also operate in other sectors have announced changes in their business strategies to increase the number of homes they build, such as Lend Lease and Galliford Try¹⁶.

"Taylor Wimpey's operations add significant value to society; through the homes and communities we build; the jobs we create; improvements to local environments; and contributions to schools and community facilities. A key element of our approach to sustainability is therefore that we better understand how we influence communities and the environment, so that wherever practical we can maximise, manage and share the added value that we create, and mitigate the impacts."

"There are significant business benefits to sustainability and as a responsible housebuilder we feel it is also the right thing to do. The rigour of the NextGeneration process has helped us refine our approach."

– Peter Andrew, UK Land and Planning Director, Taylor Wimpey



In order to demonstrate and understand the performance of their developments in delivering long term social sustainability, The Berkeley Group commissioned and published a study of the social sustainability of four of their own developments. The methodology created will be used to make changes at the developments and inform the planning and design of future developments. It will also become a key measure of success for the new communities the company creates.

¹⁵ <https://consultations.rics.org/consult/ti/sustainability/viewCompoundDoc?docid=878388>

¹⁶ <http://www.telegraph.co.uk/finance/newsbysector/constructionandproperty/9546536/The-Monday-interview-Galliford-Try-Greg-Fitzgerald-says-were-in-the-middle-of-a-housing-crunch.html>

Picture courtesy of Berkeley Group

Overall Sector Performance

The overall theme of this year's benchmark is very much improvement and consolidation. As the top placed homebuilder, The Berkeley Group has increased its score to 85%, which is the highest score recorded in six years of NextGeneration benchmarking.

The Berkeley Group is joined by Crest Nicholson who has also increased their score beyond the 80% threshold to 83%. Miller Group (76%) and the other companies that form the top five homebuilders (Willmott Dixon and Lend Lease) have also consolidated and improved their scores to enter the top tier of sustainable homebuilders.

As a group, NextGeneration member companies have collectively risen to the top of the rankings and the industry is unrecognizable from the first comparable benchmark in 2009. The narrowing of scores witnessed between positions also suggests a greater consistency in approach across the sector with differences between companies becoming harder to identify and the remaining opportunities for improvement becoming harder and harder to achieve.

Strengths

The trends outlined above are also mirrored when considering individual areas of sustainability. For example, as recycling rates of construction waste are rising above 90% and some companies get closer to their targets of "zero waste", the innovation, effort and determination required to achieve the final percentage improvements will be as high as that required to establish data systems and record construction waste in the first place.

The same thresholds of performance are also clearly emerging in areas such as carbon reduction (both operational and in homes), customer satisfaction, health and safety incidents and quality. The challenge for the top performers in the industry will be to consider where they turn their attention next, how to use their leadership position to drive the whole industry's performance and what can be learnt from other sectors, both within the wider property industry, but also from other sectors.

Areas for development

There remain ample opportunities for improvement and for homebuilders to innovate and become leaders. These include the areas for development highlighted in this report, particularly in water consumption given the

advances made in the recording and reporting of carbon emissions in the industry.

Ecology is still an area of weakness, while there is also an overall weakness in how the industry considers non-environmental sustainability issues such as community consultation, flexibility, design quality and post occupancy evaluation.

It is also disappointing to still find top 25 homebuilders with no public statement on their approach to sustainability, even if to confirm that this is in development and to discuss what might be done in the future.

This year, nine companies (36% of our sample) received a score below 10% which suggests either a lack of a clear understanding of their approach to sustainability or a lack of willingness to articulate their approach, both of which are concerning and present opportunities for improvement.

The Way Ahead

The homebuilding industry should be encouraged by how far it has come since the first NextGeneration benchmark and by the opportunity presented in this year's benchmark to understand and improve performance over time.

The trends outlined in this report point to a future of increased diversity in sustainability requirements between local authorities, reduced national guidance and new ways that sustainable homes can be delivered.

In such an environment, the importance of identifying, recording and understanding any link between sustainability and the sales values of homes will become increasingly important as the legislative framework driving sustainability is adapted and changed.



Recommendations

...to the homebuilding industry

Apply the same rigour of approach used to measure and report carbon emissions to understanding water consumption, both operationally and in homes. This requires:

- Adapting internal data collection systems, procedures and data bases to record water consumption;
- Exploring the link between water consumption and carbon emissions;
- Using appropriate estimation techniques to calculate consumption where accurate data may be unavailable;
- Analysing and understanding the water stress levels in different geographic locations and responding appropriately;
- Knowing the future impact of climate change on water supply and flooding and then adopting strategies to adapt to a low water future;

Develop a holistic understanding of the ecology and biodiversity impacts of new developments, moving away from a site-by-site approach to the issue.

