Green Building

"Made in Denmark"

An empirical analysis of Denmark's country-of-origin image within green building in the United States

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Resumé

Grønt byggeri – "Made in Denmark"

Dette speciale undersøger Danmarks image i USA samt hvilke konsekvenser amerikanernes opfattelse af Danmark har for den danske byggebranches mulighed for at anvende tilknytningen til Danmark som en slags "endorser brand" på det amerikanske marked for bæredygtigt byggeri.

Specialet er teoretisk forankret i teorierne omkring oprindelseslandseffekt og landebranding, der beskæftiger sig med, hvorledes et lands image har betydning for, hvordan landets produkter og services opfattes af potentielle købere på udenlandske markeder.

Analysen er inddelt i tre stadier: I det første stadie undersøges den danske byggebranches selvopfattede styrker og svagheder gennem en række kvalitative interviews samt Danmarks officielle landebranding strategi for derved at fastslå det ønskede image. I det andet stadie analyseres det amerikanske byggemarked, hvorunder arkitekter og ingeniører udvælges som den mest relevante målgruppe at undersøge Danmarks image blandt. På baggrund af resultaterne i de første to analyse stadier, analyseres Danmarks image i det tredje og sidste stadie ved hjælp af en spørgeskemaundersøgelse udsendt til en stikprøve af repræsentanter fra målgruppen.

Specialet viser, at Danmark generelt set har et positivt image i USA, omend kendskabsgraden til landet og dets specifikke kompetencer er relativt lav. Den amerikanske målgruppe opfatter Danmark som et land, der tager miljø- og energispørgsmål alvorligt, hvilket også afspejles i holdningen til dansk arkitektur og design, som målgruppen opfatter positivt – både æstetisk og funktionsmæssigt – men også i forhold til graden af bæredygtighed og hensyntagen til det omgivende miljø.

Det faktiske image blandt målgruppen svarer overordnet set rimelig godt til den danske byggebranches selvopfattelse: Danske produkter anses for at være af høj kvalitet, men også relativt dyre. Danmarks kompetencer inden for byggebranchens selvopfattede styrkeområder vurderes alle til at ligge over USA's på disse områder. Især danske kompetencer inden for sikring af et behageligt indeklima, udnyttelse af naturligt dagslys samt effektiv isolering af bygningens klimaskærm vurderes som værende rigtig gode.

Kendskabsgraden til specifikke danske brands eller virksomheder inden for byggeriet er meget lav, mens kendskabet til danske arkitekter er noget højere. Undersøgelsens resultater viser desuden, at målgruppen flere gange har svært ved at adskille Danmark fra andre skandinaviske og europæiske lande, hvilket også understreger det begrænsede kendskab. En eventuel kommende markedsføringsstrategi for dansk byggeri i USA bør således først og fremmest fokusere på at skabe opmærksomhed omkring Danmark og danske kompetencer inden for dette område.

På trods af det relativt lave kendskab vurderes det, at danske byggevirksomheder med fordel kan anvende tilknytningen til Danmark som ”endorser brand”, idet målgruppen har mange positive associationer om Danmark og danske kompetencer inden for grønt byggeri – også selv om de udelukkende har et overfladisk kendskab til landet. Det vurderes, at det især vil være mindre virksomheder, der endnu ikke selv har fået etableret sit eget brand på det amerikanske marked, der vil kunne få glæde af at anvende deres danske oprindelse som et parameter i deres markedsføring, mens større og mere etablerede virksomheder formentlig vil være mere tilbageholdende med at lægge sig op ad Danmarks image, idet denne strategi også medfører en række usikkerheder, som ligger uden for de enkelte virksomheders kontrol, men som gennem tilknytningen også kan påvirke deres image.

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1. Introduction and research question

1. Introduction and research question

The global challenges facing the world as a result of a changing climate has led to a great focus on countries' responsibility to reduce their CO_2 emissions through greater energy efficiency and greater use of renewable energy. Since buildings account for approximately 40 pct. of the world's total energy consumption and CO_2 emissions (Regeringen, 2009), energy efficiency and energy reducing solutions for the building sector are in focus like never before. This is also true for the United States, which is currently experiencing rapid growth within green building and sustainable construction.

For many years, Denmark has been focusing on these issues – both in terms of continuously stricter legislature for energy requirements in the building code and product innovation by the building industry. Today, the nation has some of the world's most stringent energy codes for buildings and even stricter codes are planned to be introduced in the future as an incentive for further product development that will make Denmark synonymous with green building.

There is a general consensus among researchers within the field of nation-branding and country-of-origin effect that the image of a country has an effect on the buyers' perceptions of products originating from this country. Given Denmark's longstanding focus on environmental, climate and energy issues and the nation's role as the host of the United Nations Climate Change Conference (COP15) in December 2009, it is therefore relevant to examine whether – and if so, then how – the nation's efforts in these areas can be transferred and utilized for commercial purposes by Danish building companies seeking to penetrate or expand their activities on the U.S. market.

The purpose of this thesis is thus to examine to which extent the image of Denmark makes it possible for Danish companies within the building sector to derive marketing capital from their country-of-origin on the U.S. market, including an assessment of the significance of the country-of-origin effect on Danish building companies' market penetration and expansion potential. To my knowledge, this is the first analysis of its kind on this particular issue.

1.1. Research question

The context described above leads me to the following research question:

What is Denmark's image in the United States and what impact does this image have on the Danish building industry's ability to use the connection to Denmark as an 'endorser brand' on the U.S. green building market?

Elaboration of research question:

In order to answer the above research question, the following sub questions will also be addressed:

- *What is characteristic of the Danish building industry's relative self-perception?*
- *What is characteristic of the U.S. green building market currently?*
- *Which target audience(s) on the U.S. market is/are most relevant for the Danish building industry?*
- *What image does the selected target audience(s) hold of Denmark and Danish green building solutions?*

1.2. Delimitation

The purpose of this thesis is to conduct an empirical analysis of Denmark's image within green building which can be used for potential future strategic marketing efforts of Denmark within this field. The actual development of this strategy, however, falls outside the scope of this thesis.

The first part of the research question suggests a very broad scope in terms of examining Denmark's image in the United States. However, due to a limitation of resources and in order to conduct a more thorough analysis, the main focus will be on examining Denmark's image as the origin country of products and services related to the building sector. However, a brief description of the more general image of Denmark will also be included where relevant.

By the same token, the research question could have been expanded to cover Danish building exports in general but in order to ensure a more focused analysis the empirical scope has been limited to the U.S. market. This market has been selected due to its size and market attractiveness and its significance as an important export market for the Danish building industry.

Although I realize that the Danish building industry consists of companies operating in many different areas, ranging from service companies such as consulting engineers to manufacturers of building materials and subcontractors etc., I have chosen to take a holistic approach and focus on the industry level rather than one or several specific product levels. When analyzing the image, market potential and identity, focus will therefore be on the industry in general unless specifically stated otherwise.

1.3. Definition of key concepts

The research question contains a number of key terms and concepts, which will briefly be defined to avoid any misunderstandings. The concept of image is so central to the research question that it will be dealt with in depth later under the theoretical framework. But for now, two other concepts need a brief explanation:

Endorser brand

An endorser brand as defined by Aaker (1996) can provide support and credibility to other brands by acting as an 'umbrella' under which these can be marketed. It is often seen with corporate brands 'endorsing' individual product brands of the organization. This reassurance is of particular importance when the product is new and untested (p. 245).

Green building

The U.S. Environmental Protection Agency defines 'green building' as '*the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle'* (U.S. Environmental Protection Agency, 2009). This definition thus covers everything from siting to design, construction, operation, maintenance, renovation, and deconstruction. As will be explained later, minor differences exist between Denmark and the United States in terms of definition of and focus within green building, but the above definition will serve as the overall definition in this thesis.

1.4. Structure of the thesis

The presentation of the research question and delimitation is followed by a presentation of the applied methodology and an account of the theoretical framework of the thesis. After this, the empirical study and analysis will be presented. The analysis is structured along three different stages, beginning with an analysis of the Danish building industry and its relative self-perception and desired image. After establishing this, the U.S. market for green building and Denmark's image among the relevant target audience in this market will form the second stage of the analysis. In the final stage, the two perspectives will be integrated in a gap analysis and a discussion of the limits and possibilities to using Denmark as an endorser brand. This approach allows me to evaluate whether – and if so, in which way – the Danish building industry can derive marketing value from its 'Danishness'.

Thesis Structure

Chapter 1: Introduction	Introduction; Research question; Delimitation; Methodology
Chapter 2: Theoretical framework	Country-of-origin effect; Nation-branding; Image and identity
Chapter 3: 'Supply side analysis'	Denmark's nation-brand; Relative self-perception and desired image
Chapter 4: 'Demand side analysis'	The U.S. green building market; Selection of target audience
Chapter 5: Denmark's image in the United States	Research design and collection of data; Analysis of Denmark's image and potential gaps between registered and desired image
Chapter 6: The use of Denmark as an endorser brand	The target group's focus areas within green building; Limits and possibilities to using Denmark as an endorser brand in the United States
Chapter 7: Conclusion	Conclusion; Further perspectives

1.5. Methodology

The purpose of this section is to account for the scientific paradigm and the methodological choices and reflections which underlie the thesis' empirical studies. The scientific paradigm that a researcher adopts has a significant impact on the way the subsequent research is conducted and how the results are interpreted (Rasmussen et al., 2006, p. 29). It is therefore relevant to first account for the scientific paradigm on which the study in this thesis is based. Given the nature of the chosen research question, the thesis is rooted in the interpretive paradigm and its conception of 'the social construction of reality' where focus is on the interpretation of the meaning of the social world (Kvale, 1996, p. 41). I thereby subscribe to the social constructivist position that reality is a socially constructed phenomenon (Esmark et al., 2005, p. 16). The thesis' field of research also reflects this position as image and perception are concepts where meaning is indeed created between different social actors. Accordingly, image should not be considered as something constant or static but rather be viewed as something that is continuously changing and evolving.

Based on the chosen research question, the study is characterized by mainly serving an interpretative and explorative purpose in the sense that its primary interest is to create new insight into the subject investigated by seeking to understand the social reality based on the informants' responses – and through this seek to interpret their 'subjective meanings' in terms of attitudes and perceptions (Andersen, 2005, p. 21; Højberg, 2003, p. 90). This is also characteristic for the interpretive paradigm.

It should be mentioned here that I have personal experience working with export promotion of Danish building firms on the U.S. market through a one-year internship at the trade department of the Consulate General of Denmark in New York (ended in August 2009). As a researcher, I therefore acknowledge the influence my own pre-understanding of the subject being studied has on the way I view the world around me. I have tried to minimize any bias as a result of this pre-understanding by striving to be objective and critically analytical throughout my study. However, in accordance with the interpretive paradigm, I acknowledge that both my theoretical and empirical analysis will be influenced by the context in which it has been conducted. The reader must therefore be aware that the conclusions reached in this thesis are *my* attempts to make sense of the world based on the chosen methodology – including my choice of empirical data, theoretical framework and scientific approach.

The hermeneutical approach

In line with the interpretive paradigm and the social constructivist position, I have chosen to apply a hermeneutic approach to my study. This means that I reject the positivist idea of one objective truth and accept that there is not one indisputable and conclusive answer to my research question but rather a number of possible perspectives (Rasmussen et al., 2006, p. 39). This approach thus suggests an interpretation, wherein I also acknowledge the significance of my own context's influence on the study.

Due to the changeable nature of an image as explained above, it is worth noting that this thesis will merely provide a snapshot of Denmark's image in the United States.

The process of interpretation is best illustrated by the principle of the hermeneutic circle, which describes the reciprocal relationship between the understanding of an object as a whole and the understanding of each individual part of that object (Højberg, 2003, p. 92). Each part can thus only be understood in relation to the whole and the whole can in turn only be understood in relation to each of its parts. The hermeneutic circle is also sometimes described as a spiral as the effort towards determining the meaning of the separate parts often leads to a revised meaning of the whole, which again influences the meaning of the separate parts and so on. In principal, this process is infinite. However, in practice it ends when a sensible meaning free of inner contradictions is reached (Kvale, 1996, p. 47).

In this thesis, the hermeneutical approach is evident in the way I seek to reach an overall understanding and answer to the main research question through different sub-questions and analyses. The sub-analyses allow me to reach an overall conclusion, which would not make sense without including its separate parts.

Methods Applied

The social constructivist and hermeneutic approaches are characterized by their aim to understand and gain insight into the social reality (Højberg, 2003, p. 120). In this regard, qualitative methods are often particularly useful in studies where the aim is to understand the respondents' less tangible and complex precursors of behavior such as attitudes and perceptions due to their openness and flexibility (Rasmussen et al., 2006, p. 93). Qualitative methods, however, also requires a lot of resources both in terms of data collection and subsequent processing and analysis. Due to obvious practical limitations including the time constraint and the large geographical distances between myself and the respondents in this study, I have chosen to base my study on a combination of qualitative and quantitative methods. As both methods have advantages and limitations, I hope to overcome some of the weaknesses or intrinsic biases and problems that come from only applying either one or the other.

Qualitative methods such as in-depth interviews are particularly useful in the beginning phases of a study where knowledge about the subject is limited (Rasmussen et al., 2006, p. 93). In depth, semi-structured interviews with selected representatives from the Danish building industry are thus used in the first analysis stage to achieve a better understanding of the self-perceived competences, strengths and weaknesses of the Danish building industry. In the second analysis stage, semi-structured interviews with the Danish Ministry of Foreign Affairs' building sector expert in the United States and the editor in chief of the U.S.-based Metropolis Magazine are likewise used in combination with existing market data and reports to analyze the U.S. green building market. As such, these in-depth interviews serve an explorative purpose.

The information gathered through them will furthermore form the foundation of the subsequent study of the image perception among the selected U.S. target audience.

In the final analysis stage, a mainly quantitative method in the form of a questionnaire will form the primary source of data for my analysis of Denmark's image in the United States. The advantage of this type of method is that it allows me to compare the answers from a larger sample of the selected target audience through its high degree of standardization and structuring (Rasmussen et al., 2006, p. 89). The disadvantage is of course that the questionnaire does not allow me to follow up on interesting new angles or specify questions which might seem unclear to the respondents. In order to determine which questions should be asked in the questionnaire, it is thus critical that I obtain a high degree of background knowledge about the subject in advance, which I aim to achieve through the preliminary qualitative research conducted through the in-depth interviews in the first analysis stages described above (Brace, 2008, p. 8).

Selection and application of empirical data

The empirical data collected for this thesis is briefly presented below. A more thorough presentation of the research design and empirical data collection will be presented in the relevant chapters later on.

Table 1.1: Types of empirical data used

	Primary data	Secondary data
Qualitative data	- Semi-structured interviews	- Newspaper articles - Government and industry reports
Quantitative data	- Online questionnaire	- Existing market data

Source: Own production.

2. Theoretical framework

2. Theoretical framework

This chapter seeks to account for and discuss the theoretical framework which will form the basis for the subsequent analyses in the thesis. The central theoretical area relevant to the research question is found in the research on country-of-origin effect and the significance of national image in export promotion. In order to fully comprehend the concept of national image, it is relevant to also look at another related research area, namely that of nation-branding – i.e. the strategic attempt to shape and manage a nation's image. Finally, the concepts of image and identity will briefly be examined as these will form the basis for the subsequent analyses.

2.1 Country-of-Origin effect

The research on country-of-origin[1] effect addresses the issue of how national symbols and other origin cues affect buyer perceptions of and attitudes towards a product or a service from that given country (Jaffe & Nebenzahl, 2006, p. 33; Min Han, 1989, p. 222). It is thus concerned with how the image of the origin country of a product or a service can be used as an aspect in branding and marketing strategies (Langer, 2002, p. 69).

Strategic implications for exporters

Buyers prefer to make informed buying decisions in order reduce perceived risks. However, as markets become increasingly more complex with multiple similar products, they often do not have the time or patience to seek out detailed information on each product and as a result seek means to simplify this process (Anholt, 2007, p. 10; Papadopoulos & Heslop, 2002, p. 296). Country-of-origin may – like other intangible, extrinsic attributes such as price or brand name – serve as an indicator of product quality (Morello, 1992, p. 291). Since buyers' knowledge of foreign companies and their products is generally poor, they usually hold – albeit stereotyped – images of other countries, which can be used as information cues when assessing products or services of various origins (Morello, 1992, p. 288).

The image of the origin country can therefore contribute significantly to the export penetration of the country's products and services as it can act as either a significant barrier or facilitator of entry to foreign markets. In deciding which marketing strategy to adopt, exporters thus need to know what images buyers hold of their origin country and what the components of these images are (Graby, 1992, p. 278; Papadopoulos, 1992, p. 25). Depending on the country-of-origin image held by buyers in a particular market, exporters face the choice of actively promoting and emphasizing their origin (in case of a favorable

[1] Country-of-origin image is sometimes also referred to as Product-Country-Image (PCI) in the literature (Papadopoulos, 1992, p. 24) but to avoid any confusion, only 'country-of-origin image' will be used in this thesis.

country image), simply present it, or suppress it (in case of an unfavorable country image) (Johansson, 1992, p. 83; Min Han, 1989, p. 228).

The influence of country-of-origin effect on buyer perceptions

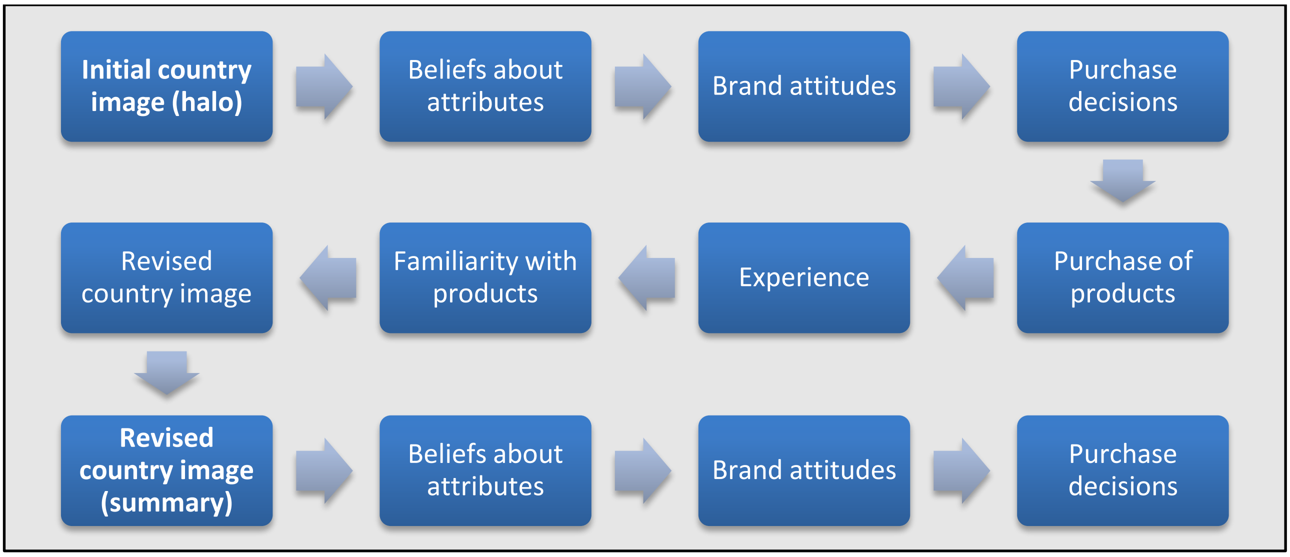
The national origin of a product or service is believed to have a greater effect in some situations than others. While most of the studies on country-of-origin effect have focused on consumers and the impact origin images have on their product perceptions, most researchers agree that – at least to some extend – national images also influence buyers on the B2B market (Anholt, 2007, p. 11; Jaffe & Nebenzahl, 2006, p. 87; Papadopoulos & Heslop, 2002, p. 298).

The use of country-of-origin image to promote products or services in foreign markets is usually seen more frequently in the beginning stages of the international product life cycle, where it can help speed up the market penetration of products or services previously unknown to the market. Once the product or service becomes more established in the market, it is common to see a declining use of national image (Jaffe & Nebenzahl, 2006, p. 133).

This is well in line with Min Han's (1989) theory on how origin image can either act as a 'halo effect' or a 'summary construct': When buyers are unfamiliar with a country's products, they tend to make inferences about product quality and attributes based on their perceived image of the origin country. Conversely, once buyers become familiar with a country's products, the country image instead becomes a construct that summarizes their perceptions of the true attributes of the country's products (p. 223-228).

While Min Han (1989) insists that the type of effect is either one or the other depending on the type of products and their degree of complexity (p. 227-228), Jaffe & Nebenzahl (2006) argue that the summary and halo effects actually co-exist. They argue that country images change over time and that while the image of a country initially affects the image of its products, experience with these products over time will eventually also lead to revisions in the country image as illustrated below (p. 23).

Figure 2.1: Combined halo and summary model of country image



Source: Jaffe & Nebenzahl, 2006, p. 42.

Their argument is backed by Papadopoulos (1992) who argues that origin images of brands, companies, product categories and all products from a given country all represent various levels of abstraction and that buyers have no difficulty attaching images to any level. These different levels of image are all interrelated in the sense that any higher-level (general) image may function as a halo for understanding objects at a lower hierarchical level (i.e. the overall origin image of the country may function as a halo in the evaluation of product categories, corporate brands or product brands). At the same time, any lower level (specific) image may help create a summary view of the next-up level of abstraction (i.e. the sum of the buyer's experience with various product brands may add to that person's total image of the origin country) (p. 21).

The country-of-origin images of specific product categories are therefore related to the country's 'global' product image. While the image of specific products may be weaker or stronger than the global image of their origin country, it usually moves in tandem with it – i.e. the better buyer perceptions of the country in general, the better buyer perception of a specific product from that country (Jaffe & Nebenzahl, 2006, p. 299). Managing the national image of a country is thus critical to ensuring a positive country-of-origin image. In the next section, the theoretical foundation for this discipline will be examined.

2.2. Nation-branding and national image

Nation-branding (Dinnie, 2008; Jaffe & Nebenzahl, 2006; Olins, 1999), place marketing (Langer, 2002), reputation management (Dinnie, 2008), Competitive Identity (Anholt, 2007) – it goes by many names. The underlying assumption, however, is the same: National identities and images are not natural facts but rather social constructions based on idealized accounts about nations and their self-perceived role in the international marketplace (Langer, 2002, p. 63). According to Van Ham (2001), a nation's brand or image is the outside world's ideas about that particular country (p. 2). Adding to this, Dinnie (2008) defines a nation-brand as *'the unique, multidimensional blend of elements that provide the nation with culturally grounded differentiation and relevance for all its target audiences'* (Dinnie, 2008, p. 15).

