Sustainable Construction

A research based strategy
August 2008
Acknowledgments

We would like to thank every member company that participated in the survey and who agreed to be interviewed.

We would particularly like to thank the following companies who worked with us to produce this research.

ConstructionSkills
GainPerspective
MRM Solutions Ltd.
Contents

1 EXECUTIVE SUMMARY 4
  1.1 Key findings 4
  1.2 A strategy for the NFB 4
  1.3 Conclusion 5

2 INTERPRETATION OF THE DATA 6
  2.1 The quantitative survey 6
  2.2 The qualitative survey 7
  2.3 Where NFB members want help 7

3 THE CONSULTATION INTERVIEWS 8
  3.1 Introduction to this section 8
  3.2 Observations from the consultation interviews 8
  3.3 Company 1 8
  3.4 Company 2 9
  3.5 Company 3 10
  3.6 Company 4 11
  3.7 Company 5 11
  3.8 Company 6 11
  3.9 Company 7 12
  3.10 Company 8 13

4 THE QUANTITATIVE STUDY 14
  4.1 Introduction to this section 14
  4.2 Observations from the quantitative study 14
  4.3 Industry knowledge 15
  4.4 Industry attitudes 16
  4.5 Industry activity 17
  4.6 Industry skills 19
  4.7 The impact of size of company on the responses 20

5 SUPPORTING THE INDUSTRY 24
  5.1 Helping members: what they want 24
  5.2 A support strategy 25
  5.3 Helping members: our recommendations 26
1 Executive summary

This report is about the National Federation of Builders members’ views on sustainable construction. It is based on research work carried out in Spring 2008. The research comprised visits to companies and a large scale telephone survey of members. The research looked at attitudes towards, activity and skills in sustainable construction. It also asked members about what the NFB could do to help.

1.1 Key findings

The members of the NFB are not averse to sustainable construction.

The majority of respondents are aware of the various aspects of sustainable construction and have skills in them. They are taking actions that will reduce the impact of their work on the environment, particularly:

- Controlling and minimising waste; a priority for most and something that many do often and which many know about.
- Reducing site nuisance and preventing pollution from site is something 80% of respondents knew about and is done on the majority of jobs.

Clients are not driving sustainable construction.

The things members do least often are to include details of sustainable construction in their pre-qualification questionnaires (PQQ) (53% never do this) and to install renewable energy (53% never do this). 60% of respondents report that they use recycled materials on fewer than 25% of jobs. If clients were driving sustainable construction then members would be asked to do these things more often. Members report that even government and local authorities are unlikely to be involved in sustainable construction beyond the legislative requirements of the building regulations. Members suggest that clients continue to put cost ahead of sustainability and, particularly on refurbishment, are missing major opportunities.

The social housing sector leads the way.

Those members building new homes funded by the Housing Corporation are actively developing sustainable products and developing considerable expertise as they do so. This is largely around a check list approach defined by the points system described in the Code for Sustainable Homes.

The NFB may need to stimulate demand for support.

The reality of the construction industry is that it does and is interested in those things for which it gets paid. Currently, because client demand for sustainable construction is limited, then the demand for services from the NFB will also be limited. This will change if clients, such as local authorities and larger developers change their procurement approach to go beyond programme cost and building function to include sustainability.

Contractors seek help that is practical, expert and in-depth.

The survey results suggest that help is needed with legislation. Members seek written guidance that can be either downloaded from the NFB website or requested as a printed form. This should be in detail and written by experts who have practised in the field. Members report that they know enough about the generalities and ask for specific help and information.

Clients should be encouraged to lead the supply chain.

There is a wider debate, not covered by the interviews, about the NFB’s role in setting the agenda. Members report that they are ready to do more but need asking and paying for this. One option open to the NFB is to put pressure on government, clients and designers to do more to make buildings sustainable.

1.2 A strategy for the NFB

One inference from this research is that the NFB should wait until the client catches up and, in the short term, ignore the sustainability agenda altogether. However, sustainable construction has three facets:

- **Sustainability of the constructed product;** the extent to which the product can be sustained over the long term by minimising its consumption of natural resources and the production of pollutants. Factors that are driving up the sustainability of the constructed product include the Code for...
Sustainable Homes, the Housing and Regeneration Bill, air tightness, water efficiency and renewable energy.

The potential of NFB members to influence the sustainability of the constructed product is limited because it is selected by the client and designed by the designer before the contractor is involved.

- **Sustainability of the construction process;** the extent to which the build phase minimises energy, materials and pollution whilst creating wealth, safe employment and training.

  This is largely within the control of NFB members.

- **Sustainability of each construction company;** this is the capacity of the company to generate wealth and employment into the future. NFB members sustain their companies by good business management, creating safe employment and developing skills in their workforce. Each member can influence the sustainability of the company by the way they employ and train their workforce.

  This is entirely within the control of NFB members.

We suggest that the NFB strategy should be to:

**encourage members to sustain their workforce, be prepared to build sustainably and to influence architects and clients to ask for sustainable designs.**

Four activities deliver this:

1. Encouraging members to be responsible builders and employers by promoting the Considerate Constructors Scheme (CCS). The CCS deals with many of the causes of nuisance from a site; the more companies that adopt it the less the pollution and impact on those living and working near sites.

2. Encouraging training and proper succession planning. Proper training plans, as promoted and funded by ConstructionSkills, will deal with many of the training and progression issues and so make members’ businesses more sustainable.

3. Explaining how to make the building process meet legislation on sustainable construction. This would include explaining what is required of a contractor, the site manager and site team to comply with all relevant legislation. Generally, the advice should be available as printed materials such as management checklists and toolbox talks. The advice should be detailed and in-depth and help contractors to implement sustainable construction and not just tell them it is important.

4. Informing members of the technologies that the client is likely to add to the product in the future. The NFB should monitor changes in demands from clients that will affect its members. As these changes become established practice, the NFB should publish practical guidance for its members. Again, the guidance should be action-based.