- Aim to gain an understanding of the total ecology and biodiversity impact of companies' activities, developments and supply chain, using a "systems thinking" approach.
- Consider how a value could be applied to the eco-systems that homebuilders protect, enhance or create.
- Experiment with alternative ways to report ecology and biodiversity impact, such as new indicators or data visualizations for public reporting.
- Engage with stakeholders to review and improve ecology and biodiversity management, particularly at the company level.
- Engage with stakeholders in this area at the company level

Reimagine what stakeholder consultation on developments means, both in terms of how people and communities are consulted, but also when they are consulted.

- Articulate a clear, company-wide approach to community engagement that confirms what community consultation will be undertaken on all developments.
- Embrace the use of innovative consultation techniques, such as online consultation, or the use of best practice engagement techniques to get the most from community exhibitions, workshops and meetings.

...to the Government

Balance the opportunity to reduce the regulatory burden on the homebuilding industry with the need for certainty in approach.

- Continue to set out policy timelines in line with pre-agreed dates, enabling homebuilders to plan their strategies and resourcing accordingly
- Consider the variety of views on sustainability legislation between homebuilders themselves, for example between homebuilders with different business models, financial status, product types, target markets and so on.
- Focus on the removal of duplication, inconsistencies and contradictions between different pieces of legislation, requirements and standards.

Balance how initiatives such as NextGeneration, which work through public and private sector collaboration, can complement or provide an alternative to legislation.

- Explore how the benchmarking model could be expanded into other sustainability areas to "pull" the homebuilding industry in the desired direction.
- Consider how benchmarks or other standards can be integrated into Government decision points, such as the awarding of grant funding or planning permission.
- Take advantage of the opportunity to engage with home builders through benchmarking, particularly around how to define best practice and the way ahead in sustainable development.

Help to define what information homebuilders should put in the public domain to aid policy making and to achieve the same transparency Government is seeking within itself.

- Provide clarity on Mandatory Carbon reporting for listed companies and the future direction of travel of further changes to the Companies Act.
- Contribute to the creation of industry specific guidance specifically on how homebuilders should comply with Mandatory Carbon reporting requirements.
- Help to explore any link between the sustainability of a home and its sales values, such as by bringing together data on EPC rating and Code for Sustainable Homes rating with Land Registry sales value data.

Introduction

Following the fixing of the NextGeneration benchmarking criteria in 2011, homebuilders have benefited from the ability to target improvements in specific areas of sustainability. In addition, the usability of the benchmark for investors has improved as they can track benchmark trends alongside financial trends. However, the fixing of the benchmarking criteria removes the flexibility to benchmark topical sustainability issues and to consider new issues that are on the horizon. In the past, this has enabled NextGeneration to benchmark Climate Change (2008) and Sustainable Communities (2010).

To retain some of this flexibility and the ability to consider what the future may hold for sustainability, this appendix has been created to focus on a specific sustainability issue in more detail – post occupancy evaluation (“POE”). Similar appendices on different topics will be included in future NextGeneration reports.

What is Post Occupancy Evaluation?

Post-Occupancy Evaluation (“POE”) is the method for gathering feedback on a building’s performance in use. POE forms a “feedback loop” to the development lifecycle, providing information to make changes to completed buildings and the design of new buildings. There is no standard methodology for undertaking POE, however, the data collected will generally either be: performance data (e.g. energy efficiency, temperature readings etc) collected through monitoring equipment, invoices etc or survey data (e.g. occupier comfort, satisfaction with space etc) collected through postal surveys, telephone interviews, focus groups etc. Customer satisfaction surveys frequently sent to new home owners can form part of an overall POE strategy, however, in themselves they are not sufficiently focused (for example, they also cover satisfaction with sales process, staff etc) or regular (a single survey is normally sent 3 to 6 months after occupation) to be used in isolation.