In a world where the globalization process has led countries to operate in an increasingly competitive environment, marketing and branding are becoming essential to having a competitive edge. Having a powerful nation-brand can provide a key competitive advantage in the global arena (Jaffe & Nebenzahl, 2006, p. 10; Olins, 1999, p. 5). By the same token, a bad reputation or none at all is a serious handicap for a nation seeking to remain competitive in the international arena. Researchers therefore argue that nations need to evolve an understanding of themselves as 'corporate entities' and increasingly adopt commercial branding techniques as a means to create meaningful and clear differentiation, raise awareness and create a positive reputation for themselves (Langer, 2002, p. 79; Papadopoulos, 1992, p. 29; Van Ham, 2001, p. 4).

Strategic management of the nation-brand is imperative to its success. All nations have an image, which colors the outside world's perception of it, whether a national nation-branding process has taken place or not. However, failing to actively define the nation's 'brand' and develop an attractive country image leaves target audiences free to form their own perception of the country, which will often be based on stereotypes and misconceptions with potential negative consequences (Dinnie, 2008, p. 150; Papadopoulos & Heslop, 2002, p. 309).

Managing the nation's brand and image

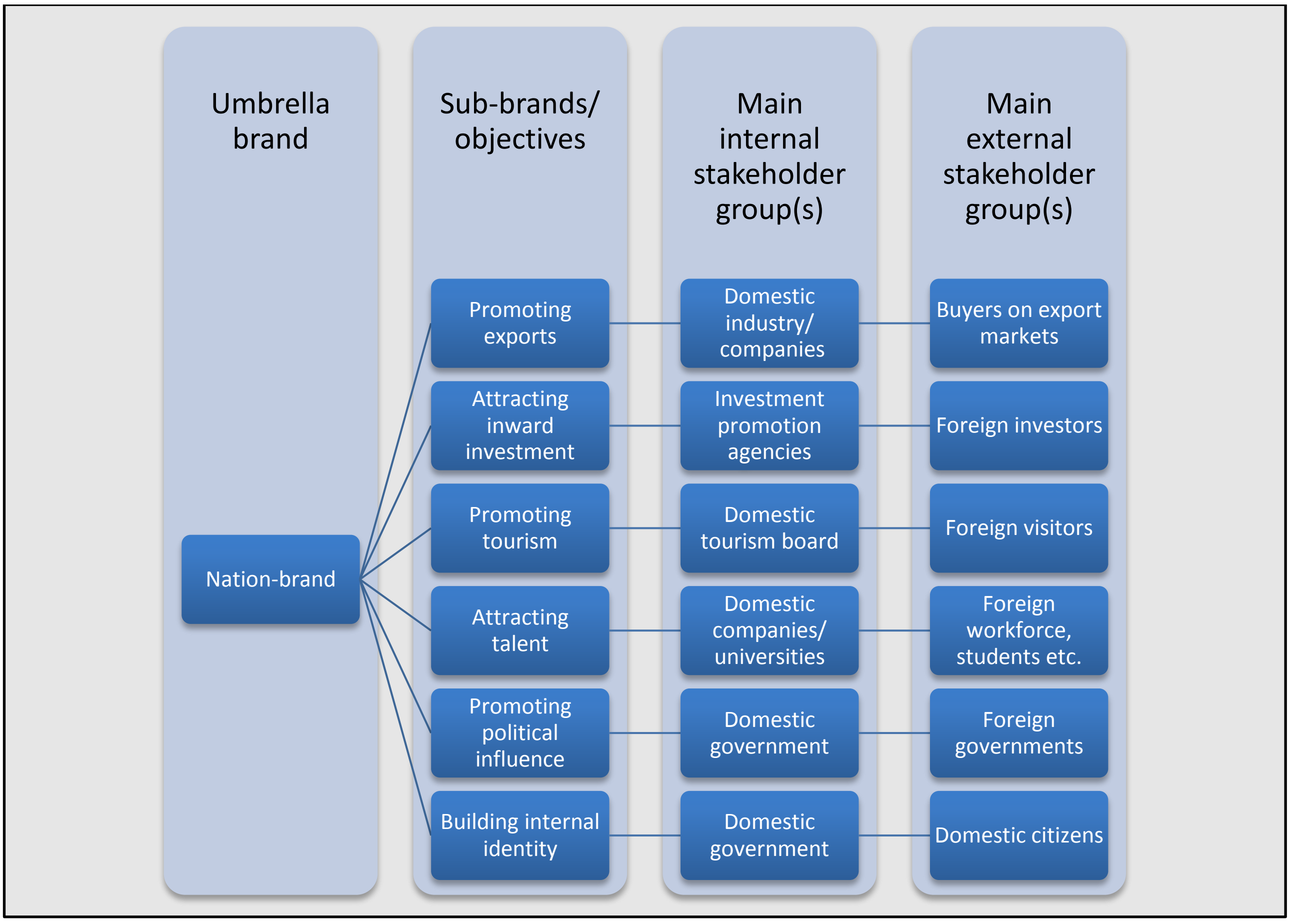
Theory suggests that a country's image should be strategically determined and controlled like a corporate brand (Jaffe & Nebenzahl, 2006, p. 138-139). However, the question of whether branding techniques – previously reserved for the commercial sphere – can even be applied to nations is not without controversy in the nation-branding literature. Most researchers, however, argue that while the degree of complexity is higher for nation-brands and involves more co-ordination than a commercial identity program, the basic essentials are the same (Csaba, 2005, p. 128; Olins, 2003, p. 167; Papadopoulos & Heslop, 2002, p. 307).

In this view, nation-branding is the most holistic approach to branding as it attempts to meet a number of key objectives targeted at many different stakeholder groups (Csaba, 2005, p. 142-143). Similar to corporate branding, nation-branding involves a high degree of complexity and multiple stakeholders which are communicated to through multiple communication channels. Furthermore, both types of brands face many uncontrollable factors which affect the brand perception (Dinnie, 2008, p. 20-21).

Common for both product, corporate and country images is that they are intertwined with mental constructions in the minds of buyers. Furthermore, these images often co-exist, interact and co-operate with each other in the sense that the nation-brand is nurtured by successful brands from that country and those brands in turn benefit from the 'halo' of their country image (given that the country image is positive) (Kapferer, 2008, p. 124; Langer, 2002, p. 73).

While both commercial and national brand building is concerned with creating clear, simple and differentiating propositions, certain aspects sets apart nation-branding from corporate and product branding (Olins, 2003, p. 167). First of all, as nation-branding covers all elements of the nation's activities – from tourism, exports and inward investments to talent attraction etc. – the number of interests and stakeholders is much greater as illustrated below.

Figure 2.2: Components of a nation-brand and the main stakeholders involved



Source: Adapted from Csaba, 2005, p. 142-143.

As illustrated above, countries constantly send out millions of messages through many different channels. The sum of all these messages eventually results in a perceived country image in the minds of the country's

target audiences. However, the numerous stakeholders involved often result in conflicts of interests in terms of what is being communicated to whom by whom through which channel and whether these messages complement or conflict with each other (Anholt, 2007, p. 2).
While the focus of this thesis is primarily limited to the part of the nation-branding theory concerning the role of the nation's exports, it is important to note that all the other elements of the nation-brand may also potentially influence the way the nation's export products and services are being perceived by target audiences abroad (Papadopoulos & Heslop, 2002, p. 308). Critical to the success of nation-branding is thus the development of a core message about the country that can be used by different industrial sectors (Jaffe & Nebenzahl, 2006, p. 140). Here, the issue is not to create 'a single strategy' but rather to develop distinct strategies for each of the several outputs/objectives illustrated above based on common functional goals, which can then complement each other (Dinnie, 2008, p. 53; Jaffe & Nebenzahl, 2006, p. 308).

A major obstacle to the development and implementation of a national brand is the diversity of industries in any given country (Jaffe & Nebenzahl, 2006, p. 140). A consequence of successful brands is often that the country-of-origin image becomes stereotyped in a way that marginalizes the nation's other types of products which do not fit into this stereotype and thus make it harder for these exporters to derive any marketing value from their origin (Anholt, 2007, p. 91; Olins, 2003, p. 160). This underlines the difficulty in forming an overall country image: While a national branding campaign may support a favorable image for one industry sector, it may have little effect or an outright negative effect on other sectors (Jaffe & Nebenzahl, 2006, p. 160).

Finally, due to its nature, a nation-brand is much more difficult to develop and manage as it cannot – unlike product brands or corporate brands – simply be made up or transformed inside out in order to promote a certain desired image or reposition itself in case of rejection by its stakeholders (Anholt, 2007, p. 75; Kapferer, 2008, p. 125).

2.3. The concept of image

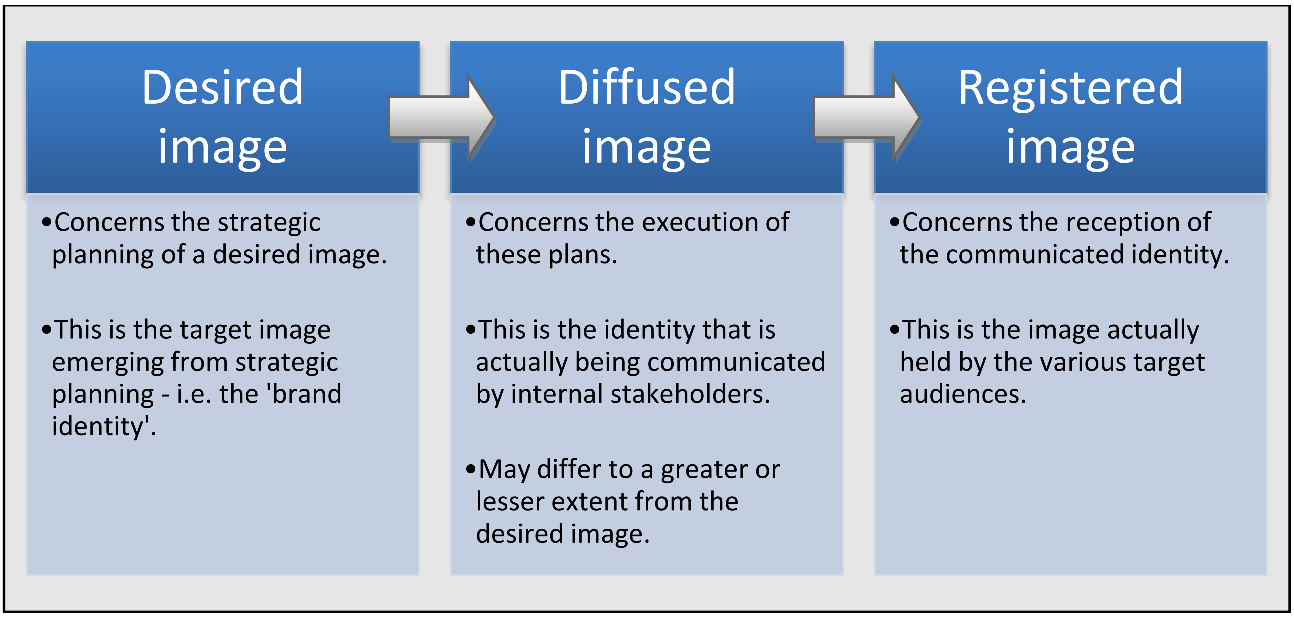
Central to the research question is the concept of 'image'. Kotler (1994) defines image as *'the set of beliefs, ideas, and impressions that a person holds regarding an object'* (p. 599). Similar to this definition, Papadopoulos (1992) explains that the image of an object[2] results from people's perceptions of it (real or imaginary) and of the phenomena that surrounds them. In this context, perception is defined as *'the meaning we attribute to things'*. Assuming that perception occurs at the individual level, the image of an object is thus subjective and will usually vary from one individual observer to the other (p. 5).

[2] An object in this sense can be either real or imaginary.

Also important to the understanding of the concept of image is the distinction between this concept and the related concept of 'identity'. Borrowing from the corporate branding theory, the distinction can be defined in this way: *'Identity means the sum of all the ways a [country, red.] chooses to identify itself to all its publics (…) Image, on the other hand, is the perception of the [country] by these publics'* (Christensen & Askegaard, 2001, p. 295). Identity is thus something which is organized internally and communicated to the external world, while image refers to the reception of these communication efforts by the external world (Christensen & Askegaard, 2001, p. 296).

Assuming a similar definition, Graby (1992) argues that the concept of image – whether applied to countries, companies or products – can be thought of at three different levels:

Figure 2.3: The three levels of image



Source: Own production inspired by Graby, 1992, p. 259-260.

The registered image may differ significantly from the intended and desired image since the target audiences' perceptions can only be influenced indirectly through the management of the identity. However, the communicated identity plays an important role in forming this perception in the minds of the target audience.

Accordingly, is relevant to examine the desired image of the Danish building industry before analyzing Denmark's image in the United States. The following section will therefore include an analysis of the brand identity of the Danish building industry based on the theoretical framework explained in this chapter.

3. The supply side: Denmark’s nation-brand and desired image

3. The supply side: Denmark's nation-brand and desired image

Before examining Denmark's image in the United States, it is relevant to first examine which identity is being projected as this indirectly influences the 'registered image' held by the target audience. Two aspects are of particular importance in this regard and will be examined in this chapter; Denmark's overall nation-brand and the Danish building industry's self-perceived competencies and desired image. An assessment of the cohesion between these two will be presented at the end of the chapter, which will form the foundation for the examination and analysis of the registered image among the U.S. target audience.

3.1 Denmark's nation-brand

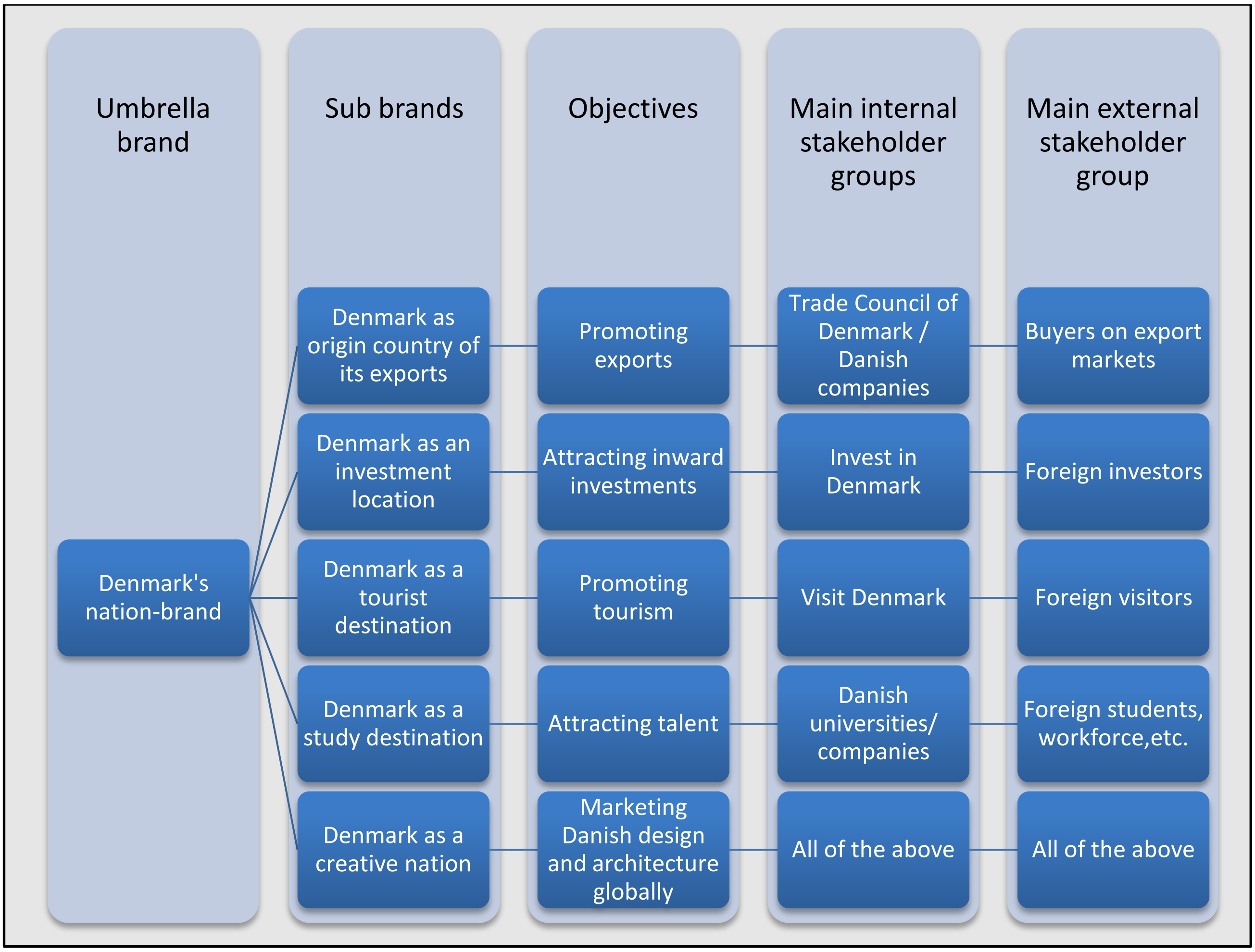
As the national image of the origin country also influences images on a lower hierarchical level (e.g. industry and product image), it is relevant to briefly look at Denmark's nation-brand and the national efforts made to promote a positive image of Denmark abroad. As the nation-brand is a complex entity consisting of many different elements – of which only a few are directly related to the research question in this thesis – the following analysis will not go into detail with every aspect of the nation-brand but instead briefly look at the overall nation-brand in order to get a more holistic picture of the image being promoted abroad.

Action plan for global marketing of Denmark

The main data used to examine Denmark's nation-branding efforts is the Danish government's *'Action plan for the Global Marketing of Denmark'* which has been the focal point of the Danish nation-branding efforts since 2007. The purpose of the action plan is to create a clear and positive image of Denmark abroad in order to ensure a strong international position in the global competition for creative and competent employees and students, tourists, investments and market shares (Økonomi- og Erhvervsministeriet, 2007, p. 4). The action plan was prepared by the Ministry of Economic and Business Affairs, the Ministry of Foreign Affairs, the Ministry of Education and the Ministry of Finance as well as a number of public and the private sector stakeholders.

According to Papadopoulos and Heslop (2002), a country wishing to develop a nation-branding strategy should embrace the high level of complexity that lies in the nature of such a brand. Rather than trying to create 'a single strategy' or one message, the country should market its large variety of outputs individually. The key is to develop distinct 'brands' for a number of identifiable 'outputs' that can be differentiated from other countries' outputs (p. 308). This is also the approach, which seems to have been followed in the Danish action plan. As illustrated below, the plan operates with five focus areas which are to brand Denmark in different ways.

Figure 3.1: Illustration of Denmark's nation-brand

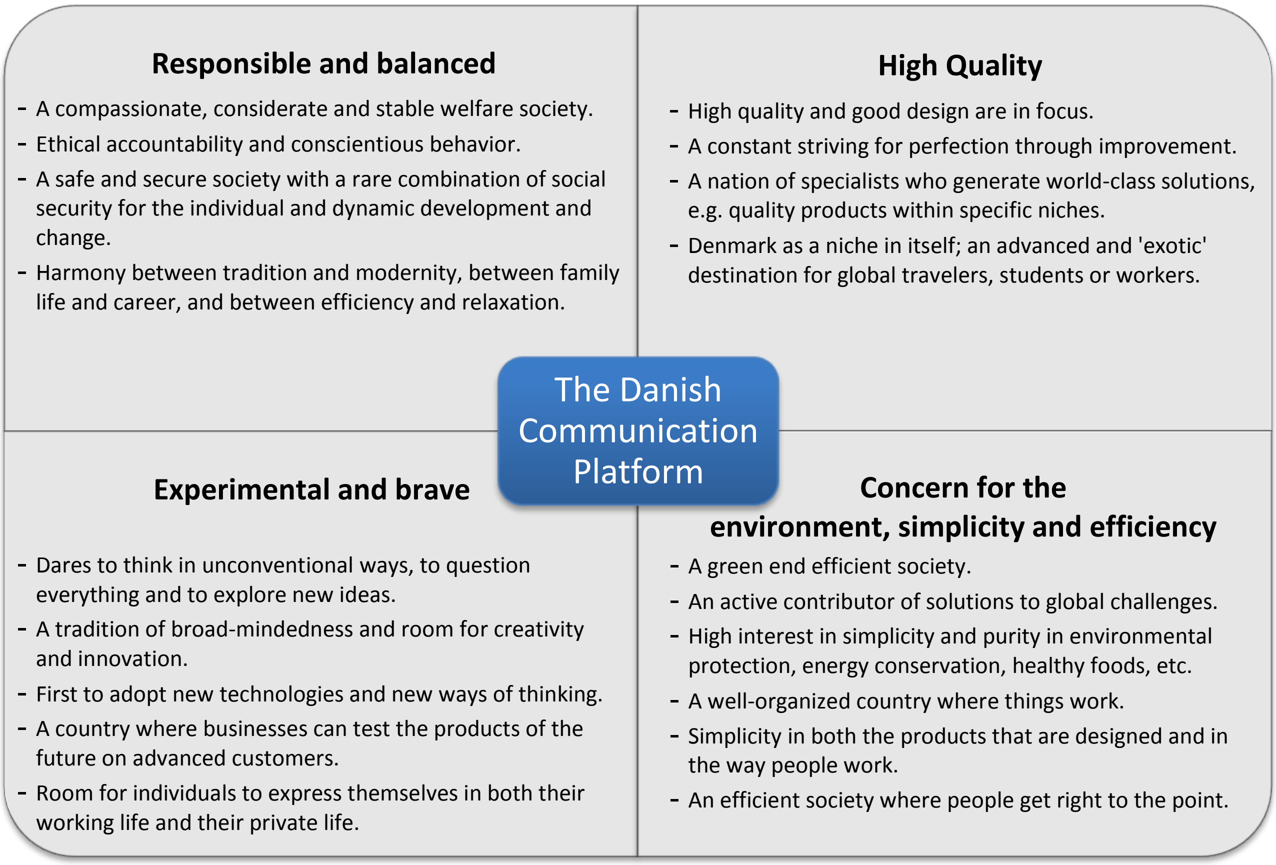


Source: Own production inspired by Økonomi- og Erhvervsministeriet, 2007.