1.3 Conclusion

The research has revealed a membership with a good level of awareness of the subject and some experience in delivering sustainable construction. It has underlined the importance of the client and demonstrated that more can be done by clients. There are clear actions with which the NFB can engage.
2 Interpretation of the data

2.1 The quantitative survey

The quantitative survey of 340 companies rated respondents’ awareness of, attitude towards, and activity and skills in the following areas of sustainable construction:

- **Waste and materials control**
  - Waste regulations
  - Segregating waste
  - Waste management plans
  - Ordering the correct materials

- **Reducing the impact of sites on those living nearby**
  - Considerate Constructors Scheme
  - Preventing pollution from sites
  - Protecting wildlife

- **Reducing the impact of the building process on the environment**
  - Using recycled materials
  - Installing renewable energy sources

- **Improving the performance of the industry by adhering to standards**
  - Working towards industry standards such as BREEAM

- **Protecting and developing the workforce**
  - Construction Design Management
  - Occupational health
  - Succession planning

- Corporate Social Responsibility
- Explaining sustainable construction in a PQQ

We found variation across the respondents in awareness, activity and skill. However, there was little variation in attitude, with over 75% of respondents being highly supportive or supportive of all of these factors. From this we can conclude that the majority of NFB members are in favour of sustainable construction.

By analysing the way people answered the three groups of questions, we can draw out the following themes:

1. **Controlling and minimising waste is an industry priority.**
   For the questions relating to waste, we found a majority of respondents had the required knowledge, can do it and generally do it. Almost all respondents on almost all jobs focus on reducing waste through correct ordering. The exception is site waste management plans which, possibly due to their newness, have yet to be used on a majority of sites.

2. **Reducing site nuisance, measured by questions about the Considerate Constructors Scheme and prevention of pollution is again a strength of the membership.**
   The statement about pollution from site shows that around 80% know about it and are skilled and just over half are asked to do it on a majority of jobs.

3. **Recycled materials is an area that the industry can do but is not generally asked to do.**
   Only 41% of companies use recycled waste on more than half of their jobs yet 75% know about it and 81% claim to have the skills.

4. **Renewable energy is an area where around half the respondents could do it if they were asked.**
   Only 17% of respondents are regularly asked to install renewable energy sources.

5. **The people measures around staff welfare and succession planning are not seen as a problem by members.**

   From this data, we conclude the industry is taking action in areas for which it is responsible (site waste, site nuisance and staff welfare) but is not being asked to take action on renewable energy or recycled materials.
2.2 The qualitative survey

The overwhelming conclusion we draw from the in-depth interviews is that only one sub sector of the construction market is taking action and that even there a checklist approach is compromising the delivery of sustainable construction.

The agents for change are the clients and the designers whose overwhelming drive is cost. Where a sustainable option adds cost it will almost always be rejected. The respondents felt that clients were indifferent and designers unable.

2.3 Where NFB members want help

The focus of respondents’ need for help was on legislation, particularly understanding and applying it. They require “on-demand” help, i.e. published information (both printed and electronic) that they can call upon as required. Support involving direct contact with experts did not feature highly in the quantitative survey. The qualitative work generated further details and ideas around “meet the experts” but these were not supported in large numbers by the telephone survey. This suggests the NFB should develop some basic fact sheets which are perhaps sector specific and make these downloadable from a website or available as printed documents. These fact sheets should get into detail and avoid generalities. What the industry lacks is the in-depth solutions and advice on how to be sustainable. This information is held by those who are actively involved, for example eco-homes assessors, building inspectors and contractors who have built sustainable properties. It is these experts that the NFB should commission to write the guidance.

Data on which these observations are based

<table>
<thead>
<tr>
<th>Statements from survey</th>
<th>% with detailed knowledge</th>
<th>% asked to do on half or more jobs</th>
<th>% finding this easy or OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste regulations</td>
<td>93%</td>
<td>Not asked</td>
<td>Not asked</td>
</tr>
<tr>
<td>Waste segregation</td>
<td>87%</td>
<td>77%</td>
<td>88%</td>
</tr>
<tr>
<td>Waste management plans</td>
<td>76%</td>
<td>41%</td>
<td>65%</td>
</tr>
<tr>
<td>Using recycled materials</td>
<td>75%</td>
<td>40%</td>
<td>81%</td>
</tr>
<tr>
<td>Installing renewable energy sources</td>
<td>58%</td>
<td>17%</td>
<td>50%</td>
</tr>
<tr>
<td>Working towards industry standards such as BREEAM</td>
<td>35%</td>
<td>Not asked</td>
<td>Not asked</td>
</tr>
<tr>
<td>Considerate Constructors Scheme/Reduce nuisance</td>
<td>51%</td>
<td>88%</td>
<td>93%</td>
</tr>
<tr>
<td>Prevention of pollution from sites</td>
<td>83%</td>
<td>56%</td>
<td>79%</td>
</tr>
<tr>
<td>Construction Design Management</td>
<td>89%</td>
<td>Not asked</td>
<td>Not asked</td>
</tr>
<tr>
<td>Occupational health</td>
<td>89%</td>
<td>Not applicable</td>
<td>Not asked</td>
</tr>
<tr>
<td>Corporate Social Responsibility</td>
<td>71%</td>
<td>Not applicable</td>
<td>Not asked</td>
</tr>
<tr>
<td>Explain SC in PQQ</td>
<td>Not asked</td>
<td>33%</td>
<td>61%</td>
</tr>
<tr>
<td>Protect wildlife</td>
<td>Not asked</td>
<td>56%</td>
<td>76%</td>
</tr>
<tr>
<td>Succession planning</td>
<td>Not asked</td>
<td>Not asked</td>
<td>77%</td>
</tr>
<tr>
<td>Order the correct materials</td>
<td>Not asked</td>
<td>96%</td>
<td>96%</td>
</tr>
</tbody>
</table>
3 The consultation interviews

3.1 Introduction to this section

The first research stream was a consultation with eight members on their views of sustainable construction. We based the discussion on three questions:

1. What does sustainable construction mean for your business; who is driving it, which are clients asking for and how important is it?
2. What actions are you taking to make your business more sustainable?
3. How can the NFB help? What advice, information and skills do you need?