The need for Post Occupancy Evaluation in Homes

A key challenge to meeting the UK Government’s carbon reduction targets is to ensure that buildings are performing as designed and that there is no “performance gap”. Inaccuracies in design calculations, poor build quality or failures in handover can all lead to a building emitting more carbon than predicted. Current evidence is suggesting that

many new homes are not performing as intended, with one of the latest studies finding a gap in 88% of homes (based on a study of 34 homes), with the gap as high as 120% of predicted heat loss¹⁷. Such performance levels could point towards the extension of the post-completion testing already in place under the Building Regulations, such as air tightness and acoustic testing. Although the Government has confirmed its wish to reduce rather than increase the regulatory burden on homebuilding, an alternative solution to legislation needs to be found by industry to increase the level of POE on new homes and to ensure that homebuilders themselves are also not missing out on the opportunity to gain a competitive edge through POE.

Current Industry approach to Post Occupancy Evaluation

The NextGeneration benchmark has benchmarked homebuilders’ use of POE since 2010 and has examined whether a company has a POE policy or strategy in place and if it has examples of conducting POE looking at a range of sustainability issues e.g. function in use, environmental performance and infrastructure performance.

In 2010, the picture was of a low level use of POE. 52% of companies had examples of undertaking POE, which appears an encouraging statistic as over half of companies were undertaking some form of monitoring. However, this hides the real picture as most companies only had one example of POE, meaning that there were only around 13 POE projects being undertaken in 2010 amongst the top 25 homebuilders in the UK. Compared to the output from the same companies in 2010 of approximately 50,000 units, this represents an incredibly small sample. All thirteen projects included monitoring of the energy use of the building and consideration of other factors was restricted to just four projects.

Of more concern was the overall lack of a clear strategy amongst homebuilders when it came to POE. Only three companies had a strategy, policy or target in place to undertake POE, and of these only one (Willmott Dixon) applied to all projects.

In 2012, the picture remains largely the same, with 35% of companies undertaking some form of POE and the same three companies as in 2010 with a strategy, policy or target related to POE.

¹⁷ <http://www.leedsmet.ac.uk/as/cebe/projects/building-confidence.pdf>

Barriers to Post Occupancy Evaluation in Homes

What then are some of the barriers that might explain the low level of POE within homebuilding?

Firstly, the “private trader” model of homebuilders mentioned elsewhere in the report does not lend itself to POE. In selling long leases or freeholds to members of the public, they are relinquishing ownership of the home to the buyer and the financial relationship between the two is largely concluded at the point of sale.

There are limited points of contact going forward during which POE can be introduced, unlike say when a car owner takes a car to a dealer for regular repairs or servicing. The alternative models for delivering homes which are discussed in the main report could increase the level of POE within the industry by creating a long lasting financial relationship between home builder and home owner or tenant.

Secondly, whilst members of the public may be willing and indeed enjoy participating in such surveys when it comes to consumer products or services, the privacy people expect in their home means that they are often less willing to participate in such monitoring, and may even find it intrusive. Homebuilders face a challenge to tap into the enthusiasm towards living our lives more publicly to undertake more POE in the homes they build.

The monitoring required of homes can also be time consuming and disruptive by nature compared to say answering a simple online survey, requiring testing equipment to be installed, checked and read or for surveys and questionnaires to be completed. Post Occupancy evaluation is therefore comparatively expensive in comparison to other forms of market research or consumer testing techniques available to manufacturers or service providers.

The lack of a consistent methodology for undertaking POE also contributes to costs by forcing researchers to start largely afresh each time POE is undertaken and reduces the comparability of results from different homes.

Solutions to undertaking more Post Occupancy Evaluation in Homes

What might cause the use of POE amongst homebuilders to increase?

Recommendations for Homebuilders

- Establish a coherent, company-wider strategy, policy or target in relation to POE, including setting out a sampling strategy as to which developments or homes will be monitored and what actions will be taken in response to POE findings.
- Consider how POE can be used not just as a tool for identifying when things “go wrong”, but for generating a flow of information to be used to continuously monitor performance. This may point towards the use of less intrusive and involved monitoring techniques.
- Think about what incentives can be made available for buyers and homeowners to participate in POE, such as sales price discounts, prizes, shopping vouchers, improved specifications or extended warranties.
- Explore how technology, particularly social media and online platforms, can be used to greater effect to gather POE data and to reduce its cost.

Recommendations for the Government

- Continue to make funding available for homebuilders to undertake POE under the Technology Strategy Board programme
- Contribute towards the creation of a best practice methodology for POE in homes, enabling greater comparability and confidence in study results
- Consider what role it can play in encouraging the sharing lessons from POE, anonymously and without blame, so that all of the industry can benefit from the small amount of POE that has been undertaken and a clearer collective picture of home performance can be established



Picture courtesy of Crest Nicholson

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Front cover photograph: Courtesy of Berkeley Group