Communication platform

To promote the five 'sub brands' in the figure above, a communication platform consisting of four themes has been developed. Combined, the four themes make up a collective story of Denmark (Økonomi- og Erhvervsministeriet, 2007, p. 24).

Figure 3.2: The Danish nation-brand communication platform



Source: Adapted from Økonomi- og Erhvervsministeriet, 2007, p. 26.

The communication platform corresponds to Graby's (1992) notion of 'desired image' – i.e. the strategically planned desired image of Denmark. The idea behind the platform is to achieve greater consistency and clarity in the messages being communicated abroad. The platform is to be viewed as a foundation which can be adapted to communicate more specific messages to particular target audiences within each of the focus areas in the nation-branding strategy (Økonomi- og Erhvervsministeriet, 2007, p. 24-29). Domestic companies are encouraged to pull their global marketing communications efforts in the same direction but due to the nature of nation-branding, this cannot be controlled or enforced and the 'diffused image' – i.e. the identity that is actually being communicated by various stakeholder groups – may differ from the desired image.

Promotion initiatives and tools

As part of the action plan, a marketing panel consisting of members from a wide range of public and private sectors was set up to discuss how to best brand and market Denmark. Among the themes discussed in the panel was how to brand Denmark within the three themes; 'Green Denmark', 'Quality in all parts of life', and 'Innovation'. (Økonomi- og Erhvervsministeriet, 2009a).

A fund (Marketing Denmark Fund) was also established with the purpose of increasing global awareness of Denmark's strengths and competencies by supporting and promoting large-scale activities such as events, campaigns, and export promotions (Økonomi- og Erhvervsministeriet, 2007, p. 54).

One of the fund’s biggest initiatives was the establishment of Climate Consortium Denmark. The consortium is a public-private partnership between the Danish state and five major business organizations with the goal to strengthen the international awareness of Danish sustainable and energy efficient products, technologies and competencies (Økonomi- og Erhvervsministeriet, 2009b, p. 8).

Other initiatives include an official website of Denmark (denmark.dk, 2010) and a digital film tool consisting of 20 short film clips, each conveying a brief story about Denmark, including titles such as 'Climate Solutions' and 'Environment and Energy' (VisitDenmark, 2010).

Finally, two other initiatives in the action plan were to increase the public diplomacy effort and set up an international press initiative. The public diplomacy effort is to be carried out through Denmark’s official representations around the world and focus on Denmark’s relative positions of strength such as energy and the environment and other areas where it is believed that other countries can learn from Denmark’s experience. The international press initiative aims to create a stronger and clearer image of Denmark in the foreign media by inviting foreign journalists on tailored visits to Denmark based on their particular interests in one of Denmark’s positions of strength (Økonomi- og Erhvervsministeriet, 2007, p. 33-57).

The coherence between the Danish nation-brand and the desired image of the Danish building industry will be examined after this desired image has been presented.

3.2 The desired image of the Danish building industry

After examining the overall nation-brand of Denmark, it is also relevant to examine the *self-perceived* relative strengths and weaknesses of the Danish building industry's competencies within green building in relation to the U.S. market and Denmark's international position. Given the nature of image and identity and in line with the social constructivist position, this thesis does not attempt to determine the objective truth about Denmark's 'real' strengths and weaknesses. Rather, its objective is to examine the relationship between the 'desired image' and the 'registered image' of Denmark as the origin country of green building solutions.

Collection and application of empirical data

The empirical data used to analyze the self-perceived strengths and weaknesses and desired identity of the Danish building industry consist of secondary data in the form of industry and government reports, statistics etc. and primary data consisting of four in-depth, semi-structured interviews with the Danish Ministry of Foreign Affairs' building sector expert in the United States and a representative from the Danish Building Materials Federation, the Danish Construction Association and the Danish green think tank, Concito, respectively.

Table 3.1: Overview of interviewees:

Interviewee	Title	Organization
Kristine van het Erve Grunnet	Consultant	Danish Building Materials Federation
Anita Kurowska Larsen	Export Advisor	Danish Construction Association
Martin Lidegaard	Chairman	Concito
Pelle Lind Bournonville	Senior Commercial Advisor, Construction & Civil Engineering	Ministry of Foreign Affairs of Denmark, Consulate General of Denmark, New York

Source: Own production.

The interviews were conducted between February 25 and March 9, 2010 and served an exploratory purpose. The format of the semi-structured interview was chosen based on its openness, which allowed me to follow-up on unanticipated leads from the interviewees. One of the drawbacks of this type of interview is that it can be more difficult to compare data from the different interviews (Kvale, 1996). To ensure a certain level of comparability, each interview was thus carried out based on an interview guide. While a separate guide was created for each interview tailored to explore the views of the each interviewee's particular organization and its role in the industry, the same questions regarding Denmark and the Danish building industry's overall strengths and weaknesses were included in all interview guides. The interviewees were briefed about the purpose of the interview prior to the interviews and all interviews were taped and later transcribed. The transcriptions can be found in Appendix 1, 2, 3 and 4.

Definition of green building in Denmark

Unlike the United States, Denmark does not have a certification system for classifying the degree of sustainability or 'green' in buildings (Gøth & Warming, 2009). As such, no official definition of what is considered 'green building' in Denmark exists. Until recently, the main focus in Denmark has been on energy efficiency and on minimizing the building's energy consumption in terms of electricity use and energy used to heat and cool buildings. A few efforts have also been made towards focusing on the impact a building has on its surrounding environment. Currently a shift is taking place towards a more holistic approach, where focus is expanded to sustainability related to the building's entire life cycle (Bournonville, 2010; Grunnet, 2010).

As a result of this shift in focus, a Danish Green Building Council has recently been established with the purpose of creating a voluntary Danish green building certification system. The Danish building industry has long requested a central certification system for green building as this is viewed as a competitive resource in terms of the industry's international market situation (Arkitektforbundet, 2009). It is yet unclear to which extent the American LEED[3] certification system will be used as the basis for developing the Danish system (Grunnet, 2010).

A longstanding focus on green technologies

Prior to the oil crisis of the 1970s, imported oil accounted for more than 80 pct. of Denmark's total energy supply. The dramatic rise in oil prices in 1973 led Denmark to change its energy policy towards enabling the country to ensure its security of supply while reducing its dependency on foreign oil. This focus on energy efficiency has caused the total energy consumption to remain nearly constant since 1980 while at the same time, the Danish economy has grown by 78 pct. The focus of the energy policy initiatives launched in this period include increased support for renewable energy sources, a combined electricity and heat production and extensive efficiency improvements of the building mass (Danish Energy Agency, 2010).

Encouraging innovation through strict regulation

A significant reason for the self-perception of Denmark as one of the global frontrunners in terms of green technologies for the built environment is attributed to the Danish legislation. Efficiency improvements in the building mass have been a focus area for many years in Denmark, which was one of the first countries to include energy efficiency in its building codes. Today, the country has some of the world's most stringent energy codes for buildings and new measures are continuously taken to further reduce energy consumption in both new buildings and in the existing building stock through the introduction of stricter energy frame requirements in the building regulation.

[3] The LEED certification system will be presented in Chapter 4 on the U.S. building sector.

By using overall frame requirements to set limits on a building's total energy consumption and only few component-specific requirements, the legislature leaves room for flexibility and innovation as it is left up to each project how meet the energy frame requirements (Regeringen, 2009, p. 5-8). The regulatory environment has thus had a great influence on the development of new innovative technologies as it has served as an indicator for the industry of which direction it needed to go in and forced it to continuously innovate.

The industry is generally in favor of stricter regulation in this area as long as it comes with realistic time frames that allow companies to adapt production and develop the necessary know-how to meet the new requirements without reducing their competitiveness (Dansk Byggeri, 2009, p. 7). The major reason behind this attitude is that it gives the industry a home market that is always a step ahead of the rest of the world where they can develop and test new technologies. By the time export markets begin to follow, the Danish building industry will already have the products and competencies ready to export. Another advantage of the Danish regulatory environment is that it only has *one* set of building codes that applies to the entire country (Grunnet, 2010; Lidegaard, 2010).

The structure of the Danish building industry

A weakness of the Danish building industry is that it operates with a long value chain in the sense that the process of building a building is divided among many different stakeholders compared to other countries where many of these have consolidated. This means that a lot of knowledge is lost in the process as the Danish industry is characterized by most projects being carried out by smaller companies, who might not have accumulated a high degree of in-house knowledge and therefore often have to start from scratch when they begin a new type of project (Grunnet, 2010).

Due to the same reason, the architectural knowledge about water usage, energy and resource consumption from a more holistic perspective is not as great as the American architects in this field, who – as a result of the LEED system, which have made it quick and pedagogic to respond to these challenges in the design process – are ahead of their Danish counterparts. While there might be one Danish architectural firm which is good at one thing and another which is good at something else, the industry is lacking a system which offers architects a unifying perspective and a more holistic approach to designing a building from A to Z. With that in place, though, Denmark would be incredibly strong in this field due to the many years of experience working with each of these elements (Bournonville, 2010).

Self-perceived areas of strength

According to the four interviewees, the areas where the Danish building industry is leading the way compared to its international competitors – and the United States in particular – include the following:

- **High quality products:** Denmark is generally known for high quality products, which are typically also priced higher.
- **Incorporating renewable energy sources into buildings:** There are a number of Danish companies with expertise in solar[4], wind, hydro and geothermal energy sources.
- **Heating and cooling systems:** There are a number of Danish companies with strong competencies in energy efficient heating/cooling systems, valves, pumps, heat pumps and ventilation systems.
- **Low energy, high performance windows:** Traditionally, Denmark has not been as strong as other international competitors (namely Germany) in terms of high-performance windows. However, where Denmark excels is in developing windows which also address the question of utilizing the energy (heat) and light that comes through the window and not simply focus on obtaining the lowest U-value[5].
- **Comfortable indoor climate:** Danish architects have extensive expertise on how to design buildings which support people's comfort, well-being and productivity.
- **Insulation of the building envelope:** For many years Danish companies have developed technologies to reduce heat loss in buildings and avoid thermal bridges. Products in this category include insulation and sealing systems.
- **Recycling of building materials:** The reuse of building materials is an area, which the Danish building industry has a lot of expertise in. Denmark has a very high (90 pct.) recycling percentage.
- **Climate adaptation:** Although still a relatively new area within the industry, Danish companies have demonstrated know-how on how to build in a way that is prepared for a changing climate.
- **Combined heat and electricity systems:** Waste-heat recovery through district heating is an area where Denmark is among the global frontrunners and the main reason for Denmark's flat energy consumption curve.
- **Architectural aesthetics and space planning:** Danish architects have won numerous design prices and due to architects like Jan Gehl[6], it is the self-perception that Denmark holds a strong reputation in terms of competencies within urban planning.
- **Construction consulting services**: A key issue in green building is not just having the right innovative products but also knowing how to put all the different elements together to create a total solution that delivers energy efficiency. The Danish building industry has developed extensive know-how within this field, and one of its greatest strengths compared to its U.S. counterpart lies in its ability to deliver consulting services in relation to the building physics from an energy perspective.

[4] Denmark is especially strong in solar panels (i.e. solar thermal collectors used for heating), however not as strong in solar power cells.
[5] The U-value is the overall heat transfer coefficient, which describes how well a building element conducts heat – i.e. the lower the U-value, the better the insulation.
[6] Danish architect and urban design consultant, who was behind the Danish car-free area 'Strøget' and who have worked for many other cities around the world, including New York City.

Competition from other countries

A country's image is always relative to its competitors. Therefore, when evaluating Denmark's image, it is also necessary to look at the competition from other countries (Jaffe & Nebenzahl, 2006, p. 69).

There seems to be a general consensus among the Danish building industry that Denmark is leading in many areas of the market for green solutions for the building sector, but they also point out that this position is threatened by other countries' increasing focus on and allocation of resources to this area. The biggest international competitor in terms of green building solutions and know-how seen from a national perspective is Germany followed by Austria and Switzerland, who are all allocating a lot of resources to energy efficiency initiatives in the building stock (Larsen, 2010; Springborg, 2010).

The green building initiatives differ from country to country and it falls outside the scope of this thesis to go into detail with each country's strategy but examples include tax breaks for homeowners who switch to renewable fuels (Switzerland) (www.swissworld.org, 2010) and subsidy programs where energy efficient building projects can receive funding (Germany and Austria) (Grunnet, 2010).

All three countries are ahead of Denmark in terms of developing standardized components for the market for 'Passive houses'[7] or 'plus energy houses' etc. and might also be ahead of Denmark in some areas of the constructional competencies (i.e. knowledge on how to put the various materials together) (Grunnet, 2010). Both Germany and Austria have established national green building councils, which are also members of the World Green Building Council (World Green Building Council, 2010).

Particularly Germany has had an ambitious focus on green building for a long time and is actively promoting building services 'Made in Germany' on foreign markets (Federal Ministry of Transport, Building and Urban Development, 2010a). In 2006, the German government introduced a federal program, where private homeowners and local authorities etc. are offered cheap loans and direct grants towards energy efficient investments and other incentives for renovating their buildings (Federal Ministry of Transport, Building and Urban Development, 2010b). The program has been very successful and has led to energy efficient renovations of more than 1.1 million buildings in Germany since 2006 (Springborg, 2010). Like Denmark, Germanys is also known for high product quality and is considered among the global market leaders in terms of low U-value windows and development of intelligent building materials[8] (Grunnet, 2010; Larsen, 2010).

[7] i.e. buildings, which as far as reasonable are heated through passive measures such as insulation and passive utilized solar energy etc.

[8] i.e. self-adjusting or self-regulating building materials, often with a degree of interaction between building components, occupants and the external environment (Office of Building Technology, 2001).

Cohesion between Denmark's nation-brand and the industry's desired image

A major obstacle to utilizing an overall nation-brand for export promotion purposes is the diversity of industries, which exists in each country. Since a nation-brand seeks to summarize so many different outputs, there is often a significant risk that the image being projected marginalizes certain industries, which do not fit into this image. It is therefore relevant to examine the level of cohesion between the overall Danish nation-brand that is being communicated and the desired image of the Danish building industry.

The identity being projected through the official Danish communication platform is quite complementary to the desired image of the Danish building industry. The 'story' of Denmark as a responsible, experimental, and brave country characterized by high quality and good design with a concern for the environment and efficiency supports the desired image and the industry's self-perceived strengths. Particularly the notion of Denmark as a green and efficient society with a tradition of thinking in unconventional ways and being first to adopt new technologies serves as a positive origin image and a credible endorser brand, which could be utilized in marketing Danish green building solutions abroad. It is important to note, though, that the analysis in this section only relates to the 'supply side' of Denmark's image – i.e. the desired and diffused image. The extent to which this projected image corresponds to the registered image in the minds of the target audience in the United States will be examined in Chapter 5.

4. The demand side: The U.S. green building market

4.1 The U.S. green building market

The purpose of this chapter is to examine the green building market in the United States in order to understand the context in which the study of Denmark's image will be conducted. The empirical data used for the analysis primarily consist of secondary data combined with information gathered through the semi-structured interview with the Danish Ministry of Foreign Affairs' sector expert in the United States as described earlier as well as a semi-structured interview with editor in chief of the U.S. design and architectural magazine, Metropolis Magazine, Susan S. Szenasy, who has been following the green building movement in the United States since its beginning (Appendix 5).

The U.S. construction market

The financial crisis has had a severe impact on the current market situation in the United States. In 2007, the annual turnover for the U.S. construction market[9] totaled USD 1.14 trillion. In 2008, this number had fallen to USD 1.08 trillion and in 2009, it fell by 12 pct. to USD 950 billion (AGC of America, 2009c; Simonson, 2010, p. 24).

The fall in annual construction spending last year was particularly influenced by a fall in residential construction spending, which fell by 28 pct. compared to 2008, however, investments in both public and private non-residential construction have also declined (AGC of America, 2010a; Simonson, 2010, p. 24). One of the major problems is the lack of financing for new building projects. Despite very low interest rates, credit availability is very constrained as a result of the financial crisis (AGC of America, 2010b).

According to the Associated General Contractors of America, residential construction is expected to increase by 5-10 pct. in 2010 while total annual construction spending is estimated to finish somewhere between a 4 pct. fall and a 2 pct. increase compared to 2009 levels (Simonson, 2010, p. 24-25).

Danish building exports to the U.S.

Despite the economic downturn and the current decline in new construction starts, the U.S. construction market remains among the world's largest and is still considered a strategically important market for Danish building companies both in the short-term and long-term by the Danish Ministry of Foreign Affairs (Danmarks Generalkonsulat, 2009). Danish exports of building materials to the United States amounted to DKK 1.779 million in 2008, corresponding to 4 pct. of total building materials exports, thus making the United States the single largest export market outside of Europe (DI Byggematerialer, 2009, p. 19).

[9] Given the available market data, it has not been possible to find the current market value for the green building segment specifically.

The American Recovery and Reinvestment Act

In February 2009, the U.S. Congress passed a stimulus package, which allocated an additional USD 143.4 billion to the construction industry, of which USD 29.6 billion were earmarked for building infrastructure (AGC of America, 2010c). A considerable part of the planned projects under the stimulus package consists of renovation of public buildings and the current administration has made it clear that it wants these renovations to be carried out in a manner that will make the buildings more sustainable and decrease energy consumption. Currently, USD 4.5 billion have been allocated to improving energy efficiency in 75 pct. of all federal buildings. The stimulus package also allocated USD 5 billion to the state level for energy efficiency improvements of 2 million households through various incentives, including introducing a 30 pct. personal tax credit for installing renewable energy sources in one's private dwelling (AGC of America, 2010c; Goldman, 2009).

Funds from the stimulus package are spent at a federal, state and local level. The majority of funding allocated to building projects will expire by the end of 2010, although a few initiatives will continue through 2011-2013 (AGC of America, 2010c).

The U.S. green building movement

According to Szenasy (2010), the green building movement in the United States in earnest started gaining momentum about 7-8 years ago. Metropolis Magazine itself helped spark the discussion in 2003 with an article about the U.S. architect Ed Mazria, who was one of the first to specifically point out the building sector's significant contribution to CO_2 emissions. In the article, he accused architects – together with the rest of the building industry – of being responsible for just about half of America's energy consumption and total greenhouse gas emissions (Hawthorne, 2003). While Ed Mazria's statements were very controversial within the industry at the time, they nonetheless started a debate about architects' role in reducing the nation's energy consumption and CO_2 emissions – a debate which today is no longer about whether or not the built environment has an impact on human health and the natural environment but rather about how to reduce this impact in the best possible way.

The interest in and commitment to green building is also reflected in the attendance numbers for the U.S. Green Building Council's annual conference 'Greenbuild', which has grown to become the world's largest green building conference with more than 27,000 attendees in 2009 (Greenbuild®, 2010).

Green building today - Current market development and zeitgeist

A nation-brand does not exist in a vacuum. In order to be successful, it must therefore effectively co-exist with the prevailing 'zeitgeist' (Dinnie, 2008, p. 151). In addition to examining the current market development, it is thus also relevant to examine the social trends characterizing the U.S. green building movement today.

As explained earlier, the current financial crisis has had a severe impact on the building sector. The green building segment, however, has partly defied the general downturn in the industry and is currently the only area within the building sector experiencing growth (Bournonville, 2010). While forecasts had predicted a decline or at least a flattening in registered LEED projects mirroring the general downturn in the market, LEED registered and certified floor area actually grew by over 40 pct. in 2009 compared to 2008. This unexpected growth might be explained as something of a 'lifeboat effect' where the industry jumps to the new hot trend in the hope of avoiding the market downturn. However, the current focus on green building within the U.S. building industry seems to be there to stay (Bournonville, 2010; Watson, 2009, p. 3-6).

Outside the building industry, there is also a growing awareness of and demand for green building in both the commercial and public sector as well as among consumers, although there is also a large group who remains skeptic about its advantages. According to Szenasy (2010), improving efficiency and cutting costs are the main motivational factors behind the commitment to green building in the United States. The public and commercial sectors are particularly focusing on the financial aspect, while environmental and health-related concerns seem to play a greater role for consumers. According to a study from 2009, the main motivation among U.S. consumers for wanting to live in a green home was the concern for their children's future (21 pct.) followed by increasing energy prices (19 pct.), reliance on foreign oil (16 pct.) and concerns about global warming (14 pct.) (U.S. Green Building Council, 2009c).

Definition of green building from a U.S. perspective

While the focus in Denmark has primarily been on energy efficiency, the United States has applied a more holistic approach to green building and thus seems to operate with a broader and more comprehensive definition of sustainability. The LEED Green Building Rating System has been a key transformative element in moving the U.S. building industry toward sustainability and both interviewees thus recommend looking at the focus areas described in LEED when defining green building from a U.S. perspective (Bournonville, 2010; Szenasy, 2010).

USGBC and the LEED certification system

LEED (Leadership in Energy and Environmental Design) is the U.S. classification system used to measure the degree of sustainability in construction. The LEED system is a voluntary certification program developed by the non-profit organization, U.S. Green Building Council (USGBC), with the goal to promote sustainable construction through certification. Today, LEED is used in the United States to benchmark design, execution and operation of environmental and energy efficient construction. LEED promotes an approach that addresses the whole building and its surrounding environment throughout its entire life cycle and suggests that the level of sustainability should be assessed based on five key areas of human and environmental health: Sustainable site planning, efficient water management, materials and resource use, energy efficiency, and indoor environmental quality (U.S. Green Building Council, 2010).

Building projects can apply for LEED certification based on a number of criteria and can be classified as either LEED Certified, Silver, Gold or Platinum, of which LEED Platinum is the highest (U.S. Green Building Council, 2009a). In February 2009, there were approximately 18,000 registered LEED projects in the United States, and in the near future, LEED certified projects are expected to represent about a quarter of all new buildings in the United States (Danmarks Generalkonsulat, 2009).

LEED Accredited Professionals

Building professionals such as architects, designers and engineers may seek to become LEED accredited through the LEED Professional Accreditation program. Currently, there are more than 130,000 LEED Accredited Professionals in the United States, who have passed an exam where they have demonstrated a thorough understanding of green building principles and requirements for a construction project to become sustainable and obtain LEED certification (U.S. Green Building Council, 2009b).

Domestic production of building materials

While American architects and engineers are increasingly learning about sustainable building practices and consequently raising their demands for sustainable construction materials, this knowledge is still not widespread at the manufacturer level (Bournonville, 2010; Szenasy, 2010).