All companies participated in the discussions willingly.

3.2 Observations from the consultation interviews

The common factors across the consultations are:

1. The drive for sustainable construction is market driven and not all markets are actively involved. The new-build social housing market leads; others do not appear to be catching up.
2. Even where the drive is high, the delivery method risks becoming a tick box exercise where assessors use standard reports and contractors “trade” points to do the least possible to achieve the standards.
3. Sustainable construction is a risk for the builder who may not be able to achieve the legislated standards although the building is built to the architect’s specification. It is, therefore, dealt with like any risk, i.e. charge extra or transfer it.
4. Companies who are being driven to be more sustainable need help in how to deliver, as opposed to help on what is meant by sustainable construction.
5. The industry could (and would) do more if it were asked to do so.

3.3 Company 1

Mid-size repair and refurbishment working for local authorities.

3.3.1 Big messages

- The market demand in this sector is not there and opportunities to upgrade housing stock are being missed by clients.
- The real world is not paying for sustainable construction. The market is price driven; architects specify the least-cost option as the client is not prepared to invest.
- What is being done is driven by cost savings.
- Sustainable construction is seen as purely environmental.

3.3.2 What is it?

“Difficult to know, and certainly difficult to see, the tangible impact on the business.”

3.3.3 What are you doing?

There is some activity in waste management driven by the increase in landfill tax.

Workers return from a job with a van full of rubbish. It may be cheaper to have them segregate the waste, but that takes time which may be better used doing the next job.

Fuel and vehicles; the local authority is making noises about limiting the car/van size they will pay for but this is not actioned.

Renewables are not on the horizon yet as the “built stock” does not have renewables.

Some activity around materials but again this is driven by the need to reduce price. The company has a warehouse on site to cut
waste and transport. This is for business efficiency not sustainable construction.

Do work with local labour and do training internally. There are good links with schools through sponsorship and work experience.

Attended an Envirowise seminar and requested a visit; Envirowise did not follow through.

3.3.4 The future

The worst thing is not knowing what the future holds. The clients don’t know and change their minds. Procurement policy by local authority could make changes but they are only just sorting out strategic partnerships.

Clients are likely to continue to push for price – they have a set budget and need to stick within it. That appears more important than sustainable construction.

We are starting to see the need for sustainable construction and environmental policies in PQPs, but those who claim to have them are doing a lot of bad practice. The suspicion is that this is “green wash”.

3.3.5 What can the NFB do?

Help us to understand what it WILL mean. Much of what is there is about what it could mean but this does not tie up with reality.

The NFB needs to get nearer to the practicalities of the business and help educate the client about what could be done, particularly in the refurbishment and repair market. For example:

On changing a tenant, an energy review shows how good or bad the property is. With investment in insulation and basic energy saving the builder could improve this. BUT the budget is not there so it will not happen.

A standard environmental policy may be useful but it may also be taken as a token gesture. In many cases this is a tick box exercise by clients that is not checked.

Practical steps that a business can take that make sense to the company are real and financially viable.

3.4 Company 2

Small design and build developer working for housing associations.

3.4.1 Big messages

- In this market sector, the demand is well defined by the Code for Sustainable Homes.
- Builders are doing what they do best: adapting the building to meet a specification.
- While there are anomalies in the code, it is forcing developers to build a sustainable product.
- Each project is a learning process and capability is built up over several projects.

3.4.2 What are you doing?

The drive for sustainable development is driven by the Code for Sustainable Homes. The developer is currently working to level 3 and heading towards level 4. They have explored level 5 and looked at the BRE zero-carbon home, but this is seen as impractical and too expensive.

Sometimes the standards are a blunt instrument. For example, a house can meet the requirement for 10% renewables, but be energy inefficient.

The approach revolves around scoring points against a menu of choices. The developer adjusts the design and the specification to achieve the highest points. To achieve the highest scores requires a partnership between client, architect and developer. Some sites will start with a negative score. There are trade-offs in the design of the property, the layout of the scheme, the specification of the fit out and the build method. To achieve optimum trade off requires that all parties work together. There will be some cost added as a result. The resulting additional costs are negotiated.

A third dimension for housing associations is the cost of ownership. For example whilst electric heating may score additional eco-points it does not meet the cost of ownership criteria.
The market driver here is cost of ownership and attaining the eco standard. In private, developers reducing the developed price takes priority.

The steps the company has taken to achieve level 3 include:

- Installing smaller baths to reduce water usage
- Rainwater harvesting
- Low flow taps
- Heat recovery units
- High U value windows
- Higher air leakage values
- Solar heating
- Purchasing a concrete crusher to reduce landfill tax and aggregate costs

Much of the knowledge is within the energy assessors and, although they often use standard reports, they have a good insight into what is required and what is possible.

3.4.3 What can the NFB do?

Not a lot for this developer as he is “learning by doing”.

The standards are evolving and moving quickly so keeping members up to date would be a start.

A clearly published book of practical advice on each part of the code would help. This would cover the following:

An active learning project where an expert facilitator runs working sessions on design, specification and build phases. Developers would bring projects to each session and discuss the issues, solutions and lessons learned. The output could be captured in the “book” described earlier. Helping people to understand the discipline required on site to achieve the eco-standards.

3.5 Company 3

Mid-size developer working on new build for RSLs.

3.5.1 What have you done?

Sustainable building is standard practice as are modern methods of construction. Well aware of environmental issues and see this as their way to differentiate. Achieving code level 3, aiming for 4 and thinking about level 5.