Currently, a lot of investments are being allocated to the development of green technologies, including green technologies for the building industry. Particularly technologies like geothermal or photovoltaics (solar power) have gained a lot of media attention and are seeing a lot of investment capital generated their way (Bournonville, 2010). According to Szenasy (2010), there are a lot of new materials being innovated, however, the innovation is often not carried out by the industry but rather at various universities or technical schools where architecture and engineering is a big part of the curriculum. Much of the new technology stemming from these places, however, still needs to be taken to a higher efficiency level before it is ready to be taken to the market.

Accordingly, many building materials are being imported. It is not only the technology, which determines which products are being imported, but also the physicial characteristics of the product. For instance, a recent study showed that over 90 pct. of supplies such as caulking and insulation used for retrofits in the U.S. are manufactured domestically. Especially in terms of insulation materials, the price of producing it compared to the shipping costs of importing it from overseas means that locally manufactured products are preferred. The study also found that 96 pct. of replacement windows for American buildings are made in the United States (World Business Council for Sustainable Development, 2010). This is most likely a result of the steady, incremental innovation which has taken place in a number of large, U.S. companies within this field (Szenasy, 2010).

One of the areas where domestic innovation is lacking is in terms of understanding how to utilize the surrounding environment of a building – e.g. how to site the building properly and utilize natural elements such as breezes and sunlight as well as protecting the building from these elements (Szenasy, 2010).

A Buy American preference?

According to Jaffe and Nebenzahl (2006), the level of ethnocentric preference for domestic products in a particular industry often increases when competition from imports and the subsequent loss of domestic jobs has been widely publicized (p. 88). Given the current economic climate and the high unemployment rates within the U.S. construction industry, it is therefore relevant to look at the degree of protectionism in the U.S. industry.

Currently, there are few official protectionist 'Buy American' provisions in place for the building industry – and these primarily apply to components like steel, cement and softwood lumber (AGC of America, 2009b). There does not, however, seem to be a pridominant 'domestic bias' among the building industry. According to Bournonville (2010), protectionism is mostly found at the contractor level, where there, in his experience, is a slight preference for American products. However, the contractors' trade organization actually suggests reducing trade barriers for the above construction components in order to keep construction costs competitive and thereby encouraging new construction activity (AGC of America, 2009a, p. 7).

According to Szenasy (2010), the focus within the green building industry is not so much on buying American products but more on buying locally as this is more sustainable (Szenasy, 2010). While this preference might pose a threat to Danish exporters, it also presents an opportunity for Danish companies who are able to establish production facilities in America.

Focus on retrofitting the existing building stock

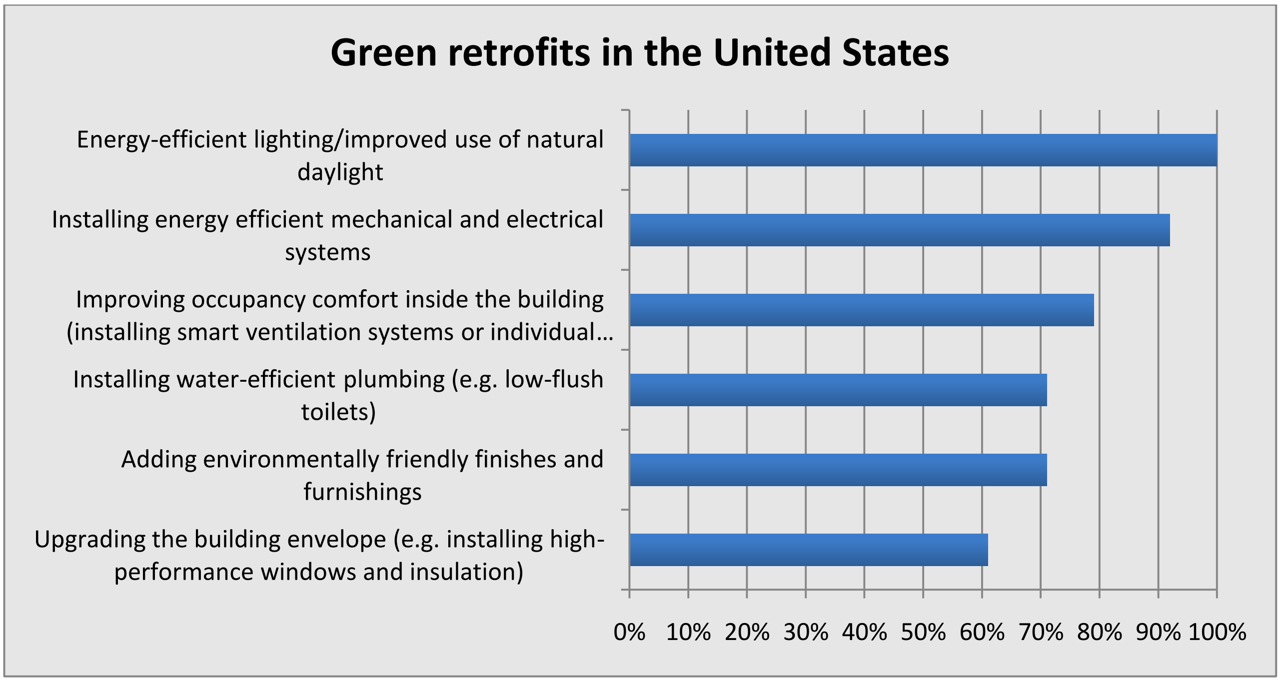
The financial crisis has caused a significant slowdown in new construction. Financing for new projects is lacking and many cities experience a surplus of unoccupied office space and residential condominiums. The greatest opportunities right now for green design and construction activity in the U.S. is therefore not found in construction of new green buildings but rather in the retrofit and renovation of existing ones (U.S. Green Building Council, 2009d). According to a recent study, the market for non-residential green building retrofits is expected to grow to between USD 10.1 billion and USD 15.1 billion by 2014 up from USD 2.1 - 3.7 billion in 2009.

Green retrofits

The concept of 'retrofitting' typically emcompasses larger or smaller renovations in the form of installation of new technology or new features in an existing building. Typical examples of 'green' retrofit projects include installing efficient heating, ventilation and air conditioning systems, geothermal heating and cooling systems, building-integrated photovoltaic-powered energy, replacing old windows with new high-performance ones, or installing energy efficient appliances (Pollin et al., 2008, p. 6).

Below is illustrated the result of a survey among U.S. building owners who completed retrofit projects last year. The figure indicates which retrofit activities were most commonly carried out.

Figure 4.1: Most common retrofit areas in the United States



Source: U.S. Green Building Council, 2009d.

The survey found that financial benefits followed by tenant satisfaction were the primary drivers for encouraging owners to pursue green retrofits. While energy efficiency remains the primary focus, improving indoor environmental quality is also considered an important issue (U.S. Green Building Council, 2009d). This is quite interesting from a Danish perspective as both of these issues are areas which the Danish building industry considers among its positions of strength.

Legislative initiatives and incentives for promoting green building

Recognizing the building sector's contribution to the country's GDP and job creation as well as its significant role in reducing the country's CO_2 emissions and energy consumption, the U.S. federal, state and local governments have introduced a number of initiatives and incentives to promote green building activities.

Currently, 12 federal agencies, 34 states and over 200 localities either promote or require green building practices (World Green Building Council, 2009, p. 12).

Green initiatives and incentives at the federal level

At the federal level, there are a number of grants and loan programs in place for the public and private sector, including a renewable energy grant program in which companies have the opportunity to receive government grants towards investments in certain solar, small wind turbines, geothermal heat pumps, etc. (Database of State Incentives for Renewables & Efficiency, 2010b).

The Federal Housing Authority has also made it easier for private home owners to obtain loans for energy-saving renovations through its 'energy efficient mortgages' program (Database of State Incentives for Renewables & Efficiency, 2009). Furthermore, private home owners are elligible for a tax deduction equal to 30 pct. of the cost (up to USD 1,500) of upgrading the energy efficiency of the building envelope, such as replacement of insulation, windows, etc. as well as upgrading their heating, cooling and ventilation equipment (Database of State Incentives for Renewables & Efficiency, 2010a).

Building on the energy reduction and environmental initiatives in the American Recovery and Reinvestment Act and in a pursuit to lead by example, President Obama has signed an executive order requiring all federal buildings to become net-zero-energy buildings by 2030. (The White House, 2009). According to Szenasy (2010), this is a good example of the current administration's commitment to the green agenda. However, a federal climate bill, which was put forward up to the COP15 in 2009, has so far been stalled in the Senate, which means that it is primarily the state and local level that is currently driving the movement.

Green building at the state and local level

One of the reasons why the U.S. market can seem overwhelming to Danish companies is the great differences that exist between the various parts of the country – both culturally and in terms of applicable legislature. For example, each state has its own building code, which means that the energy requirements etc. vary greatly from one state to another.

There is a growing ambition to establish a uniform, national building code for the building industry to comply with regardless of where they are based in the United States, but so far, there is still a long way to go. Many states are currently updating their building codes and beginning to introduce energy requirements and it is expected that it will only be a matter of time before a federal directive will force them to include energy requirements (Bournonville, 2010).

Local frontrunners

At the local level, great efforts are being made these years to increase the percentage of green building. From 2003 to 2007, the number of U.S. cities with 'green building programs' increased by 418 pct. (from 22 to 92 major cities) and it is estimated that 14 pct. of all American cities with more than 50,000 residents have adopted some form of green building program (Rainwater, 2007).

The coastal areas are generally leading the way. Particularly California is on the forefront when it comes to sustainability requirements and green initiatives with cities like Los Angeles and San Fransisco having some of the most extensive programs when it comes to sustainability. Other major cities with green building initiatives include Seattle, Portland, Chicago and New York City (Bournonville, 2010; Szenasy, 2010).

4.2. Selection of U.S. target audience

As with many other things that have to do with perception, image is in the eye of the beholder. Since perception occurs at the individual level, Denmark's image is expected to be subjective and thus vary from one individual observer to the other (Papadopoulos, 1992, p. 5). In order to conduct a meaningful study that will provide an answer to the given research question, it is therefore necessary to first determine a relevant target audience on the U.S. market (Dinnie, 2008, p. 47).

Due to the limited resources and limitation of standard pages available for this thesis, it falls outside its scope to carry out an extensive segmentation model of the U.S. market. Instead, I have chosen to base my segmentation and subsequent selection of target audience on the information obtained through the in-depth interviews with Pelle Bournonville and Susan Szenasy (Appendix 4 and 5), who both possess in-depth knowledge and experience with the U.S. market, and the other market information presented in this chapter.

Building industry stakeholders: Differences between the U.S. and Denmark

While most of the stakeholders involved in the process of designing and constructing a building are the same in Denmark and in the United States (i.e. architects, engineers and contractors), significant differences exist between the two countries in terms of the role each of these stakeholders play and the power balance between them.

The Danish architectural profession has evolved into mostly focusing on the overall design (aesthetics and to a lesser extent functionality), while the more technical aspects to a great extent have been outsourced to other stakeholders such as building technicians and engineers. This is not the case in the United States. American architects have a significantly higher level of technical background than their Danish counterparts and are much more involved in the details of constructing a building.

This difference is also reflected in the relationship between these stakeholders in terms of who usually takes on the role of the developer for a building project. In Denmark, it is not uncommon for either one of the three stakeholders – contractors, engineers or architects – to take on the role of the developer for a project – depending on the nature of the project etc. In the United States, however, it is quite a different story. Here, architects sit in the driver's seat on the vast majority of building projects and are to a very large extent the ones who decide how and with which materials these projects are built (Bournonville, 2010; Hawthorne, 2003; Szenasy, 2010). Because of their great influence on the decision making process, architects are thus the most interesting professional target audience in relation to examining Denmark's image in the United States.

Consulting engineers also constitute a relevant target audience as they play an important role in providing expert advice and counseling to the architects throughout the design process. Contractors, on the other hand, are less relevant for this study as they are rarely involved in the overall decision making process but primarily take on the role as the ones carrying out the actual construction based on the specifications given by the architects and engineers.

Based on the above, I have therefore selected U.S. architects as the primary target audience for my study and U.S. engineers as my secondary target audience. In the following chapter, the design of the study of Denmark's image among these two target groups will be presented.

5. Denmark's image in the United States

5. Denmark's image in the United States

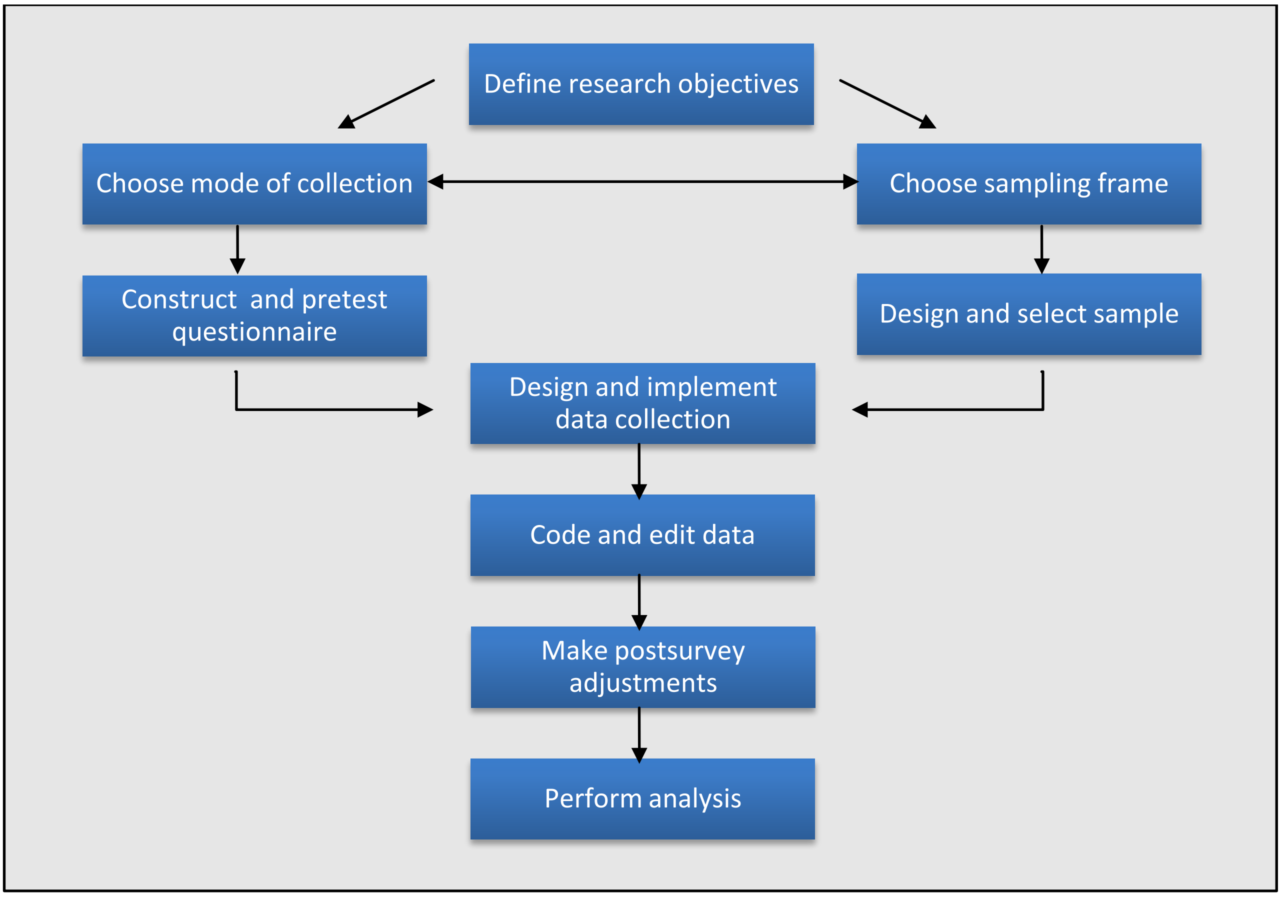
After examining the Danish building industry's self-perceived strengths and weaknesses and desired image and having determined the relevant target audience in the United States, it is now time to examine the registered image of Denmark among this audience.

5.1 Research design and purpose of the study

The primary source of data for my analysis of Denmark's registered image in the United States is a web-based questionnaire sent out via a link in an email to a sample of representatives from the selected target audience(s). This electronic self-completion method of data collection offers the advantages of allowing respondents to complete the questionnaire in their own time and removes the source of potential bias that the presence of an interviewer might pose. The disadvantage is of course that I will not be able to clarify a question in case of misunderstanding or probe for more comprehensive answers (Brace, 2008, p. 29).

In the following, the process of designing the questionnaire, deciding on the sampling frame and collecting the data, as illustrated below, will be presented.

Figure 5.1: A survey from a process perspective



Source: Groves, 2004, p. 137.

Research objectives

The study serves a dual purpose: Its primary focus is to examine the target audience's perception of Denmark as the origin country of green building solutions, and secondarily to examine where the target audience's focus lies within this field to see what opportunities or challenges this possibly creates in terms of marketing Danish building solutions in the United States.

Selection of sample and mode of collection

Due to the obvious limitations of reaching out to every architect and engineer in the United States, the study will be based on a select sample of each target group. In the following, the method applied for selecting the sample will be presented.

American Institute of Architects (AIA)

The American Institute of Architects is the leading trade association for licensed architects in the United States with 83,000 members (American Institute of Architects, 2010). On its website, the AIA offers a directory of its members, which contains a search function where it's possible to search for architectural firms based on different criteria such as geography, building types or services offered. In selecting my sample for this study, I have chosen to segment on 'services offered' and selected 'LEED Certification Services' as my search criteria. This limited my sample to 164 architectural firms spread out over most of the 50 states. I then visited each firm's website to find contact information in the form of email addresses. In hope of ensuring a higher response rate and minimizing the risk of my email being disregarded as spam by the respondents, I decided to use personal email addresses (where possible) rather than the general 'info' email address and send out personalized individual emails with a link to the questionnaire ('Dear [First name Last name]'). The number of respondents selected for the sample from each company varied depending on how many personal email addresses were available. In cases where there were more than 4 contact persons available, I limited my selection to those who were listed as LEED Accredited Professionals. A copy of the email sent out to respondents found through this method is found in **Appendix 6**.

American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

ASHRAE is an organization of 51,000 persons with the mission of *'advancing heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world through research, standards writing, publishing and continuing education'* (ASHRAE, 2010a).

ASHRAE has developed a High-Performance Building Design Professional (HBDP) certification program with input from the U.S. Green Building Council. Candidates who earn the HBDP certification have demonstrated a well-rounded understanding and knowledge of how HVAC&R[10] design is integrated into high performing buildings to achieve the overall goal of producing a sustainable HVAC&R design (ASHRAE, 2010b). On its

[10] HVAC&R is an acronym for Heating, Ventilation, Air Conditioning and Refrigeration.

website, ASHRAE presents a list of everyone (primarily engineers) who has earned this certification (ASHRAE, 2010c). This list has been used to collect email addresses on engineers who have earned this certification in the same way as the AIA member directory was used described above. Only persons who were listed as working in a U.S. engineering firm were included. A copy of the email sent out to respondents found through this method is found in **Appendix 7**.

Comments on the mode of collection

To minimize the risk of respondents being reluctant to click on the link in my email out of fear of downloading harmful computer viruses etc., I chose to use the web-based program 'SurveyMonkey', which is widely used in the United States (SurveyMonkey, 2010).

The same questionnaire was used for both target audiences as the objective for the study was the same and this thus made it easier to compare the various responses from the different target audiences.

Constructing and pre-testing the questionnaire

The sequence of the different topics, questions and prompted answers can affect the accuracy and reliability of the collected data. According to Brace (2008), it is best to work from the most general topics through to more specific questions and to ask behavioral questions before going on to ask about attitudes and images. This is to avoid respondents misreporting their behavior in attempt to justify the attitudes already given. By the same token, the questionnaire should be constructed so that respondents are not prompted with possible answers before asking questions designed to obtain their spontaneous responses (p. 41-42).

Overall structure

With these concerns in mind, the overall structure for the questionnaire is divided into three overall topics:

1. Respondents' background and behavior related to green building issues.
2. Country-of-origin images for different countries
3. Degree of knowledge of and perception of Denmark

The topics and questions were constructed based on various preliminary hypotheses developed through my interviews with Pelle Bournonville and Susan Szenasy and my own personal experience working with the U.S. building sector. In the following, the intention behind the questions and the considerations involved in designing them will be presented. A printed copy of the questionnaire in its entirety is enclosed in Appendix 8.

Respondents' background and behavior related to green building issues

This section relates to the questions on pages 1-5 in the questionnaire. Respondents are asked to state their professional and geographic background and whether or not they are a LEED accredited professional. This information is asked for in order to segment the responses according to the respondents' background in the subsequent analysis.

The next question seeks to examine which areas within the LEED system's aspects of green building the respondents pay most attention to when designing or building a green building.

The question on page 3 is intended to ensure that respondents who are never involved in specifying building materials are not asked to answer the following two questions as this would affect the reliability of the data.

The questions on pages 3-4 are intended to examine the respondents' behavior when selecting building materials (page 3) and assessing new or unknown products (page 4). The parameters chosen as prompted answers were selected based on the information gathered through the preliminary qualitative research. 'Made-in country' was included as one of the parameters to see if the country-of-origin was an area of consideration when selecting materials. One of my preliminary hypothesis were that most Danish building materials are relatively unknown in the United States, and I thus wanted to examine specifically which parameters influenced the respondents assessment of unknown products to see what opportunities or obstacles this might pose to Danish building materials manufacturers.

Country-of-origin images for different countries

In his research, Anholt (2007) points out the importance for countries of being on the foreign target audience's shortlist or 'evoked set' (p. 81). Before moving on to asking specific questions about the respondents' perceptions of Denmark, I thus wanted to see which countries were 'top-of-mind' in terms of leading the way within the field of green building. This is of course to examine whether or not Denmark is on this shortlist but also to see which other countries Denmark is competing against in this market (page 6).

The questions on pages 7-9 are intended to examine the respondents' perception of Denmark's competencies within the self-perceived relative areas of strengths compared to Germany (self-perceived biggest competitor) and the United States (the respondents' home country). The home country is included to see if there is an indication of domestic preference within these areas.

Degree of knowledge about and perception of Denmark

The questions on page 10 were included in order to allow for subsequent segmentation between respondents with first-hand experience with Denmark and those with no first-hand experience to see if this impacts their perception or degree of knowledge about the country and its competencies.