- Use only FSC timber
- Installing renewables – solar/photovoltaic/ground source heat pumps
- Recycling waste on site
- Building in an energy-efficient way
- Installing systems to reduce water usage
- Adopting good insulation standards – particularly via timber frames

The company has been doing this for over three years and in that time has seen a lot of progress.

The future is difficult to define but the subject is evolving quickly. Five years ago little was happening, today framed construction, I section beams (to reduce material use), and energy saving products are standard for about 20% of new build. In five years’ time this figure will have risen to 40%.

The challenge is engaging everyone in the supply chain and ensuring that each part in the supply chain is allowing the others to do their part.

3.5.2 The NFB’s role

The current big problem is waste management plans and what these mean for the supply chain.

Longer term, explaining what is possible to the whole supply chain by running workshops with RSLs and the supply chain to explain what is possible, what works, the cost issues so they can collectively work together to agree what is possible. The RSLs need to understand the costs. The contractors need to understand the technology. The supply chain needs to understand waste management plans.
3.6 Company 4
Design and build contractor.

3.6.1 What have you done?
Not a lot beyond achieving Part L and where planning requires a particular orientation of a building. Occasionally adopt the Considerate Constructors Scheme if asked.

Clients are not driving it; private developers still seek the lowest cost. In a recent £1m house (build costs) the client made no requirement for sustainable construction.

Currently, much of the technology is not cost effective. They were asked to put in solar glass into a refurbishment but the client changed their mind.

3.6.2 The future
There is a degree of cynicism about what is being asked for. Recycling has to happen. Generally the industry will follow what the law requires. The contractors cannot lead in the general construction market because nobody is interested.

3.6.3 The NFB’s role
Generally to help members keep aware of what is happening by running seminars on what is practical and achievable.

They should monitor the trends and implication of those trends but again be real and be practical.

3.7 Company 5
A shop fitter and joinery company

3.7.1 What have you done?
The drive to get the job done at the lowest cost and in the shortest time outweighs any need for sustainable construction. It will be driven by opportunity to cut costs or by legislation.

Other than FSC timber, which is standard, and re-cycling off-cuts for heating the company is doing nothing. Site waste management plans are affecting us and we segregate waste.

Generally, private developers are not interested.

Considerate Constructors Scheme and Part L are not relevant.

3.7.2 The NFB’s role
Because there is little pressure then the NFB should limit its involvement to a watching brief and not invest heavily.

3.8 Company 6
Specialist developer and architect linked to ACB.

3.8.1 About ACB
The ACB is promoting standards that will really impact on sustainable construction. They are promoting standards that have a real impact on:

1. Reducing energy consumption to reduce carbon output – this is socially and politically sensitive and so the most likely to happen.
2. Looking at the sustainability of materials and the embedded energy issues.

Their big thing is getting standards that are achievable, making a difference to carbon output and measuring the energy use post-occupation.

The view is that the Code for Sustainable Homes and BREEAM are about design compliance rather than product compliance. The company believes that the NFB must encourage standards that address the most obvious issue of creating a product that is low in energy consumption and support standards that promote this. They will do a lot of good by being the voice of change and addressing the real issues facing contractors.
3.8.2 What have you done?

The firm has done a lot in terms of using environmentally appropriate materials. They have built with straw bales, green roofs, hemp, lime masonry and sheep wool insulation.

The technology must be built in at the design stage and the NFB should support and promote this. Changing the way we design changes the way we build. The professionals have a lot to learn; only 10% get it. Awareness is high but action is not.

Clients are starting to get it and some programmes are encouraging sustainable buildings.

- There are some domestic clients who want this but they are the evangelists.
- The community building sector is benefiting from grants for sustainable buildings.
- The Building Schools for the Future programme is encouraging, but it is based on the wrong standards.
- Local authorities could do more.

3.8.3 The future

Legislation must drive sustainable construction as it will force clients to act, but we are starting from a low point. Educating the client is important but difficult. Rising energy prices will force some clients to act, particularly when this begins to impact on rental incomes from inefficient properties.

3.8.4 The NFB’s role

The industry needs help, particularly with the skills to deal with new materials and the techniques of low energy buildings. For example, site teams need to know how to seal a building.

Training should extend to professionals and the NFB should work with RIBA and CIAT.

The NFB should work with ACB to address the key issue of standards.

The industry needs to simplify the subject.

3.9 Company 7

Mid to large-sized contractor; part of a group.

3.9.1 What have you done?

Sustainable construction is moving higher on the risk register. The risk can be managed out at design stage but is fraught with issues on site. Although the product is built to specification it may not be airtight on being built. If it goes wrong it is expensive, e.g. a re-test for air tightness costs £500 plus the re-work.

Industry is pushing pre-fabrication as an alternative, but the company questions the feasibility of this on site and also the quality of the supply chain to deliver pre-fabricated properties.

The standard for eco-homes is a shifting one and the bar is rising very quickly.

As an organisation they are certified to ISO 14002 (environmental management) and have:

- Waste management on site
- Established a waste transfer company that is segregating waste
- Considerate Constructors Scheme is used automatically on projects of more than £250k

The drivers for change are legislative, e.g. building regulations and the funding stream.

The problems are around:

- Workmen on site being able to do it; they need to understand the implications of what they should and what they shouldn’t do.
- Cost issues; sustainable construction is skewing the market with a non-sustainable product being cheaper and, therefore, more attractive. Only when it fails do the disputes begin.

Getting the design right is key. Designers don’t know about building sustainable homes. Contractors are working out what to do by trial and error and are generally not supported by Building Control who will not give advice.

3.9.2 The NFB’s role

The NFB needs to bring together experts into a panel to address
current issues. It would be great to have access to a panel comprising inspectors, architects and NFB members who could solve current problems and “publish” a book of fixes.

Training is required in:

1. How to calculate costs and tolerances
2. How to deliver (they understand the need for sustainable construction but not how to do it)
3. What goes wrong and how to avoid it – could publish cautionary tales from inspectors

Lobbying to stop change and allow industry to catch up with current standards.

3.10 Company 8

Larger main contractor.

3.10.1 What have you done?

The company has made some steps, specifically:

- Creating a sustainability policy (in response to a PQQ)
- Separating waste by using a consolidation service
- Progressively reducing the upper band of emissions from company vehicles
- Sourcing materials locally where they are allowed to by the design
- Sourcing materials that are renewable or recyclable

The big problem is that nobody can define what it means and there are a lot of token efforts going on. Frameworks are helping as they level the playing field. Only contractors that are incurring the costs are getting on frameworks so they compete equally, but frameworks are not universal purchasing policy.

3.10.2 What is difficult?

Going beyond box ticking. There are a lot of token gestures that do not translate into actual practice. Most local authorities continue to buy on lowest price and are not allowing the constructors to be sustainable.

It is difficult to keep track of what is going on and what can be done. Influencing the design. Clients continue to exclude contractors from the design decisions, often giving them only two weeks from order to starting work. This means they cannot create the site conditions that allow for sustainable construction nor influence the choice of materials or build processes.

The supply chain doesn’t get it. Clients’ professionals and designers are not thinking about sustainable construction. The supply chain does not want to conform. Both are driven on price.

- If a designer is forced to choose between cost and sustainable construction they will always choose lowest cost.
- Subcontractors have no regard for waste as this is the problem of the main contractor so M&E guys, for example, will bring lots of packaging to site which the main contractor has to clear up.

Even when the client wants to do it they do not allow sufficient costs in the budget. One example is the conversion of a church where plans for green roof and grey water systems were removed to hit the budget.

There is little done about renewable energy; worse still, the contractor is being asked to extend inefficient systems.

3.10.3 The future

It is going to take a long time and people need to take a longer term view. They must change from “build it now, build it cheap” approach to procurement.

Change needs to start with the professionals who must give options to the client. This applies also to site waste management plans where different site layouts impact on the options for waste management.

3.10.4 The NFB’s role

The role of the NFB is to:

1. Take sustainable construction to the clients and professionals so they might cost for it and take action.
2. Tell government what is preventing the industry from doing more.
3. A reality check on what is happening.
4. Create expertise so they can answer questions from members.
4 The quantitative study

4.1 Introduction to this section

The second research stream was a large scale membership survey of 340 members. This interview covered five areas:

1. Industry knowledge of sustainable construction.
2. Industry attitudes towards sustainable construction.
3. The actions companies are taking to make their work more sustainable.
4. The perceived skills within companies.
5. The sort of help that the NFB could provide.

4.2 Observations from the quantitative study

Our observations from the survey are:

1. The only clients really driving sustainable construction are in social housing.
2. Knowledge of sustainable construction is high with more than 80% of respondents stating they were familiar with or had a detailed knowledge of waste regulations, CDM, occupational health, waste segregation, Part L of the building regulations and control of pollution.
3. Around a third of respondents are highly supportive of actions that improve occupational health, encourage segregation of waste, prevent pollution, promote CDM and drive up CSR. There is, however, a sizeable minority (around 10%) that only take these actions when forced.
4. The things respondents do most are to reduce site waste, reduce site nuisance and segregate waste. The things they do least are to use recycled or renewable materials in the build and install renewable energy technologies.
5. The things most respondents claim are easy are reducing site waste and reducing nuisance (the things they do most often). The things most respondents claim are difficult are installing renewable energy technology and providing information on PQQs about sustainable construction.
6. The areas where they want help are legislation, waste management and building regulations.
7. The sort of help they want is either on the web (by far the most popular medium) and printed checklists.
4.3 Industry knowledge

The question
We asked respondents to classify their knowledge of the following subjects as either “Detailed knowledge”, “Familiar”, “Aware”, or “Unaware”:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Statement used in interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste regulations</td>
<td>Waste regulations (such as duty of care, licensing and exemptions)</td>
</tr>
<tr>
<td>CDM</td>
<td>Construction Design Management - CDM (design for safety)</td>
</tr>
<tr>
<td>Occupational health</td>
<td>Schemes for maintaining the occupational health of the construction workforce.</td>
</tr>
<tr>
<td>Waste segregation</td>
<td>Segregation and recycling of waste</td>
</tr>
<tr>
<td>Part L</td>
<td>Part L of the building regulations (which relate to energy performance rating, and air tightness compliance)</td>
</tr>
<tr>
<td>Pollution</td>
<td>Prevention of pollution from and around construction sites</td>
</tr>
<tr>
<td>Waste mgt plan</td>
<td>Waste management plans</td>
</tr>
<tr>
<td>Using recycled mats</td>
<td>Using recycled and/or renewable materials in the build</td>
</tr>
<tr>
<td>CSR</td>
<td>Corporate Social Responsibility, e.g. community relations, working with local suppliers</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>Technologies for renewable energy</td>
</tr>
<tr>
<td>CCS</td>
<td>Considerate Constructors Scheme</td>
</tr>
<tr>
<td>Industry standards</td>
<td>Any of the various industry standards such as the Code for Sustainable Homes, BREEAM, and CEEQUAL</td>
</tr>
</tbody>
</table>

The answers given by respondents
The table and graph shows the answers given from the whole sample.