On page 11, respondents are asked to indicate their impression of Denmark as the origin country of products and services in terms of four different parameters; design, quality, price level and technological characteristics. Here, I have chosen to use the semantic differential scale, which is often used in the country-of-origin research. With this questioning technique, any bias towards agreeing with a statement is avoided as both ends of the scale have to be considered (Brace, 2008, p. 76).

The questions on pages 12-14 are intended to test respondents' perception of Danish architecture and building materials as well as their ability to spontaneously recall any Danish architects, building materials manufacturers/brands and engineers.

Afterwards, respondents' recognition of Danish firms or brands when presented with prompted answers is examined on pages 15-17**.** Based on another preliminary hypothesis of mine (that Denmark is primarily associated with the 1950s design style 'Modernism'[11]), the listed architects and architectural firms include both contemporary and retired or deceased architects.

The questions on page 18 are intended to examine how well the official Danish nation-brand communication platform corresponds to the respondents' perception of Denmark. I selected a number of statements from the platform, which I found complemented the desired image of the Danish building industry based on the analysis in Chapter 3. This question was intentionally placed last in the questionnaire to ensure that these very positive statements about Denmark would not influence respondents' answers to the more industry-specific questions. Given the length and phrasing of most of the sentences, it was not possible to find an equivalent opposite and the semantic differential scale could therefore not be applied here. Instead, I chose to use the Likert scale, and asked respondents to indicate whether and how strongly they agreed or disagreed with each statement (Brace, 2008, p. 73).

General comments on the construction of the questionnaire

As evident from the questions described above the questionnaire makes use of both quantitative and qualitative methods through a mix of closed and open-ended questions. This mix is chosen because of each type's advantages and disadvantages: The closed-ended questions make it easier to compare the respondents' answers as a result of their quantitative characteristics while open-ended questions offer deeper insights into respondents' attitudes and perceptions.

[11] This was also the theme for a study trip to Copenhagen that the American Institute of Architects' offered to its members in the fall of 2008 (American Institute of Architects, 2008).

Pre-testing the questionnaire

Before sending out the questionnaire to the selected sample, I pre-tested it on my thesis advisor, Ole Helmersen, and the Danish Ministry of Foreign Affairs' building sector expert in the United States, Pelle Bournonville. These 'test respondents' were asked to first complete the questionnaire before they were given a briefing about the intention behind each question in order to check for any phrasing which might pose a problem in terms of respondents misinterpreting the questions. Ideally, the survey would also have been sent out to a small sample of the target audience in order to test these issues among respondents corresponding to the segmentation criteria of the actual sample. However, given the limited availability of resources and contact information on potential respondents, the pre-testing was limited to the two test respondents described above.

Implementation of data collection

The questionnaire was sent out to a sample of 350 respondents[12] (covering both target audiences) between April 19 and 26, 2010. The questionnaire was closed for responses on April 29, 2010. Out of the 350 in the sample, 117 respondents began the filling out the questionnaire, resulting in a response rate of 33.4 pct. This number slightly declines further into the questionnaire and may also vary from one question to another as a result of respondents either skipping questions or closing down the questionnaire before finishing it.

Validity of collected data

It is of course important to make certain reservations when making inferences about the general perception of Denmark among the U.S. target audience based on a sample. However, based on the sample size and response rate described above as well as the distribution of the respondents' professional and geographic background as illustrated below, I consider the collected data to be of sufficient validity for the subsequent analysis in this thesis.

Table 5.1: Distribution of respondents' professional background:

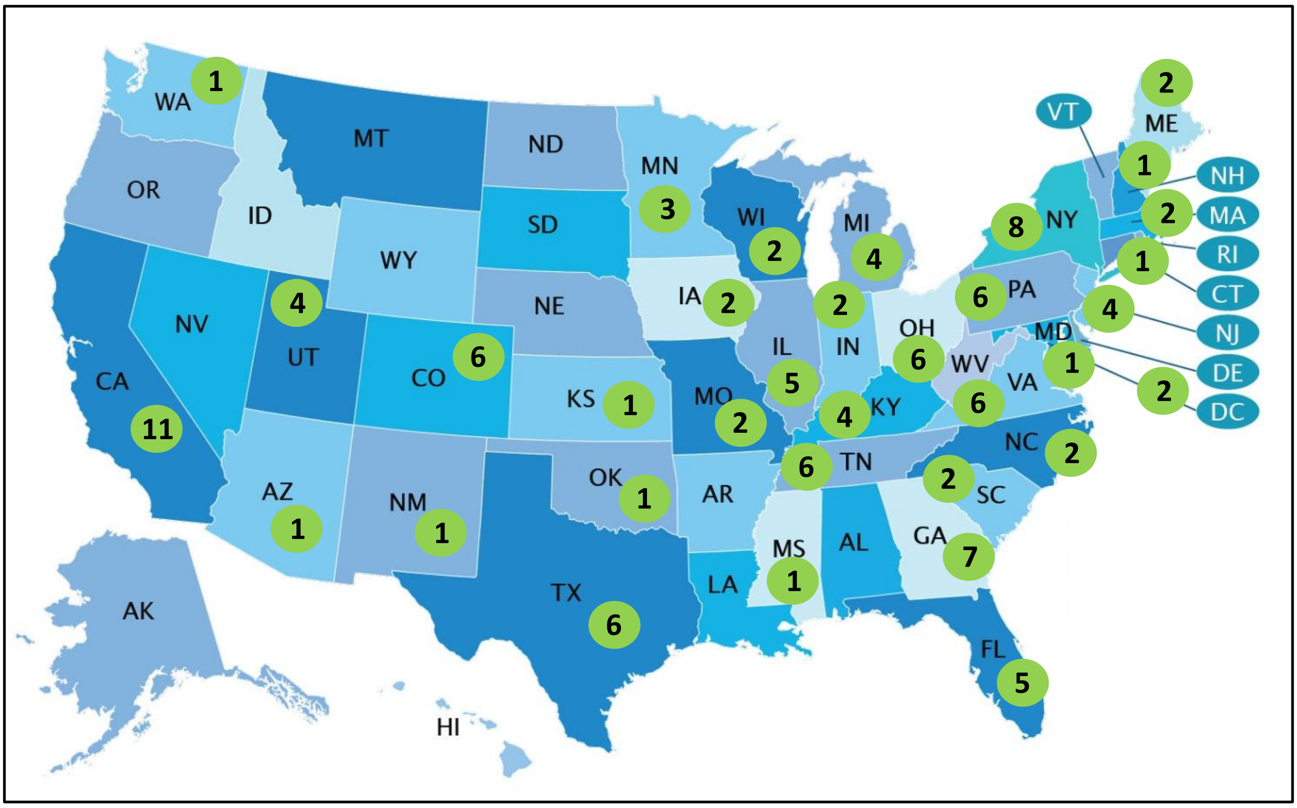
Professional background	Response count	Response percentage
Architect	82	70%
Engineer	34	29%
Contractor	1	1%
Total number of respondents	**117**	**100%**

Source: Appendix 9 (CD-rom) – Question 1.

As illustrated below, the respondents in this study represent 34 out of the 50 states corresponding to 68 pct. of all U.S. states. The distribution and number from each state corresponds fairly well to the distribution among the selected sample given the segmentation methods described earlier.

[12] After deducting the number of emails which were undeliverable.

Figure 5.2: Geographic distribution of respondents



Source: Own production.

Coding and editing data

After closing the questionnaire, the data was downloaded into an Excel spreadsheet, which made it possible to make cross tables, which allowed me to look for patterns to see if different segments of the target audience varied significantly in their perceptions of Denmark or their areas of focus within green building. The raw data with all responses included can be found in Appendix 9 (CD-rom).

In the next section, the results of my analysis of the responses in the questionnaire will be presented.

5.2 Assessment of Denmark's image in the United States

According to Graby (1992), country images can be assessed in terms of *clarity* (how well they are understood), *direction* (how positive or negative they are) and *strength* or *rigidity* (how difficult they are to change) (p. 260). Given the static nature of the study in this thesis, it will not be possible to measure the strength or rigidity of Denmark's image among the target audience as the study only provides an instant snapshot of Denmark's image. The following analysis will instead focus on the clarity and direction of this image as it appears from the responses in the questionnaire.

Structure of the analysis

Inspired by the *'Hierarchy of effects model'* often used in marketing to describe the mental process taking place in the minds of buyers leading up to a purchase, the assessment of Denmark's image among the selected target audience will be analyzed in terms of three stages:

Figure 5.3: The three stages for assessing Denmark's image among the target audience

Source: Own production inspired by Kotler, 1994, p. 602.

After examining the target audience's awareness of, knowledge about and perception of Denmark, the relationship between this image and that of Denmark's self-perceived closest competitor and the target audience's home country will also be examined.

The responses did not reveal any notable differences between the two different segments of the target audience's perception of Denmark and the analysis of Denmark's image will therefore not differentiate between the two groups.

Awareness of Denmark as origin country of green building solutions

Spontaneous awareness of Denmark as origin country of green building solutions was indirectly tested by asking *'Which countries do you think are leading the way in terms of green building solutions?'*. According to the responses, Denmark ranked fifth out of the 20 nations spontaneously mentioned with 17 pct. of all respondents specifically mentioning Denmark. In addition to this, 5 pct. of all respondents listed *'Scandinavia'* as one of the 'countries' being on the forefront (The issue of possible confusion between Denmark and other Scandinavian countries will be elaborated on later in this chapter).

Table 5.2: Which countries do you think are leading the way in terms of green building solutions?

Rank	Response	Count[13]	% of respondents
1	Germany	70	69%
2	USA*	56	55%
3	Britain/UK/England	20	20%
4	Sweden**	20	20%
5	Denmark	17	17%
6	Canada	12	12%
7	Japan	8	8%
8	Netherlands	8	8%
9	Norway**	8	8%
10	Australia	7	7%
11	Finland	5	5%
12	Scandinavia	5	5%
13	Europe/Western Europe	3	3%
14	Switzerland	3	3%
15	China	2	2%
16	France	2	2%
17	India	2	2%
18	Iceland	1	1%
19	New Zealand	1	1%
20	UAE	1	1%
	Don't know	*5*	4%
Total number of respondents			**102**

* Including two responses mentioning California or USA/California.

** One response listed Sweden/Norway and has thus been included in the count for both countries.

Source: Appendix 9 (CD-rom) – Question 8.

The relationship between Denmark's image and its international competitors will be dealt with later, but it is worth noting that Germany (Denmark's self-perceived closest competitor) is mentioned by four times as many respondents as Denmark. As the above table reflects the target audience's *spontaneous* responses (no particular countries had been mentioned to them at this point in the questionnaire), this confirms the self-perceived notion of Germany as the closest international competitor to Denmark within this field.

Awareness of specific brands, persons or firms of Danish origin

In addition to examining the overall awareness of Denmark as origin country within green building, respondents were also asked to recall specific brands, persons or firms of Danish origin within the building industry – first spontaneously and afterwards by listing a number of names which the Danish building industry expected they might know (e.g. due to their presence on the U.S. market, their international recognition or their position as Danish market leaders within niche technology areas).

[13] Each respondent was asked to list between 1 and 3 countries, which is why the sum of the numbers in this column exceeds the number of respondents who answered the question.

The results in Appendix 10, 11, and 12 show that respondents seem to be much more familiar with Danish architecture than with Danish building materials and engineering firms as the number of respondents who were able to spontaneously recall the names of Danish architects and architectural firms were much higher than those who were able to recall Danish building materials manufacturers or brands. Less than 1 pct. of those who answered the question about Danish building materials brands were able to spontaneously name a specific brand – and only two respondents were able to name more than one. It is furthermore worth noting that nearly half of the building materials brands that were spontaneously listed were not of Danish origin.

The ‘category’ which scored the lowest awareness level was engineering firms: Almost none of the respondents were able to recall any Danish engineering firms without being presented with a list of prompted answers. Out of the 49 respondents who answered this question, only two were able to recall the names of Danish engineering firms – and only one of those firms is actually Danish (although ‘Arup’ does have a partly Danish background).

Finally, also worth noting is the large number of *‘don’t know’* responses and number of respondents who skipped these questions. This indicates that awareness of specific persons, brands or firms within the Danish building industry is relatively low among the target audience.

Knowledge of and familiarity with the Danish building industry

When sorting through the responses, it becomes clear that the majority of the architects that respondents were able to spontaneously recall are architects associated with the mid-20th century Danish design movement often referred to as ‘Danish modernism’ (e.g. Jørn Utzon and Arne Jacobsen). Among the more recent or contemporary architectural firms mentioned are Bjarne Ingels Group (BIG), Henning Larsen[14] and 3XNielsen (Appendix 10). More respondents were able to recognize other contemporary architects or firms when presented with a list of Danish architects. However, the responses still show a higher awareness of architects associated with Modernism: Nearly two thirds of the respondents who answered this question knew Jørn Utzon and Arne Jacobsen while this number dropped to about 20-30 pct. for contemporary studios like Henning Larsen Architects, BIG and Schmidt, Hammer and Larsen Architects. When asked about which attributes or qualities the respondents associate with Danish architecture, the most recurrent response was also *‘modern’* or *‘modernism’* (Appendix 14). This thus supports my preliminary hypothesis about Denmark being most famous for its Modern design tradition.

[14] Henning Larsen is sometimes considered part of the modernism movement but is mostly known for his more contemporary (postmodern) work.

Knowledge about Danish building materials

As mentioned earlier, spontaneous awareness of specific brands of building materials or companies of Danish origin was very low among the target audience, but when presented with a list of brands, the number increased significantly. More than 90 pct. of the respondents who completed the survey were able to recognize one or more of the brands or companies on the list. 72 pct. of the respondents who answered this question knew the Danish skylight and window manufacturer '*Velux'* followed by *'Danfoss'* (42 pct.), *'Grundfos'* (42 pct.), *'Rockwool/Roxul'* (38 pct.) and *'Heliodyne'*(34 pct.). While Heliodyne was originally a U.S. company now owned by a Danish holding company, the other four are some of the large Danish industry players.

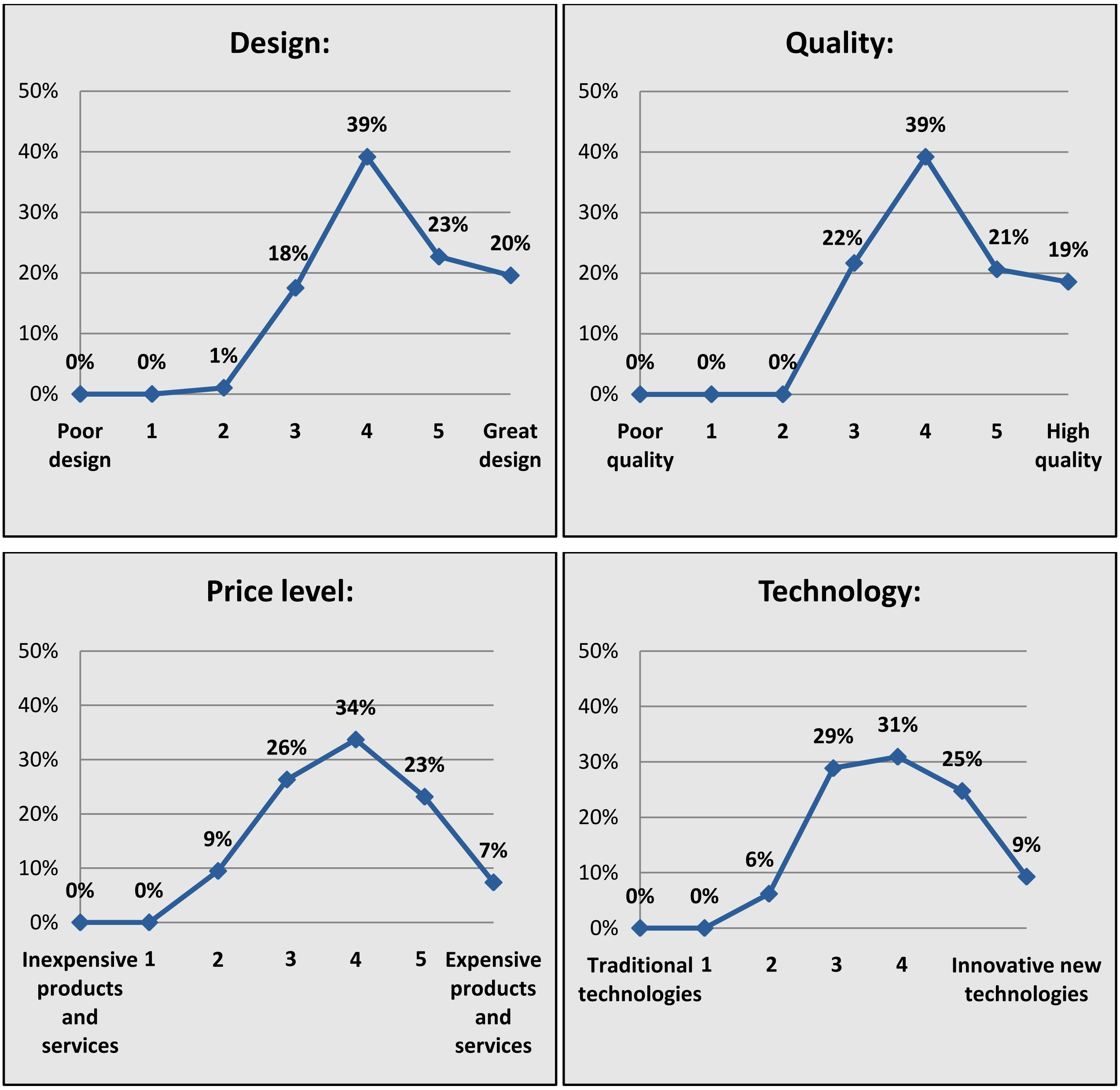
The reason behind the large difference between spontaneous awareness of these firms and prompted awareness is not completely clear based on the data available in this study but a contributing factor may well be that these companies do not typically emphasize their Danish origin in their U.S. marketing. It falls outside the scope of this thesis to thoroughly examine the marketing communications strategy and use of origin cues in these companies' promotion but a brief look at their U.S. websites revealed that while they are not necessarily hiding their Danish origin, they are not featuring it prominently either. Instead they seem to emphasize that they are *global* companies (Danfoss, 2010; Grundfos USA, 2010; Roxul Inc., 2010; Velux America, 2010). This is also well in line with the existing country-of-origin research, which found that nearly all firms in various studies reported a declining use of national image as their market penetration evolved (Jaffe & Nebenzahl, 2006, p. 133). The dilemma for companies of whether or not to use their origin in their marketing will be further touched upon in Chapter 6.

While awareness of specific building materials brands was low, respondents did seem to have a more generic idea of product categories or types of materials associated with Denmark. The vast majority of respondents who mentioned generic types of materials they associated with Denmark listed 'wood', 'wood products' or 'wooden furniture'. Other materials mentioned included 'glass', 'lights', 'solar products', 'brick' and 'wind turbines' (Appendix 9 (CD-rom) – Question 20 and Appendix 11). While wood is mentioned by more respondents than the other materials, there does not seem to be a clear, dominant perception of which type of building materials Denmark is associated with.

Opinion: Perceptions of Denmark and Danish competencies

After examining the degree of awareness of and knowledge about Denmark and the Danish building industry, it is now time to examine the target audience's perception of Denmark. Respondents were asked to indicate their impression of Denmark as the origin country of products and services on a bipolar scale in terms of four different parameters; design, quality, price level and technological characteristics.

Figure 5.4: Denmark is a country I associate with…



Source: Appendix 9 (CD-rom) – Questions 14, 15, 16 and 17.

As illustrated above, the majority of respondents hold a favorable image of Denmark in terms of design and quality. 82 pct. indicated that their perception of what 'Made in Denmark' meant to them was closer to 'great design' than 'poor design' while only 1 pct. indicated the opposite. 79 pct. indicated that their perception was closer to 'high quality' than 'poor quality' while none of the respondents indicated the opposite.

In terms of expected price level, Denmark is generally associated with higher priced products and services. 64 pct. of respondents thus indicated that their perception of the price level for products and services 'Made in Denmark' was closer to 'expensive' than to 'inexpensive', while only 9 pct. indicated the opposite.

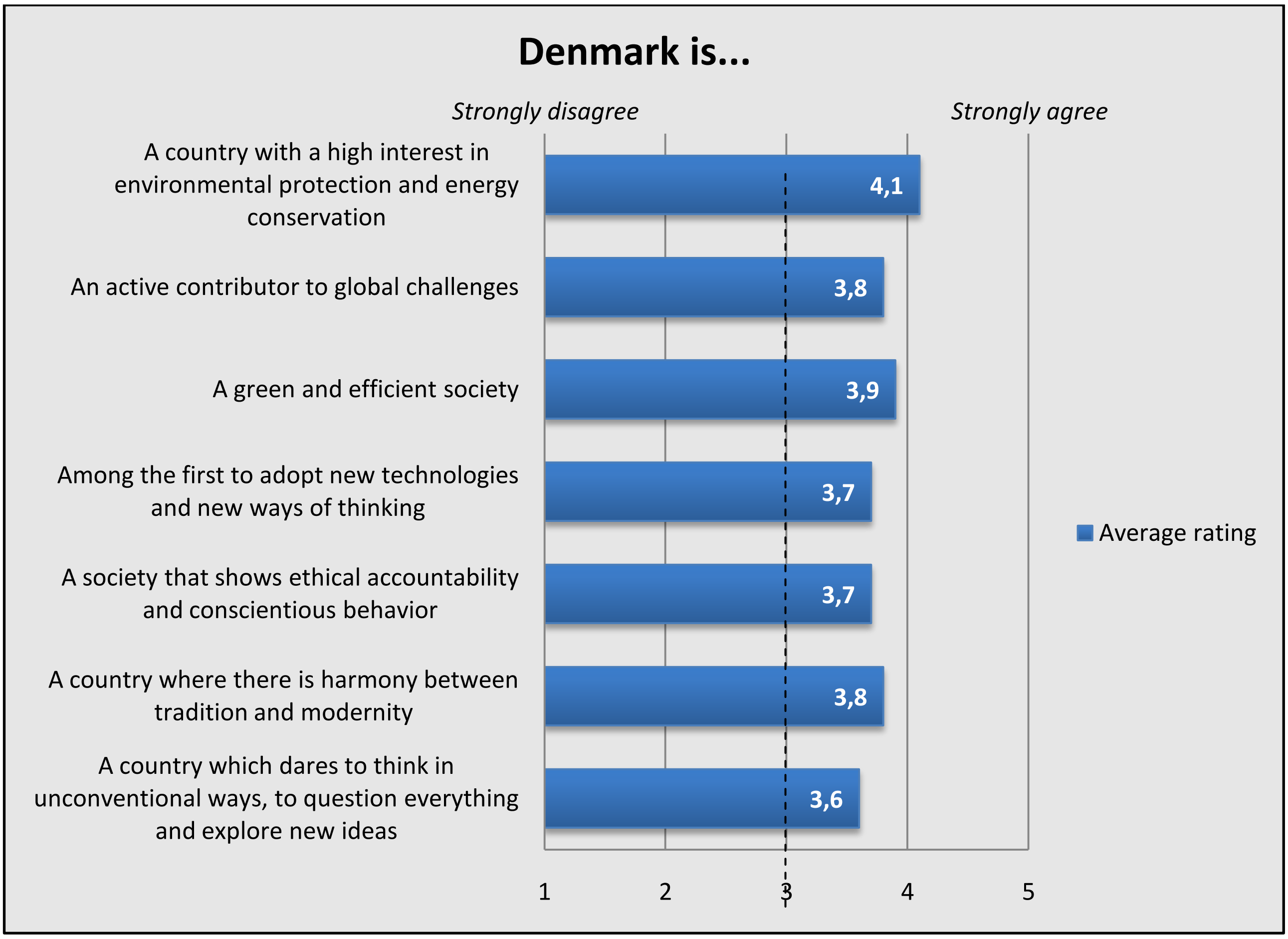
Worth noting, though, is the high percentage (60 pct.) of respondents who either indicated a 'neither nor' response or a response slightly towards 'expensive'. This thus indicates that Denmark is generally associated with a price level that is above average but not necessarily exceptionally expensive.