<table>
<thead>
<tr>
<th>Q4. Which of the following do you or your colleagues know about?</th>
<th>Detailed knowledge</th>
<th>Familiar</th>
<th>Aware</th>
<th>Unaware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste regulations</td>
<td>47%</td>
<td>46%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>CDM</td>
<td>58%</td>
<td>30%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Occupational health</td>
<td>48%</td>
<td>40%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>Waste segregation</td>
<td>41%</td>
<td>46%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Part L</td>
<td>31%</td>
<td>54%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Pollution</td>
<td>32%</td>
<td>50%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Waste mgt plan</td>
<td>34%</td>
<td>42%</td>
<td>19%</td>
<td>5%</td>
</tr>
<tr>
<td>Using recycled mats</td>
<td>28%</td>
<td>47%</td>
<td>19%</td>
<td>6%</td>
</tr>
<tr>
<td>CSR</td>
<td>30%</td>
<td>41%</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>16%</td>
<td>42%</td>
<td>30%</td>
<td>12%</td>
</tr>
<tr>
<td>CCS</td>
<td>26%</td>
<td>25%</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>BREEAM</td>
<td>11%</td>
<td>24%</td>
<td>20%</td>
<td>44%</td>
</tr>
</tbody>
</table>
Respondents’ perception about their knowledge of key SC activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Detailed knowledge</th>
<th>Familiar</th>
<th>Aware</th>
<th>Unaware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste regulations</td>
<td>47%</td>
<td>30%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>CDM</td>
<td>58%</td>
<td>30%</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Occupational health</td>
<td>48%</td>
<td>40%</td>
<td>7%</td>
<td>3%</td>
</tr>
<tr>
<td>Waste segregation</td>
<td>41%</td>
<td>46%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>Part L</td>
<td>31%</td>
<td>54%</td>
<td>11%</td>
<td>4%</td>
</tr>
<tr>
<td>Pollution</td>
<td>32%</td>
<td>50%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Waste mgt plan</td>
<td>34%</td>
<td>42%</td>
<td>19%</td>
<td>5%</td>
</tr>
<tr>
<td>Using recycled mats</td>
<td>28%</td>
<td>47%</td>
<td>19%</td>
<td>6%</td>
</tr>
<tr>
<td>CSR</td>
<td>30%</td>
<td>41%</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>16%</td>
<td>42%</td>
<td>30%</td>
<td>12%</td>
</tr>
<tr>
<td>CCS</td>
<td>26%</td>
<td>25%</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>BREEAM</td>
<td>11%</td>
<td>24%</td>
<td>20%</td>
<td>44%</td>
</tr>
</tbody>
</table>

4.4 Industry attitudes

The question

We asked respondents to rate their degree of support for the same aspects of sustainable construction as either “Highly supportive”, “Supportive”, “Do it when forced” or “Strongly against”.

What is your attitude towards the following sustainable construction issues?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Highly supportive</th>
<th>Supportive</th>
<th>Do it when forced</th>
<th>Strongly against</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational health</td>
<td>34%</td>
<td>55%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>Segregation of waste</td>
<td>30%</td>
<td>58%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>Waste regulations</td>
<td>29%</td>
<td>59%</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>Pollution</td>
<td>32%</td>
<td>55%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>Recycled materials</td>
<td>25%</td>
<td>61%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>CDM</td>
<td>32%</td>
<td>54%</td>
<td>13%</td>
<td>1%</td>
</tr>
<tr>
<td>Renewable energy</td>
<td>21%</td>
<td>65%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>CSR</td>
<td>30%</td>
<td>56%</td>
<td>13%</td>
<td>1%</td>
</tr>
<tr>
<td>Waste mgt plan</td>
<td>25%</td>
<td>57%</td>
<td>17%</td>
<td>1%</td>
</tr>
<tr>
<td>Part L</td>
<td>23%</td>
<td>59%</td>
<td>18%</td>
<td>1%</td>
</tr>
<tr>
<td>CCS</td>
<td>20%</td>
<td>60%</td>
<td>18%</td>
<td>3%</td>
</tr>
<tr>
<td>BREEAM</td>
<td>15%</td>
<td>60%</td>
<td>24%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Attitudes towards sustainable construction

4.5 Industry activity

The question

We asked respondents to rate the level of activity for some aspects of sustainable construction as either the activity is done on most (75%+) projects, around half, few (<25%) or none. The aspects that we asked were:

<table>
<thead>
<tr>
<th>Aspect of sustainable construction</th>
<th>Short classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use recycled and or renewable materials in the build</td>
<td>Recycled/renewable</td>
</tr>
<tr>
<td>2. Reduce waste by ensuring correct quantities are ordered and materials are stored correctly on site.</td>
<td>Order correctly</td>
</tr>
<tr>
<td>3. Reduce dust, noise, parking and transport around site</td>
<td>Reduce nuisance</td>
</tr>
<tr>
<td>4. Segregate waste for reuse or recycling</td>
<td>Segregate waste</td>
</tr>
<tr>
<td>5. Create a site waste management plan</td>
<td>SWMP</td>
</tr>
<tr>
<td>6. Reduce pollution hazards (by for example using drip trays with plan, carrying spill kits in vans)</td>
<td>Pollution</td>
</tr>
<tr>
<td>7. Protect wildlife, natural environment or any archaeological relics on or near a site</td>
<td>Wildlife</td>
</tr>
<tr>
<td>8. Install renewable energy technologies (solar panels/wind generation/heat pumps)</td>
<td>Install renewable</td>
</tr>
<tr>
<td>9. Provide information on your approach to sustainable construction in any tenders or pre-qualification questionnaires</td>
<td>PQQ</td>
</tr>
</tbody>
</table>
Answers
On how many jobs in the last 12 months have you consciously made an effort to …

<table>
<thead>
<tr>
<th>Proportion of jobs on which each respondent has undertaken SC activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most (75%+)</strong></td>
</tr>
<tr>
<td>Order correctly</td>
</tr>
<tr>
<td>Reduce nuisance</td>
</tr>
<tr>
<td>Segregate waste</td>
</tr>
<tr>
<td>Pollution</td>
</tr>
<tr>
<td>Wildlife</td>
</tr>
<tr>
<td>SWMP</td>
</tr>
<tr>
<td>Recycled/Renewable</td>
</tr>
<tr>
<td>PQQ</td>
</tr>
<tr>
<td>Install renewables</td>
</tr>
</tbody>
</table>