Finally, in terms of the type of technologies that Denmark is associated with, 65 pct. of respondents indicated that their perception of this was closer to 'innovative new technologies' than 'traditional technologies' while 6 pct. indicated the opposite. Also here, it is worth noting that 60 pct. gave a 'neither nor' response or a response slightly towards 'innovative new technologies'. This suggests that the image of Denmark in terms of types of technologies associated with this country is a bit unclear but slightly leaning towards newer, innovative technologies.

Overall perception of Denmark

In order to examine the target audience's overall image of Denmark compared to the desired image as it is presented in the official Danish nation-branding platform, the respondents were presented with a number of statements from this platform which each concerned an aspect related to Denmark as the origin country of green technologies and know-how. The results from this question are illustrated below.

Figure 5.5: Perception of Denmark (in relation to the Danish nation-brand platform)



Source: Appendix 13.

As illustrated above, the majority of respondents generally agree to some extent with all the statements from the official nation-branding communication platform. Worth noting is that none of the respondents strongly disagreed with any of the statements and less than 3 pct. disagreed, while almost a third or more *'neither agreed nor disagreed'*. This suggests a generally favorable perception of Denmark but also either a high degree of indifference or a low level of familiarity with Denmark. As there was no *'don't know'* option for these questions, some of the neutral answers may in fact serve as a surrogate *'don't know'* answer. Particularly the statement about Denmark being a country with a high interest in environmental protection and energy conservation seems to reflect the perception of the target audience. None of the respondents disagreed with this statement, which also received the lowest percentage of 'neither nor' answers (18 pct.). As the statement ranking second-highest is the one about Denmark being a green and efficient society, this suggests that the target audience generally considers Denmark as a country with a strong focus on environmental issues and energy efficiency.

Respondents were less inclined to agree with the statements about Denmark being a country which dares to think in unconventional ways and being among the first to adopt new technologies and new ways of thinking, which makes sense when comparing this to the type of technologies and generic product categories Denmark is associated with as described earlier. These two statements also scored the highest number of 'neither nor' (43 pct. for each statement), which again suggests that this aspect of Denmark's image less clear than some of the other aspects.

Perceptions of Danish architecture and building materials

The perception of Denmark as a country which focuses on environmental and efficiency issues is also apparent in the open-ended answers to the questions about which qualities or attributes respondents associate with Danish architecture and Danish building materials, respectively. Given the open-ended questions in the questionnaire, the responses were phrased quite differently from one another, but I have tried to thematize them under various headlines to illustrate the overall trends in the target audience's perception (See Appendix 14). The open-ended responses offer an insight into the more qualitative view of the target audience's perception of Denmark as an origin country of building solutions.

In terms of design tradition, Denmark is mainly associated with *'Modernism'*, although *'contemporary'*, *'progressive'* and *'avant garde'* is also mentioned. *'Clean lines'* or *'clean design'* is an expression, which is used several times to describe the design style of both Danish architecture and building materials – e.g. *'clean aesthetics without necessary ornament, functional detailing'*. Several respondents also describe the aesthetics as being *'pleasing to the eye' and 'well-designed'*.

The favorable perception in terms of quality as presented earlier is also reflected in the respondents' associations with Danish building materials, where *'high quality'*, *'durable'* and *'craftsmanship'* are common expressions. The price level is also mentioned by some respondents' who primarily associate Danish building materials with a higher price level (e.g. *'Good quality but probably expensive'*). One respondent, however, described his or her association with Danish building materials *'as presented by IKEA – decent quality and cheap'*.

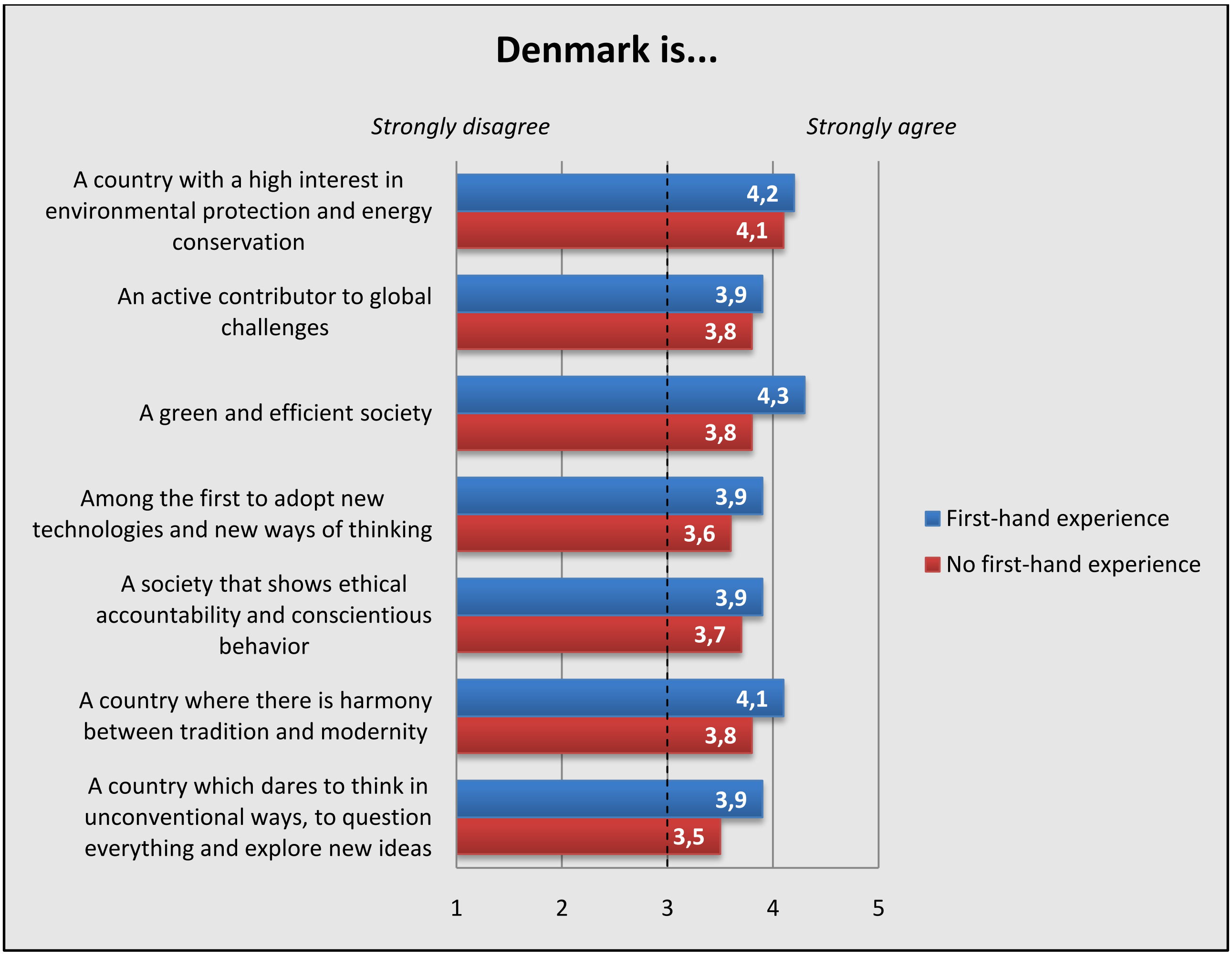
The responses generally reflect a positive image of Denmark in terms of the various areas within green building as several respondents perceive Danish architecture and building materials to be characterized by being sustainable and responsive to the surrounding environment and using natural or local materials. Effective use of natural daylight and design that is *'people oriented'* are also attributes associated with Danish architecture. Denmark is furthermore associated with a high level of efficiency as the following responses illustrate: *'energy efficient'*, *'very efficiently built in the technical aspects'*, and *'efficient design, using minimal materials'*. Incorporation of renewable energy sources is also mentioned with *'wind power'*, *'green roofs'* and *'innovative solar and hot water heating products'* being mentioned as specific technological areas. While some respondents think of Denmark as representing tradition and mainly associate the country with a strong woodworking tradition, others indicate that they find Danish architecture and building materials to be quite innovative – e.g. *'innovative building envelope design'*, *'willingness to explore new technologies'* and *'innovative solar and hot water heating products'*.

The majority of responses illustrate a positive image of Denmark, although there are also some conflicting elements. For example, some respondents describe Danish architecture as being boring – e.g. *'building designs are nice but boring'*, *' the newer buildings seem to sometimes sacrifice aesthetics for function more than necessary'* etc. Overall, though, the impression of Denmark as the origin country of building solutions – including those associated with green building is generally positive. When assessing Denmark's image in terms of direction, it can therefore be said that the target audience generally holds a positive image of Denmark, however, this image is not as strong in terms of 'clarity' as the level of awareness is relatively low compared to our competitors and specific knowledge about Danish competencies is less clear.

Significance of first-hand experience with Denmark

While sorting through the responses and applying various cross tables, a pattern emerged as those respondents, who had indicated that they had had some type of first-hand experience with Denmark, generally held a more favorable image of Denmark as illustrated below in Figure 5.6, 5.7, and 5.8. 18 respondents had had some type of first-hand experience with Denmark compared to 84 respondents who had no first-hand experience with this country. Despite the difference in sample size between the two segments being compared, the results still show a consistent pattern that is relevant to this study.

Figure 5.6: Significance of first-hand experience: Perception of Denmark

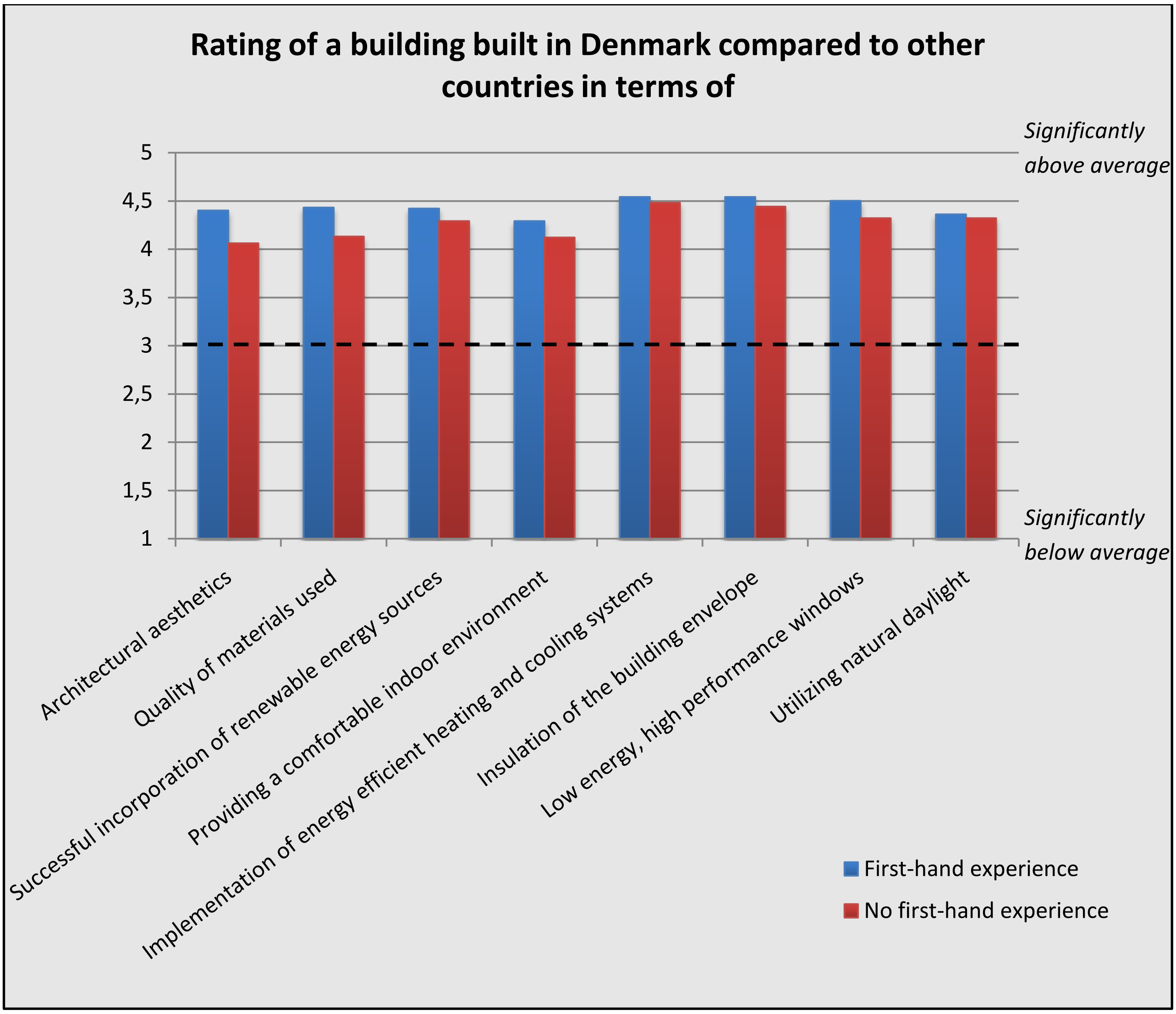


Source: Appendix 13.

Respondents with first-hand experience of Denmark generally agreed to a larger extent with the statements taken from the official nation-branding communication platform. Particularly, the statement about Denmark being a green and efficient society averaged a higher score among these respondents.

When looking at the respondents' rating of Denmark's competencies within the different parameters described as the self-perceived areas of strengths, respondents with first-hand experience also tended to give Denmark a higher rating than those with no first-hand experience. (Denmark's image within these areas compared to its international competitors will be examined later in this chapter).

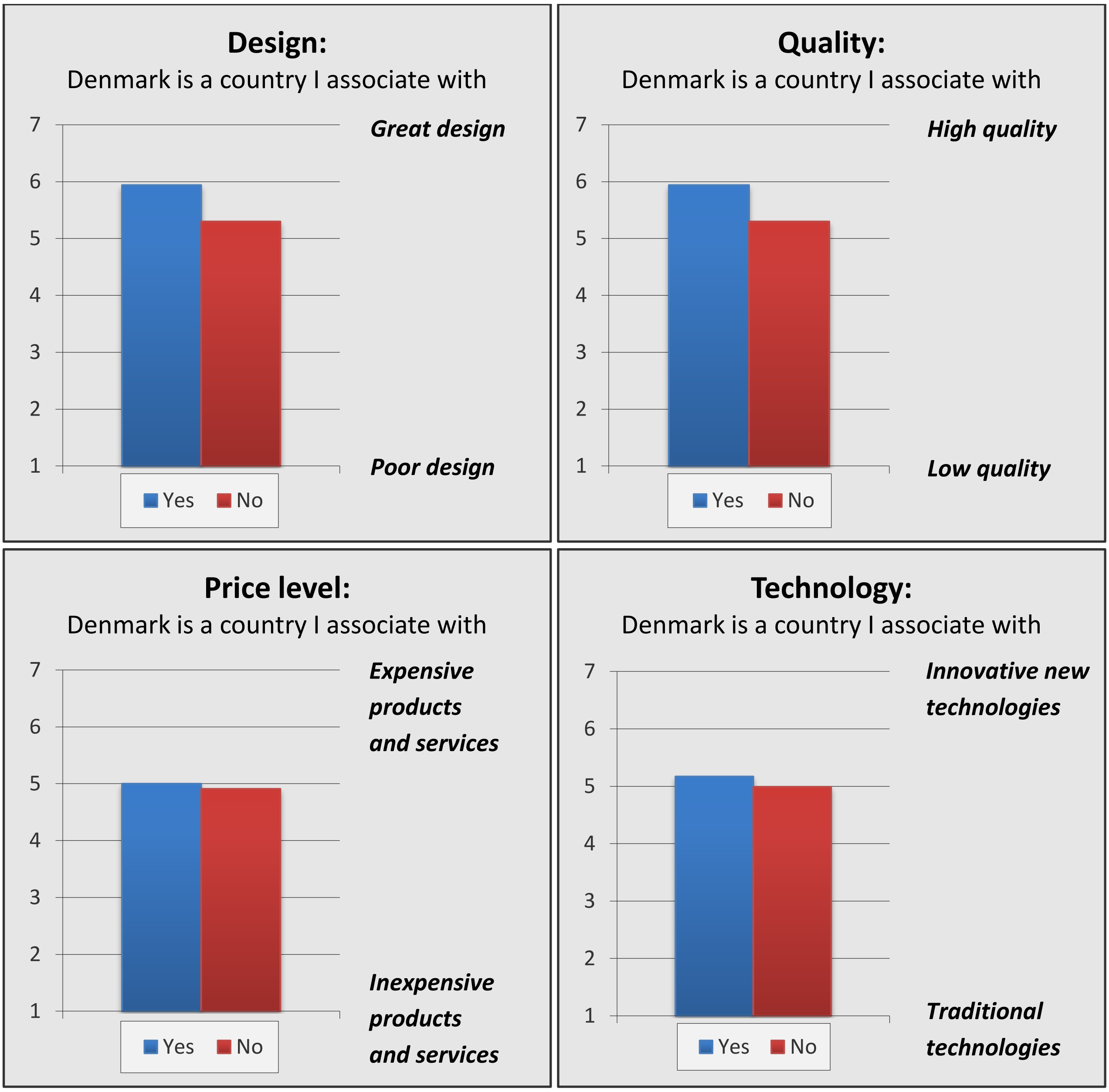
Figure 5.7: Significance of first-hand experience: Danish competencies within various parameters



Source: Appendix 15 (CD-rom)

The difference in perception is also evident in the respondents' associations with Denmark in terms of quality and design, where a higher percentage of respondents with first-hand experience associated Denmark with 'great design' and 'high quality' than those with no first-hand experience.

Figure 5.8: Significance of first-hand experience: Design, Quality, Price and Technology associations



*Columns illustrate the mean of all responses in each category (Yes= First-hand experience, No = No first-hand exp.)
Source: Appendix 16 (CD-rom).

The differences in perception in terms of price level and types of technologies associated with Denmark were much smaller, although respondents with first-hand experience were slightly more inclined to associate Denmark with 'innovative new technologies' than those with no first-hand experience. This is also well in line with those respondent's generally being more inclined to agree with the statements about Denmark being among the first to adopt new technologies and daring to think in unconventional ways.

Interestingly, the higher ratings described above did not have an effect on Denmark's position on the respondents' 'top-of-mind' list since 18 pct. of those without first-hand experience with Denmark listed Denmark, while only 11 pct. of those with first-hand experience did so (Appendix 17 (CD-rom)).

Langer (2002) stresses the importance of a country's image being valid (not far from reality) and believable (not overselling) (p. 76). From a Danish perspective, these differences in perceptions are thus to be considered as a positive indicator as personal experience with this country seems to have a positive effect on the target audience's perception of Denmark. This indicates that Denmark and the Danish building industry generally 'delivers' on their promises in the eyes of the target audience and suggests that the main challenge in terms of future marketing efforts of Danish green building solutions in the United States may well be to increase awareness and knowledge of Denmark and the country's competencies may rather than to correct a negative image.

Confusion between Denmark and other countries

Some of the responses to the open-ended questions revealed that respondents sometimes find it difficult to distinguish between Denmark and other Scandinavian or Northern European countries. For example, 10 pct. of the architects or architectural firms spontaneously recalled by the respondents were not of Danish origin but instead of Norwegian, Finnish, Dutch, Polish and Swiss origin (Appendix 10).

Some confusion also seems to exist in terms of building materials, as nearly half of the spontaneous responses list brands that are of another origin such as *'IKEA'* (Swedish) and *'Hans Grohe'* (German) (Appendix 11). Another example of this confusion is found when a respondent describes Danish building materials as '*Ambitious, but quirky (i.e. Spyker)'* (Appendix 14). Although the respondent does not specifically state that he or she believes 'Spyker' to be Danish (it is in fact a Dutch car manufacturer), this still seems to suggest that the distinction between Denmark and other countries is not always that clear among the U.S. target audience.

It is also striking that 5 pct. of respondents listed *'Scandinavia'* as one of the 'countries' or regions leading the way in terms of green building solutions while 3 pct. listed *'Europe'* or *'Western Europe'*. Other examples include one respondents' comment about Danish architecture: *'I have never thought about Danish architecture other than lumping it in with other European style'* (Appendix 14) and another respondent's answer when asked about specific brand names of Danish building materials: *'I guess anything with a double vowel in it…'* (Appendix 11).

Combined, this leaves the impression that the target audience's image of Denmark is a bit unclear in terms of separating it from those images of its neighboring countries due to a low level of familiarity with these countries.

Denmark's image in relation to its closest competitor and home country

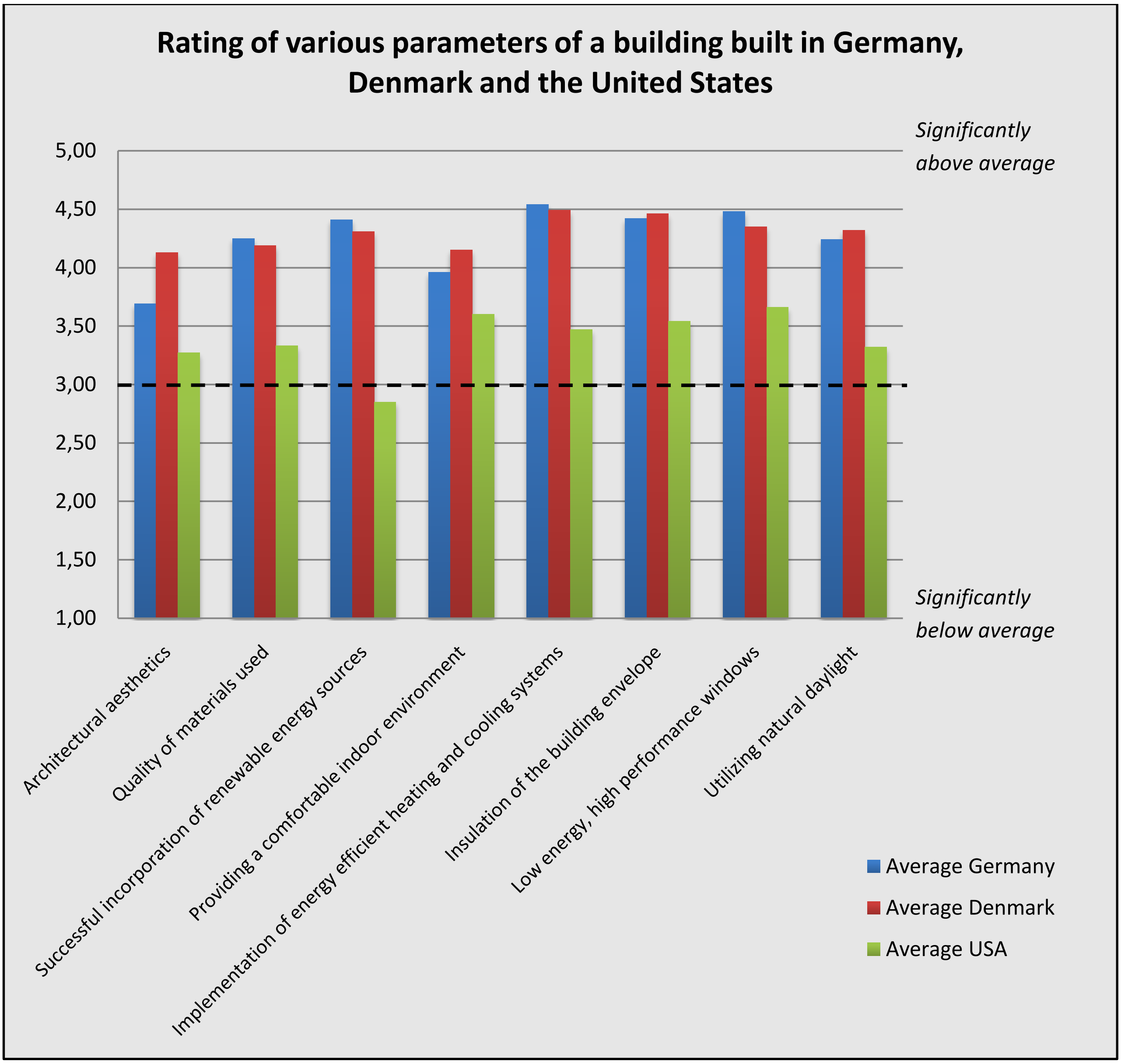
As established in Chapter 3, a country's image should also be considered in relation to its competitors. This issue was indirectly examined in the survey by asking respondents to name 1-3 countries they thought were leading the way in terms of green building solutions. The complete results of this question have already been presented in Table 5.2. However, below is inserted an extract of the top 5 countries mentioned in the responses:

Table 5.3: Which countries do you think are leading the way in terms of green building solutions? (Top 5)

Rank	Response	Count	% of respondents
1	Germany	70	69%
2	USA	56	55%
3	Britain/UK/England	20	20%
4	Sweden	20	20%
5	Denmark	17	17%
Total number of respondents			**102**

Worth noting is that Germany (the self-perceived closest competitor to Denmark) was ranked number one with more than two thirds of respondents listing this country. This means that four times as many respondents thought of Germany as being on the forefront of green building solutions than they did Denmark. The United States (i.e. the home country) is ranked second with 55 pct. of all respondents mentioning this country. In this case it does not really make sense to talk about a high degree of awareness as the target audience is obviously aware of and familiar with its own country. Instead, this number should be considered an indicator of the target audience's self-perception about their own country's strengths within green building. However, when asked about their own country's relative competencies within specific parameters, the target audiences seem to give their home country a lower rating as illustrated below.

Figure 5.9: Denmark's competencies compared to Germany and the United States



Source: Appendix 9 (CD-rom) – Questions 9, 10, and 11.

Respondents were asked to rate a building in terms of a number of parameters with the variable being the country it was built in. Each parameter was to be rated as either *'Significantly below average'*, *'Below average'*, *'Average'*, *'Above average'* and *'Significantly above average'*. Each response option was pre-coded with the value 1, 2, 3, 4 and 5, respectively, which allowed me to calculate the mean for each country as illustrated in the chart above. A *'don't know'* option was also included but was not given a value and therefore did not influence the result. Not surprisingly, the number of respondents who gave a *'don't know'* response was significantly higher in the questions regarding Denmark (19-29 pct.) and Germany (13-20 pct.) than in the one concerning the United States (2-3 pct.).

Denmark is rated highest out of the three countries when it comes to *'Architectural aesthetics'*, *'Providing a comfortable indoor climate'*, *'Insulation of the building envelope'* and *'Utilizing natural daylight'*. Germany is rated highest on the other 4 parameters, although Denmark is close behind when it comes to *'Quality of materials used'* and *'Implementation of energy efficient heating and cooling systems'*. Interestingly, the United States (i.e. the home country) is rated lowest – in fact significantly lower than the other two – in all 8 categories. According to this information, there does not seem to be a clear 'domestic bias' among the target audiences within the areas which the Danish building industry considers its relative areas of strength. That Denmark ranks significantly higher than the United States among the target audience indicates that Danish companies specializing in these areas might benefit from using their origin in their export promotion on the U.S. market. The use of Denmark as an endorser brand will be elaborated on and discussed in the next chapter.

The large difference between the target audience's spontaneous awareness of Denmark and Germany is interesting when comparing it to the figure above, where the two countries are ranked relatively close in most parameters and where Denmark is even rated higher in half of them. This suggests that Denmark does not hold a strong 'top-of-mind' position among the U.S. target audience (low awareness), but when asked specifically about it, they generally hold an overall positive image of Denmark. However, it might also be that respondents value other parameters than the ones included in this question as the parameters included here were in fact Denmark's self-perceived areas of strength. In the next chapter, the target audience's focus areas within green building will therefore briefly be examined. But first, the relationship between the registered image and the desired image of Denmark will be discussed.

5.3 Relationship between desired and registered image

The difference between the actual image held by the target audience and the desired image which the Danish building industry wishes to project can be referred to as an 'image gap'. An analysis of this gap is thus relevant in terms of determining which marketing efforts need to be carried out in order to bring the registered image into line with the desired image (Kotler, 1994).

Overall, the findings in this study indicate that the registered image among the U.S. target audience corresponds fairly well to the desired image of the Danish building industry. The target audience perceives Danish products to be of high quality but also higher priced. Danish architecture and design is rated highly in terms of aesthetics and functionality, and all of the self-perceived areas of strength were rated higher than average by the target audience. Danish competencies in terms of providing a comfortable indoor environment, utilizing natural daylight and ensuring effective insulation of the building envelope, in particular, are perceived to be very good – and better than both Germany and the target audience's own home country. In terms of the overall impression of Denmark, the message about Denmark being a country with a high interest in environmental protection and energy conservation seems to resonate well with the U.S. target audience, who generally – according to the findings in this study – hold an overall positive image of Denmark and Danish competencies within this field.

There are, however, areas where minor gaps exist between the desired and registered image. The most noticeable gap has to do with the types of technologies Denmark is associated with. This aspect of Denmark's image is examined through a number of different questions and responses, which all show that the target audience is less inclined to agree with the message of Denmark being among the first to adopt new technologies and daring to think in unconventional ways. Instead, they tend to primarily associate Denmark with more traditional technologies or 'craftsmanship'. At the same time, a number of respondents spontaneously describe Danish architecture and building materials as being 'innovative' just as there is a slight inclination towards associating Denmark with new, innovative materials rather than traditional technologies, when asked directly about this aspect. This thus indicates that the target audience's perception of this aspect of Denmark's image is less clear than most of the other aspects.

When comparing Denmark's image to Germany's in terms of specific areas within green building, Germany is perceived to have stronger competencies when it comes to low energy, high performance windows, while Denmark scores higher in terms of providing a comfortable indoor environment and utilizing natural daylight, which is also consistent with the Danish self-perception of the country's competencies within window production. Denmark is also perceived to be slightly behind Germany when it comes to successfully incorporating renewable energy sources in buildings, implementing energy efficient heating and cooling systems, and in terms of the perception of the quality of materials used. However, in all these areas Denmark scores significant above the target audience's own home country.

As the target audience generally holds a favorable image of Denmark and this image is fairly in line with the desired image of the Danish building industry, the main challenge for future marketing effort is therefore not to overcome a negative image problem but rather to build greater awareness and increase the target audience's level of familiarity with the country and its competencies within green building.

6. The use of Denmark as an endorser brand

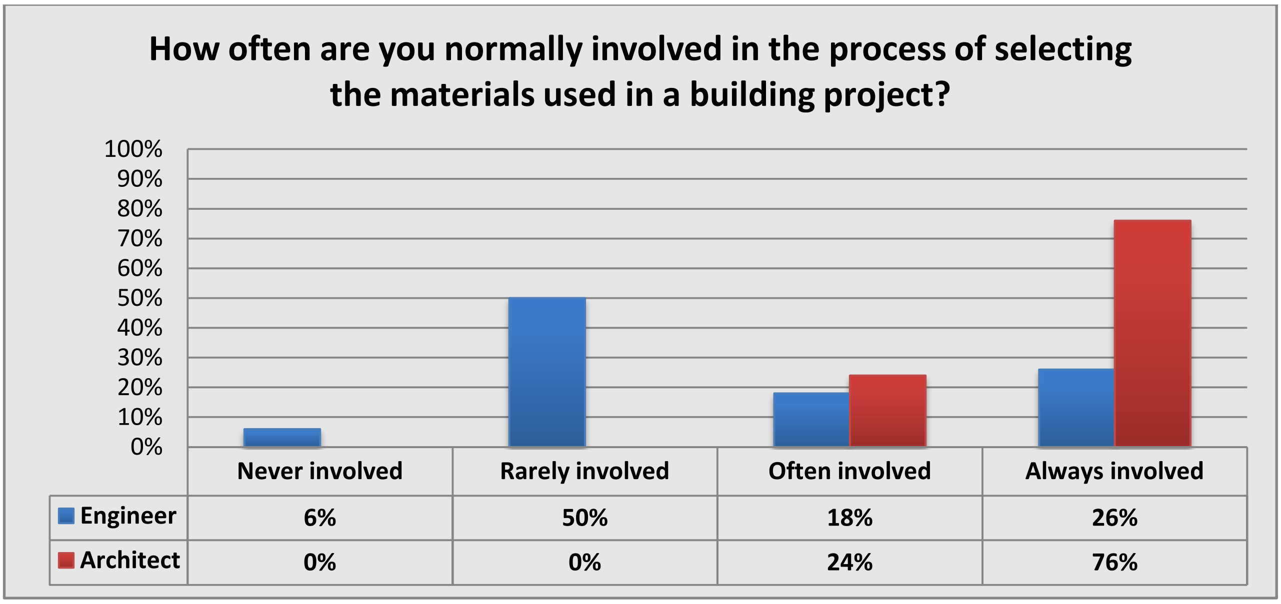
6. The use of Denmark as an endorser brand

Before discussing what impact Denmark's registered image has on the Danish building industry's ability to use the connection to Denmark as an 'endorser brand' on the U.S. green building market, it is relevant to briefly examine which areas within green building, the target audience focuses on the most to see how these compares to Denmark's strengths and weaknesses within this field.

6.1 Areas of focus among the target audience

As mentioned earlier, the responses in this study did not reveal any notable differences between the two segments of the target audience's perception of Denmark. However, it did reveal differences in terms of their focus areas within green building and the division of responsibilities between the two segments[15].

Figure 6.1: Degree of involvement in the selecting building materials



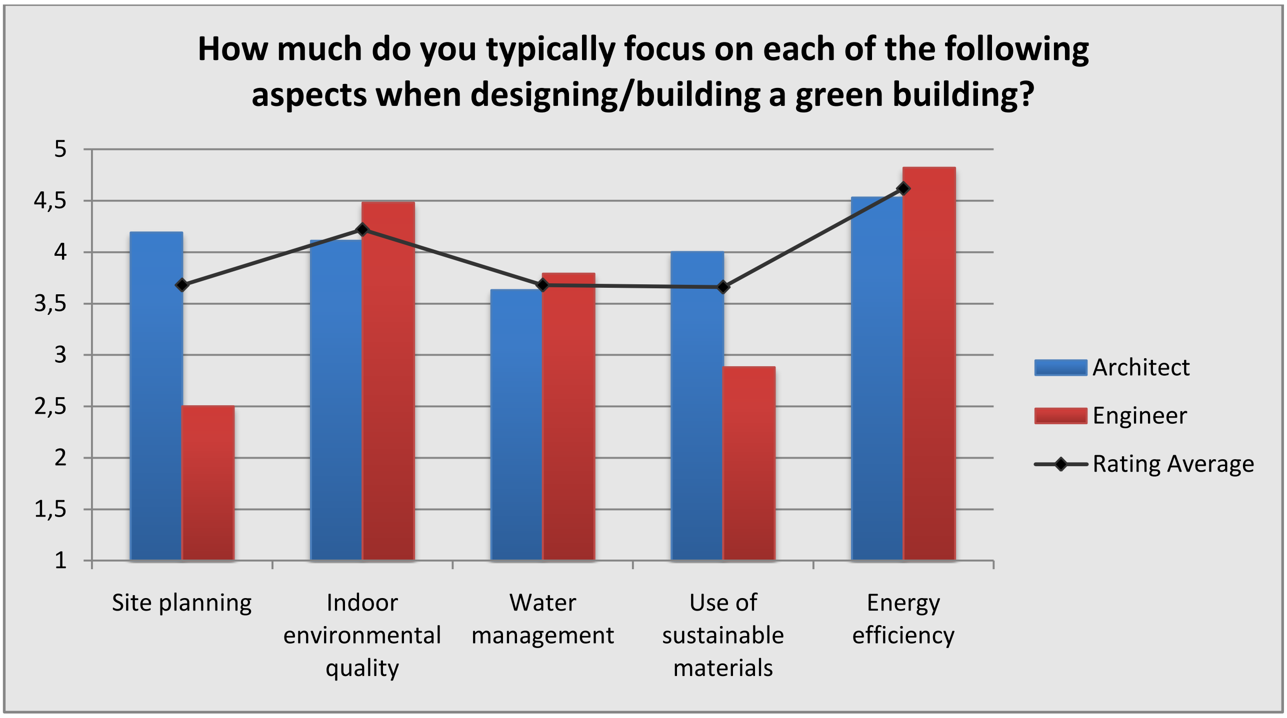
	Never involved	Rarely involved	Often involved	Always involved
Engineer	6%	50%	18%	26%
Architect	0%	0%	24%	76%

Source: Appendix 18 (CD-rom) – Question 5.

The figure above confirms the architect's role as described in Chapter 4 as every architect in the questionnaire indicated being either *'often involved'* or *'always involved'* in selecting materials while 56 pct. of the engineers stated that they were either rarely or never involved.

[15] As there was only 1 respondent who indicated being a contractor, this response has been disregarded in the following as it does not make sense to conclude a trend based on one respondent.

Figure 6.2: Greatest focus areas within green building



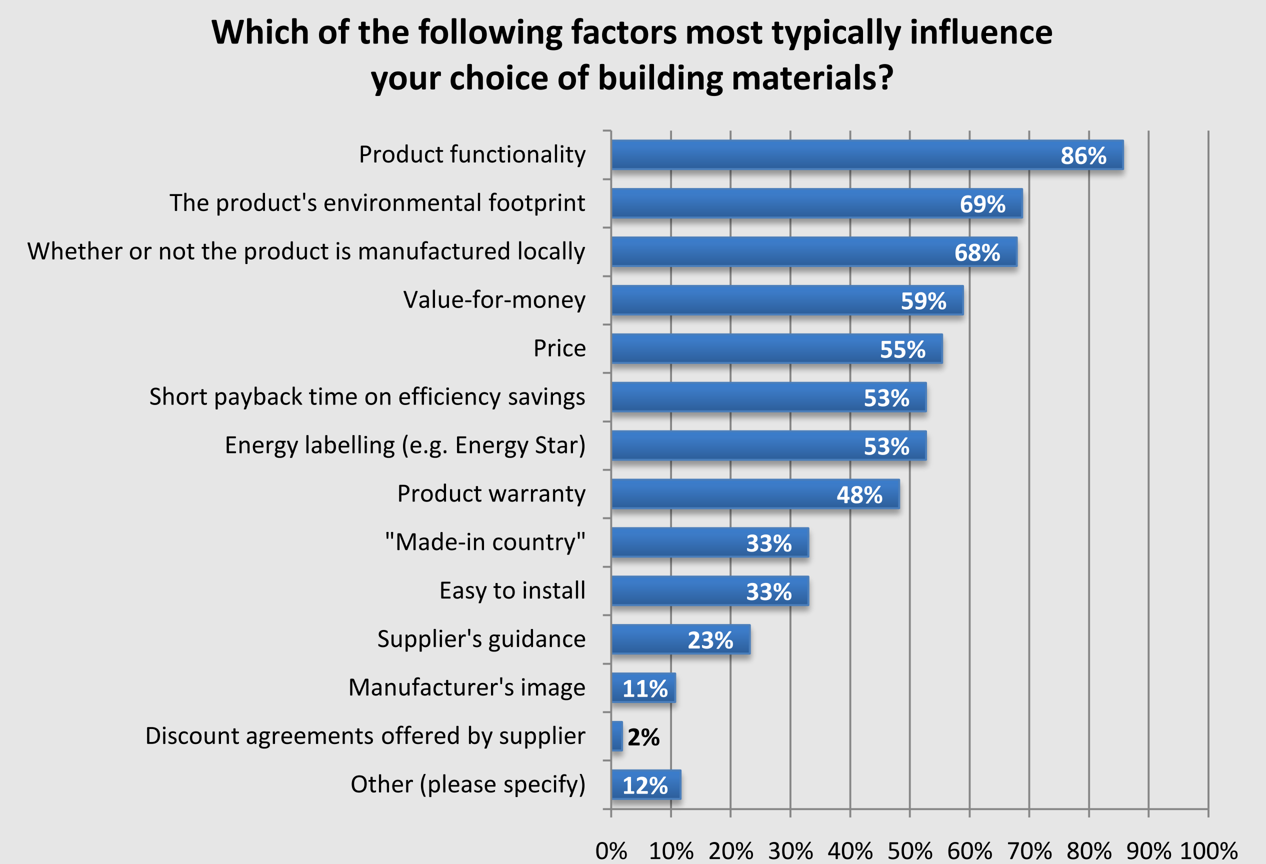
* Respondents were asked to rate each aspect on a scale from 1 to 5 with 5 being the highest
Source: Appendix 18 (CD-rom) – Question 4.

This division of labor may well also reflect the difference in the two segments' priority of the five main focus areas of green building determined in the LEED classification system. Worth noting is that *'energy efficiency'* is rated highest among both architects and engineers as this is also one of Denmark's self-perceived areas of strengths and more importantly, an area where the target audience seems to hold a positive image of Denmark as well. *'Indoor environmental quality'* is also an important focus area for both segments – and also an area where Denmark is perceived to have a great level of competency as indicated in both the spontaneous associations with the Danish building industry and in the comparison with Germany and the target audience's own home country.

Country-of-origin's influence on the target audience's purchase decision

The determining factors influencing the target audience in their decision-making process are illustrated below. The significance of country-of-origin effect was deliberately asked indirectly and in context of several other factors to avoid respondents attaching unnaturally great importance to this issue. This also allowed me to examine which other factors the target audience attaches importance to in order to see which opportunities or threats this poses for the Danish building industry.