**Proportion of jobs on which each respondent has undertaken SC activities**

- **Order correctly:** 87% Most (75%+), 9% Around half, 2% Few (<25%), 1% None
- **Reduce nuisance:** 74% Most (75%+), 14% Around half, 6% Few (<25%), 6% None
- **Segregate waste:** 63% Most (75%+), 15% Around half, 14% Few (<25%), 9% None
- **Pollution:** 44% Most (75%+), 12% Around half, 7% Few (<25%), 36% None
- **Wildlife:** 42% Most (75%+), 14% Around half, 14% Few (<25%), 29% None
- **SWMP:** 31% Most (75%+), 10% Around half, 14% Few (<25%), 45% None
- **Recycled/Renewable:** 17% Most (75%+), 23% Around half, 38% Few (<25%), 22% None
- **PQQ:** 21% Most (75%+), 12% Around half, 14% Few (<25%), 53% None
- **Install renewables:** 9% Most (75%+), 9% Around half, 30% Few (<25%), 53% None
### 4.6 Industry skills

We asked respondents to rate the difficulty they would have undertaking ten tasks that relate to sustainable construction. The tasks are shown below along with the “short code” used in reporting.

<table>
<thead>
<tr>
<th>Long classification</th>
<th>Short code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Use recycled and or renewable materials in the build</td>
<td>Recycled/renewable</td>
</tr>
<tr>
<td>2. Reduce waste by ensuring correct quantities are ordered and materials are stored correctly on site</td>
<td>Order correctly</td>
</tr>
<tr>
<td>3. Reduce dust, noise, parking and transport around site</td>
<td>Reduce nuisance</td>
</tr>
<tr>
<td>4. Segregate waste for reuse or recycling</td>
<td>Segregate waste</td>
</tr>
<tr>
<td>5. Create a site waste management plan</td>
<td>SWMP</td>
</tr>
<tr>
<td>6. Reduce pollution hazards (by, for example, using drip trays with plan, carrying spill kits in vans)</td>
<td>Pollution</td>
</tr>
<tr>
<td>7. Protect wildlife, natural environment or any archaeological relics on or near a site</td>
<td>Wildlife</td>
</tr>
<tr>
<td>8. Install renewable energy technologies (solar panels/wind generation/heat pumps)</td>
<td>Install renewable</td>
</tr>
<tr>
<td>9. Provide information on your approach to sustainable construction in any tenders or pre-qualification questionnaires</td>
<td>PQQ</td>
</tr>
<tr>
<td>10. Succession planning – ensure you are developing people to fill key roles in the future.</td>
<td>Succession</td>
</tr>
</tbody>
</table>

**The answers**

*If you were asked to do each of the following, how easy would it be?*

<table>
<thead>
<tr>
<th>Long classification</th>
<th>Easy</th>
<th>OK</th>
<th>Difficult</th>
<th>Impossible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order correctly</td>
<td>62%</td>
<td>34%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Reduce nuisance</td>
<td>54%</td>
<td>39%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Segregate waste</td>
<td>51%</td>
<td>37%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>Recycled/Renewable</td>
<td>36%</td>
<td>45%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>Pollution</td>
<td>37%</td>
<td>42%</td>
<td>16%</td>
<td>2%</td>
</tr>
<tr>
<td>Succession</td>
<td>29%</td>
<td>48%</td>
<td>18%</td>
<td>3%</td>
</tr>
<tr>
<td>Wildlife</td>
<td>34%</td>
<td>42%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>SWMP</td>
<td>26%</td>
<td>39%</td>
<td>29%</td>
<td>2%</td>
</tr>
<tr>
<td>PQQ</td>
<td>19%</td>
<td>42%</td>
<td>30%</td>
<td>4%</td>
</tr>
<tr>
<td>Install renewable</td>
<td>14%</td>
<td>36%</td>
<td>36%</td>
<td>6%</td>
</tr>
</tbody>
</table>
Respondents’ perceptions of the difficulties of specific SC activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Easy</th>
<th>OK</th>
<th>Difficult</th>
<th>Impossible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order correctly</td>
<td>62%</td>
<td>34%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>Reduce nuisance</td>
<td>54%</td>
<td>39%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>Segregate waste</td>
<td>51%</td>
<td>37%</td>
<td>8%</td>
<td>1%</td>
</tr>
<tr>
<td>Recycled/renewable</td>
<td>36%</td>
<td>45%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>Pollution</td>
<td>37%</td>
<td>42%</td>
<td>16%</td>
<td>2%</td>
</tr>
<tr>
<td>Succession</td>
<td>29%</td>
<td>48%</td>
<td>18%</td>
<td>3%</td>
</tr>
<tr>
<td>Wildlife</td>
<td>34%</td>
<td>42%</td>
<td>15%</td>
<td>1%</td>
</tr>
<tr>
<td>SWMP</td>
<td>26%</td>
<td>39%</td>
<td>29%</td>
<td>4%</td>
</tr>
<tr>
<td>PQQ</td>
<td>19%</td>
<td>42%</td>
<td>30%</td>
<td>4%</td>
</tr>
<tr>
<td>Install renewables</td>
<td>14%</td>
<td>36%</td>
<td>36%</td>
<td>6%</td>
</tr>
</tbody>
</table>

4.7 The impact of size of company on the responses

In this section of our report we examine the impact of size on the answers given by respondents to each of the questions. The respondents were classified into one of the four turnover brackets.

<table>
<thead>
<tr>
<th>Turnover</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low turnover</td>
<td>&lt;£500k turnover per year</td>
</tr>
<tr>
<td>Medium turnover</td>
<td>£500k - £5.5 million</td>
</tr>
<tr>
<td>High turnover</td>
<td>£5.5 million-11.5 million</td>
</tr>
<tr>
<td>Very high turnover</td>
<td>&gt;11.5 million</td>
</tr>
</tbody>
</table>

**Which clients are pushing hardest for sustainable construction?**

The larger companies are seeing more activity than the smaller ones evidenced by the relatively high number of smaller companies who could not answer this question.
Client groups identified as ‘pushing hardest’ for SC by turnover band

Knowledge of activities
Generally, the larger the company the greater the perceived knowledge of sustainable construction.
Supporting sustainable construction
Generally, smaller companies are less supportive of sustainable construction but the three larger size companies are generally supportive.

Being asked to do sustainable construction
Generally, there is little variation with size with the exception of site waste management plans, and PQQs which are more specific to larger companies.
Being skilled in sustainable construction
In most subjects, the medium-sized companies perceive they have more skills than other sized respondents.
5 Supporting the industry

In this final section of the report, we set out some of the ideas emerging from the report about how the NFB can support its members.

5.1 Helping members: what they want

Members want printed material written by experts that tells them what to do.

The table below shows the relative popularity of a number of subjects (the rows) and the relative popularity of a number of media (the columns). By looking at the row totals one can see the relative popularity of subjects and by looking at the column totals one can see the relative popularity of the media.

<table>
<thead>
<tr>
<th>Subject</th>
<th>One page “how to” guides</th>
<th>Printed checklists of what to do and what not to do</th>
<th>Seminars with experts or suppliers</th>
<th>Short training courses</th>
<th>An area on our website to cover this</th>
<th>Providing experts to visit your site and give advice</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better understand and be able to comply with legislation</td>
<td>69</td>
<td>118</td>
<td>53</td>
<td>50</td>
<td>114</td>
<td>33</td>
<td>437</td>
</tr>
<tr>
<td>Better understand building regs</td>
<td>72</td>
<td>99</td>
<td>50</td>
<td>44</td>
<td>112</td>
<td>27</td>
<td>404</td>
</tr>
<tr>
<td>Understand and act on waste management</td>
<td>70</td>
<td>110</td>
<td>40</td>
<td>42</td>
<td>111</td>
<td>29</td>
<td>402</td>
</tr>
<tr>
<td>Understand and join the CCS</td>
<td>63</td>
<td>76</td>
<td>22</td>
<td>28</td>
<td>109</td>
<td>19</td>
<td>317</td>
</tr>
<tr>
<td>Understand and develop site waste management plans</td>
<td>67</td>
<td>88</td>
<td>40</td>
<td>53</td>
<td>109</td>
<td>27</td>
<td>384</td>
</tr>
<tr>
<td>Understand how to install renewable energy</td>
<td>59</td>
<td>70</td>
<td>50</td>
<td>58</td>
<td>102</td>
<td>28</td>
<td>367</td>
</tr>
<tr>
<td>Total</td>
<td>400</td>
<td>561</td>
<td>255</td>
<td>275</td>
<td>657</td>
<td>163</td>
<td>340</td>
</tr>
</tbody>
</table>
5.2 A support strategy

The NFB should support its members where they have most influence.

One conclusion that can be drawn from the research is that the blame culture is alive and well! Contractors are not being sustainable because they are not asked to be by clients and designers. No doubt designers would say they are not doing it because clients don’t want it. Clients, particularly public sector, would say the public is not prepared to pay the increased taxes. It would be easy for the NFB to justify doing nothing. However, NFB members do have influence over the sustainability of their businesses and the approach they take to construction. We can translate sustainable construction into three tangible aspects that are of relevance to NFB members:

- **Sustainability of the construction process**: the extent to which the build phase minimises energy, materials and pollution whilst creating wealth, safe employment and training. This is driven by legislation such as the requirement for Waste Management Plans, Pollution Control and environmentally responsible site management. The Considerate Constructor Scheme covers much of the “good neighbour” aspects of the construction process.

This is entirely within the control of NFB members and it is here where the federation has the greatest influence.

- **Sustainability of the constructed product**: the extent to which the product can be sustained over the long term by its minimising the consumption of natural resources and the production of pollutants. The sustainability of the constructed product is likely to be increased by raising the standards to which buildings are built. The prime driver for this is a political will to cut carbon emissions which is shaping building and design requirements enforced by local authorities and specified by clients (mainly from the social housing sector) and their professionals. Things that are driving up the sustainability of the constructed product would include the Code for Sustainable Homes, the Housing and Regeneration Bill, air tightness, water efficiency and renewable energy. It is usually decided by the client and implemented by the designer before the contractor gets involved. Where partnerships exist the opportunities for contractors to influence design are greater but this is not the normal purchasing route.

The potential of NFB members to influence the sustainability of the constructed product here is limited.

- **Sustainability of the construction company**: this is the capacity of the company to generate wealth and employment into the future. NFB members sustain their companies by good business management and creating safe employment and developing a skilled workforce.

Each member can influence the sustainability of the company by the way they employ and train their workforce.
5.3 Helping members: our recommendations

The NFB can help its members by:

1. Encouraging them to be responsible builders by promoting the Considerate Constructors Scheme (CCS). The CCS deals with many of the causes of nuisance from a site.  

   *The NFB should work with the CCS scheme to ensure that it is understood by and accessible to its members.*

2. Encouraging them to be responsible employers by encouraging training and proper succession planning. Proper training plans, as promoted and funded by ConstructionSkills, will deal with many of the training and progression issues.

   *The NFB should work with members to encourage them to develop properly designed and funded training plans in conjunction with ConstructionSkills. These training plans should deal with succession planning for the business by ensuring that someone is training towards each senior position.*

3. Explaining how to make the building process more sustainable. This would include explaining what is required of a contractor, the site manager and site team to comply with relevant legislation. Generally, it should be printed materials such as management checklists and toolbox talks.

   *The NFB should engage practising experts to write the guides to legislation. By “practising” we mean those who are inspecting and enforcing the legislation and those who are delivering it. Guidance should be detailed and in-depth; it should help contractors to implement sustainable construction not just tell them it is important.*

4. Informing them of the technologies that the client is likely to add to the product in the future.

   *The NFB should monitor changes in demands from clients that will affect its members. As these changes become established, the NFB should publish practical guidance for its members.*