Figure 6.3: Determining factors when selecting building materials



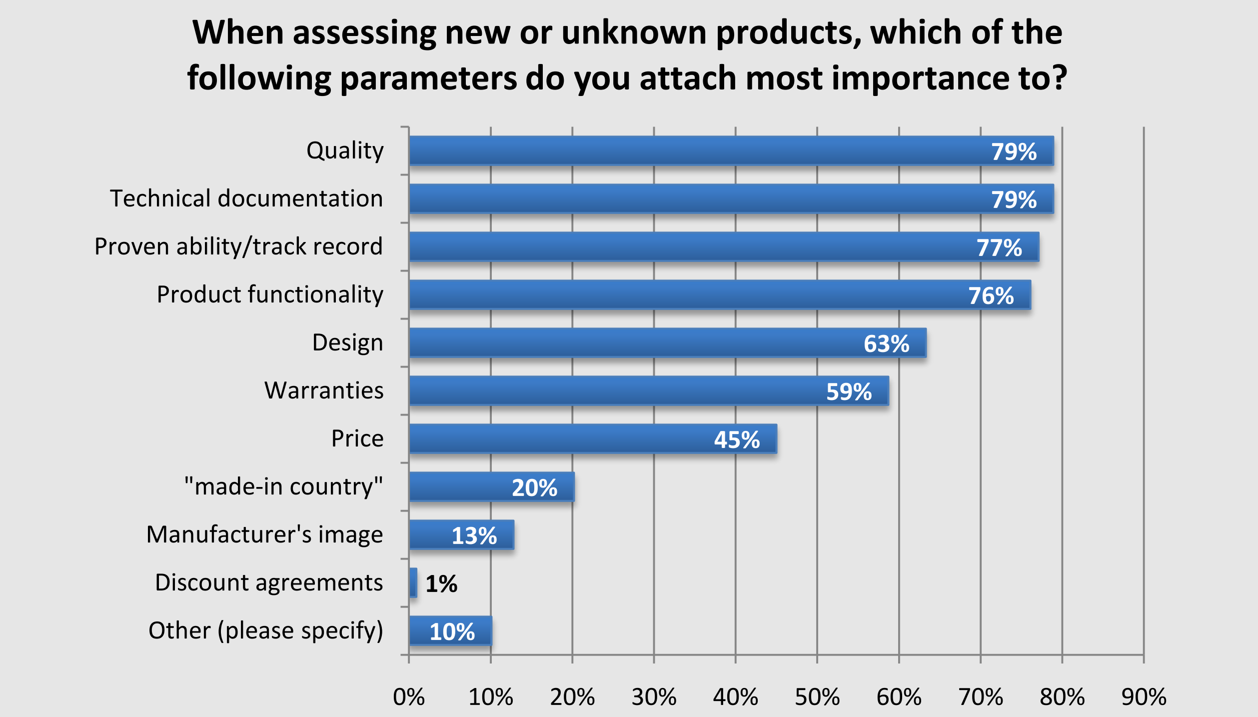
Factors listed under 'Other' include:

'Durability and lifespan of use/Life cycle value/Low maintenance', 'Track record/History of success', 'LEED compliance/Duality of its green attributes', 'Indigenous/regional/local compatibility and availability', 'Trust in product/manufacturer', 'Manufacturer's service and technical support capabilities', 'Aesthetics', 'Recycled content', and 'Client preferences'.

Source: Appendix 9 (CD-rom) – Question 6.

33 pct. of the respondents say that the *'made-in-country'* influence their choice of building materials when selecting building materials, while 20 pct. considered it an important factor when assessing new or unknown products as illustrated below.

Figure 6.4: Determining factors when assessing new or unknown products



Factors listed under 'Other' include:
'Third party certifications', 'In-house testing' 'Chemical inertness (installed and in manufacture)', 'Carbon footprint in the product's extraction, manufacture, delivery & installation', 'Life Cycle Analysis/Embodied Energy', 'Indigenous availability and compatibility', 'Sustainability criteria', 'LEED documentation', 'Maintenance requirements', and 'Industry network'.

Source: Appendix 9 (CD-rom) – Question 7.

The two tables indicate that country-of-origin is less influential on the target audience's product evaluation than for example *'product functionality'*, *'the product's environmental footprint'*, *'value for money'*, *'price'*, *'short payback time on efficiency standards'*, *'energy labeling'*, and '*warranties'*. When assessing new or unknown products, *'quality'*, *'technical documentation'* and the product's *'track record'* are the most influential factors. While this study does not indicate that there is a strong preference for domestic products, the responses did reveal that local production, *'indigenous availability and compatibility'*, and the products environmental or carbon footprint plays a factor in the target audience's product evaluation.

After examining the target audience's focus areas within green building, a discussion of the Danish building industry's ability to use the connection to Denmark as an endorser brand on the U.S. green building market will now be presented.

6.2 Limits and possibilities to using Denmark as an endorser brand

According to the findings in this study, the U.S. target audience has a lot of positive associations with Denmark – even though their level of awareness and familiarity with the country and its specific competencies within green building is relatively low. Denmark's overall registered image does not marginalize the green building sector but rather complements its objectives quite well. The only aspect, which might need to be corrected, is the types of technologies Denmark is associated with. If the Danish building industry wants to be perceived as being on the forefront of new and innovative green building technologies, efforts need to be made towards communicating the country's competencies within this field to the U.S. target audience.

In order for the origin country's image to be considered an asset to the companies of this country, a certain degree of buyer awareness is needed. In this sense, the relatively low level of awareness among the target audience can thus be viewed as both an opportunity (for improvement) and a threat (by better-focused competitors such as e.g. Germany). The relatively low level of awareness and familiarity with Denmark combined with the overall positive perception of the country means that it might be easier to build an image that is close to the desired image as there are few existing conflicting negative associations obstructing this message. Worth noting in this regard is that there is nothing in this study which suggests an outright negative image of Denmark that would be damaging for Danish companies to be associated with or which could pose an entry barrier or otherwise hinder the U.S. target audience's acceptance of Danish companies or their products.

The current level of familiarity and awareness suggests that Denmark is still relatively unknown to the target market, which means that the main export marketing challenge lies not so much in correcting the target audience's existing perception but rather in 'introducing' the country and its green building competencies.

Despite the relatively low awareness, Denmark's overall positive image offers good potential for Denmark to function as a 'halo' or 'umbrella' under which Danish green building solutions can be marketed in the United States, and suggests that the Danish building industry would benefit from using their connection to Denmark in their export marketing as a surrogate stamp of approval and a sign of quality. The current focus on energy efficiency among U.S. architects and engineers combined with this target audience's positive perception of Danish competencies within this field is a good example of an area, where companies can benefit from promoting their 'Danishness'.

Particularly smaller companies, which have not yet penetrated the U.S. market and established a brand for themselves, would benefit from 'piggy-backing' on the positive associations the target audience have with Denmark. Once their products or services become more established in the market, the significance of their origin would most likely decrease as would their use of origin cues. This is also the trend that seems to have occurred in terms of the companies of Danish origin mentioned in this thesis that are currently on the U.S. market. Further studies of these companies' use of origin cues need to be conducted but my preliminary research suggests that the Danish companies on the U.S. market that have reached a more mature market stage do not actively promote their Danish origin.

The role of individual companies – possible conflicts of interests?

Branded exports play a major role in establishing a country's image abroad but as the vast majority of mass marketing in the case of exports is left up to the individual exporting companies, controlling and steering the actual projected image of a country or a specific industry is quite difficult, which means that the overall export image tends to be less consistent.

The fact that only few respondents in this study were able to spontaneously name specific firms or brands within the Danish building industry might partly be due to the Danish companies' reluctance to use origin cues in their marketing, which means that the target audience is not aware of their Danish origin. There can be many reasons for this, but a significant one may well be the element of 'uncontrollability' a great reliance on Denmark's image brings with it. Because just as the overall country image may influence the target audience's perception of Danish products and corporate brands, their experience with various Danish companies and products may also affect their total image of Denmark. In this sense, Danish exporters are ambassadors of Denmark's image in the United States and this image is thus influenced by the behavior of these companies. The number of stakeholders is consequently great, and not all of these will have the same interests in mind. For example, Danish companies can benefit from Denmark's favorable image by selling inferior products but this may in turn damage the country image and the rest of the industry. How one Danish company acts on the U.S. market will thus affect the rest of the industry's ability to use the connection to Denmark as an endorser brand.

Limits and potential pitfalls of using Denmark as an endorser brand

Country-of-origin seems to have a smaller impact on the target audience's decision-making, while other factors such as product functionality, price, payback time on efficiency savings, and environmental footprint plays a significantly greater role. This suggests that the use of origin cues will only influence buyer behavior to a certain extent and that other factors need to be emphasized as well. The findings did not indicate any strong domestic preference, however, it did confirm that local production is favored due to its smaller impact on the environment. While this knowledge might pose a threat to Danish companies, which do not yet have established production facilities in the U.S., it also represents an opportunity for those companies with sufficient resources to establish local production as it allows them to both capitalize on their Danish origin and play on their local availability and production at the same time. In this regard, it is worth noting that 'country-of-origin' need not to be the same as the 'made-in' country but can also be extended to the 'country-of-design' etc. – the key issue is the associations which occur in the minds of the target audience when presented with an origin cue.

Finally, the danger of relying too heavily on Denmark's origin image is that it is an element, which the individual company does not have control over and thus presents a great deal of uncertainty in terms of the 'brand value' the company can derive from this association. Although country images are generally more rigid than corporate images, sudden events – such as was seen with the Mohamed cartoon crisis – can seriously damage a nation's image overnight and thus instantly change the country-of-origin effect from an asset into a liability.

7. Conclusion

7.1 Conclusion

In order to answer the main research question in this thesis, the Danish building industry's relative self-perceived areas of strength and desired image was first examined after which the current trends characterizing the U.S. green building market and the most relevant target audience on this market was established.

Self-perceived areas of strength and desired image

The self-perceived Danish areas of strength include high quality products and strong competencies in terms of incorporating renewable energy sources in buildings, efficient heating and cooling systems, creating a comfortable indoor climate, efficient insulation of the building envelope, architectural aesthetics, and high performance windows that utilize natural daylight. The self-perceived greatest competitor within green building is Germany. The self-perception and desired image is complemented by the overall Danish nation-brand which emphasize Denmark as a green and efficient society with a high interest in environmental protection and energy conservation, which is the first to adopt new technologies and think in unconditional ways.

The U.S. green building market and relevant target audience

The U.S. building market is severely affected by the financial crisis. The green building segment, however, has partly defied the general downturn and is currently the only area within the building sector experiencing growth. Especially green retrofitting of the existing building stock is an area where forecasts predict significant growth over the next 5 years. The most relevant target audiences on the U.S. market in terms of measuring Denmark's image in the United States are U.S. architects and engineers and the analysis was thus conducted based on a study of these two segments' perception of Denmark and Danish green building competencies.

Denmark's image in the United States

Denmark's image in the United States is characterized by a positive but somewhat unclear perception of the country and its competencies within green building. The target audience generally perceives Denmark as a country with a high interest in environmental protection and energy conservation and rates Danish architecture and design very favorably in terms of aesthetics and functionality as well as being sustainable and responsive to the surrounding environment.

Danish products are perceived to be of high quality but also higher priced. All of the self-perceived areas of strength were rated higher than average by the target audience and particularly Danish competencies within providing a comfortable indoor environment, utilizing natural daylight and ensuring effective insulation of the building envelope are perceived to be very good and exceeding those of both Germany and the target audience's own home country. As such, the overall registered image corresponds fairly well to the desired image of the Danish building industry. The most noticeable gap between the two is found in terms of the types of technologies Denmark is associated with as the target audience is less inclined to consider Denmark as being among the first to adopt new technologies and think in unconditional ways and instead primarily associate the country with a strong tradition of craftsmanship.

Spontaneous awareness and in-depth knowledge of Denmark and its competencies within green building is relatively low and the study shows that the target audience sometimes finds it difficult to distinguish between Denmark and other Scandinavian or European countries. The target audience is much more familiar with Danish architecture than they are with Danish building materials and Danish engineering firms – primarily due to a greater familiarity with the 'Danish Modern' design movement of the mid-20th century.

Finally, the study shows that first-hand experience with Denmark generally leads to a more favorable image of the country, which suggests that the projected image is fairly rooted in reality and not overselling.

The Danish building industry's ability to use the connection to Denmark as an endorser brand

Despite the relatively low awareness of and familiarity with Denmark, the overall positive image offers good potential for Denmark to function as a 'halo' under which Danish green building solutions can be marketed in the United States. Particularly smaller companies which have not yet established their own brands on the U.S. market may benefit from promoting their connection to Denmark.

Worth noting, though, is that country-of-origin seems to play a smaller role than other factors influencing the target audience's decision-making, which means that the use of origin cues will only influence buyer behavior to a certain extent and other factors therefore need to be emphasized as well.

Finally, Danish companies should be aware that the marketing value derived from using the connection to Denmark is subject to a great deal of uncertainty as external factors beyond the individual company's control can affect the nation's image and thus possibly turn the country-of-origin effect from an asset into a liability.

In order for the Danish building industry to use Denmark's image as an aspect in its marketing strategies on the U.S. market, it is therefore vital to continue to measure the country's current image and use this knowledge as the base for taking steps to enhance it or improve it. The purpose of this thesis was to contribute towards establishing this base and my hope is that the findings in this study will serve as a valuable foundation on which future strategic efforts to promote Denmark's competencies within green building in the United States can be built.

7.2 Further perspectives

The purpose of this thesis was to conduct an empirical analysis of Denmark's image within green building among a relevant target audience in the United States which could be used as a foundation for developing a future marketing strategy for branding Denmark within this field. Other aspects, which could be valuable in this regard, include a more thorough analysis of the 'diffused image' being communicated to the U.S. target audience – i.e. an examination of how the identity is actually being communicated by various internal stakeholders, including a study of Danish building companies' use of origin cues in their U.S. marketing.

This study briefly touched upon the significance of the country-of-origin effect on the target audience's product selection but a more thorough examination of this would also be very valuable.

Finally, the study could be expanded to include other export markets in order to examine whether the perception of Danish competencies within green building varies from one market to another, and help determine how any potential differences in perception should influence the Danish building industry's overall export promotion strategies.

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9. List of appendices

Appendix 1: Transcription of interview with Kristine van het Erve Grunnet

The interview was conducted in Danish on February 25, 2010 at the Confederation of Danish Industry in Copenhagen. Duration: 36 minutes. (**T** = the interviewer and **K** = the interviewee).

Interviewee's professional background:

Consultant at Danish Building Materials Federation (DI Byggematerialer).
Main areas of responsibility include: energy, innovation and research.

Transcription:

T: Jeg er som sagt ved at skrive speciale om, hvordan Danmarks indsats på klimaområdet sådan overordnet – og i forbindelse med COP15 og så videre – kan bruges marketingmæssigt af danske byggevirksomheder, som prøver at eksportere. Som sagt så er mit fokus primært på USA, men det her møde var egentlig mere tænkt på – altså for at kunne undersøge, hvordan andre ser os, så er det rart at vide, hvordan ser vi egentlig os selv, hvad kan vi, hvad er det egentlig Danmark kan inden for det her område? Så det er dét, jeg håbede, at du kunne hjælpe mig med at finde ud af, så det har egentlig ikke så meget med det amerikanske marked at gøre, det er mere omkring, hvad kan den danske byggebranche inden for det her område.

K: Ja okay, fint.

T: Jeg kunne godt tænke mig at starte sådan mere overordnet. Hvordan vil du egentlig definere bæredygtigt byggeri – eller bruger I hellere et andet udtryk?

K: Altså, vi bruger faktisk meget de definitioner, som allerede ligger i bygningsreglementerne. Men vi har mere snakket energieffektivt byggeri, end vi har snakket bæredygtigt byggeri. Og fokus har i den grad været på energidelen i forhold til byggeri. Altså den energi, der bliver brugt primært til at varme husene op med. Og ikke så meget bæredygtighed, det er først nu, vi ser skiftet komme. Vi ser faktisk et skift lige nu og her, at vi begynder at rykke os til at snakke mere bæredygtighed, og der så snakker vi så både i forbindelse med opførelse, i forbindelse med at huset står der, og hvad det bruger af energi i den forbindelse, men også i forbindelse med nedrivning. Men den er altså kommet sådan langsomt. Der har været enormt meget fokus på energidelen. Og lige på den del af det, der kan man sige, at Danmark er relativt langt fremme. Man kan i hvert fald sige, at rent reguleringsmæssigt, der har Danmark noget af den strengeste lovgivning på området, også i forhold til mange af de lande, vi sammenligner os med. Og vi har også været et af de lande, der først har fået energieffektivitet ind i vores bygningsreglement. Og så kan man sige, at det der samtidig kendetegner Danmark som værende noget specielt, måske specielt i forhold til USA faktisk, det er, at vi har ét bygningsreglement.

T: Ja, de har jo – ja det er ikke engang alle stater, der har – men de har jo mange forskellige. Jeg ved, det er noget, de arbejder på, men det ligger meget langt ude i fremtiden.

K: Ja, så det kan man jo sige, det har i den grad også været med til at præge udviklingen. Og vi fik energiklasserne med i bygningsreglementet i, jeg tror det var 1996, nej 2006, men vi har været nogle af de første, der satte krav, og det har også betydet for industrien, at de har ligesom haft nogle pejlemærker.

T: Ja, for I har jo lobbyet for, at der skulle komme strammere regulering?

K: Ja, vi er meget ulig dansk industri eller DI, faktisk. Vi har faktisk lobbyet for strammere lovgivning. Og det har selvfølgelig været ud fra, at vi har nogle styrkepositioner – og specielt i forhold til byggematerialer – der har vi rent faktisk nogle styrkepositioner her, som man gerne har villet opretholde. Og én måde at opretholde dem på, det er at vide, hvordan ser lovgivningen ud, så man ligesom har noget at gå efter, og så også fordi, at man jo også har været klar over, at Danmark kan være med på det her område, og hvis man fik et hjemmemarked, hvor man ligesom hele tiden var et skridt foran, og hvor man kunne afprøve mange af de her ting, så ville det også være – har det i hvert fald været branchens holdning – at man kunne eksportere de her løsninger.

T: Sådan så når de andre markeder begyndte at få øjnene op for det, så havde vi allerede løsningerne?

K: Så havde vi allerede løsningerne, ja. Og så har det så også været fordi, byggematerialeproducenterne hele tiden har vist, at de her produkter, det har også været et spørgsmål om hvordan og hvorledes de så bliver brugt og sat sammen.

Altså her har det jo meget at gøre med, når vi taler energi og hvor meget et hus forbruger, at det er bygget ordentligt og bygget rigtigt.

T: Ja det nytter jo ikke noget med vinduer, der kan det hele, hvis murerne ikke er isoleret.

K: Ja, netop. Og hvis de ikke kan finde ud af at sætte tingene sammen, og det handler jo meget om at sætte tingene rigtigt sammen her, fordi vi ikke skal have de her kuldebroer, hvor varmen kan fise ud. Og derfor har der også fra branchens side været et ønske om at sige, vi har behov for en regulering og også at vi får fortalt håndværkerne, hvad det er for nogle produkter, de skal bruge og også gøre det lettere for dem at vælge de rigtige løsninger, når de er derude. Fordi én ting er nybyggeriet – og det er vigtigt også i forhold til at få udviklet nye løsninger, men en anden ting er de bygninger, som allerede står der og som jo helt klart er dem, der batter mest, hvis vi kunne få gjort noget ved dem, fordi de står der måske i rigtigt mange år.

T: Det er vel også dem, der udgør størstedelen i forhold til den samlede bygningsmasse?

K: Helt sikkert, ja! Så derfor har fokus her på det sidste faktisk også kørt mere på renovering og på, at vi skulle – det bliver det næste skridt, der kommer, at vi rent faktisk får nogle krav i bygningsreglementet, der siger noget om, hvad er det produktet leve op til, altså hvor godt skal det være? Så man hjælper håndværkerne til at sige, okay så har vi en palet af materialer, og de her lever op til de krav, der er i bygningsreglementet, så man ligesom gør det lettere for dem at vælge de løsninger, der skal til.

T: Så det bliver altså mere produktspecifikt eller komponentspecifikt?

K: Ja, det går faktisk lidt i den retning. Det næste er faktisk komponentkrav, og det kommer i bygningsreglementet her i marts måned, hvor man begynder at kigge på komponentkrav til de enkelte produkter. Det skal så siges, at vi på ingen måde er fortalere af, at man kun går den vej. Vi er stadig fortalere for, at man får de her rammebetragtninger, som man har og kører med i det danske bygningsreglement, hvor man siger, at vi har nogle overordnede krav, som bygningen skal leve op til, *hvordan* de så lever op til det, det skal være op til dem, der bygger det, fordi vi er jo heller ikke interesserede i at kvæle al innovation. Og arkitektur er jo også stadigvæk rigtig vigtigt i Danmark. Så det er hele tiden den der balance, og der har vi faktisk været lidt anderledes, fordi vi har gået ud og sagt, at vi kan rent faktisk godt det her og vi vil gerne have de der pejlemærker, fordi så indstiller vi også produktionen – altså vores materialeproducenter, de sætter så også produktionen herefter.

T: Kan man ikke risikere, om ikke andet på kort sigt, at hvis Danmark ligesom går enegang med at sætte de stramme regler, at det vil forværre vores konkurrenceevne?

K: Jo, og det har også hele tiden været et af ankerpunkterne, at vi skal selvfølgelig ikke gøre byggeriet for dyrt. Fordi hvis det gøres for dyrt, så er der heller ikke nogen, der vil bygge det, og så lader man bare være, og det gør jo ikke nogen gavn, hverken for vores producenter eller for den samfundsøkonomiske situation generelt. Så man kan sige, det har hele tiden været en balancegang, hvor vi skulle sørge for, at få nogle krav, som er ambitiøse, men de skulle ikke være så ambitiøse, at de udelukker 75% af vores producenter fra at levere til markedet. Så vi strammer skruen en lille smule, men på ingen måde så stramt, at flertallet ikke kan være med, og vi ser udviklingen gå i samme retning i Europa. Det kan godt være, at Danmark har været nogle af de første til at få det her ind i bygningsreglementet, men så er der lande som Østrig og Tyskland og Schweiz, som måske ikke har reguleret på samme måde, som vi har, men det de så har gjort – faktisk også i Frankrig – er, at de har igangsat støtteprogrammer, hvor man kan få penge fra staten til at bygge de her bygninger. Altså der er jo – i Tyskland, Østrig og Schweiz – et kæmpe marked for passivhusbyggeri, for eksempel. Og det kommer jo så ikke så meget gennem lovgivningen, men de har så valgt at yde støtte til de her typer byggerier ved at give dem penge, simpelthen. Hvor det så var, at man kunne få penge fra staten, hvis man valgte at bygge denne type hus frem for en anden type hus. Og derfor er det de lande, vi sådan er i konkurrence med, hvis vi skal opretholde førerpositionen, og det er der jo mange af vores materialeproducenter, der er bange for – altså kan vi opretholde førerpositionen? Fordi vi har lande, som nu gør en masse af de her ting, og som skyder en masse penge efter det på en anden måde, end vi gør. Og derfor kan man sige, så er der ikke – i hvert fald ikke fra vores medlemmers side af – en frygt for at det kører så stramt i Danmark, at vi bliver tabt. At lovgivningen er så stram, at vi kvæler alt, tværtimod, så er man lidt bekymret for, om vi er ved at miste den der position. Kan vi blive ved med at opretholde den? Også fordi, der er andre lande – altså vi er ude at slås på samme markeder, og derfor er det vigtigt, at man bliver ved med at holde fokus, synes de, og det er også vigtigt at lovgivningen følger med og ressourcerne følger med. Men det er en balancegang hele tiden. Og man er specielt også bekymret for, hvad der nu kommer til at ske i

Asien, men også i USA, hvor der jo ligesom er kæmpestore hjælpepakker, der er blevet lagt ud, som også skal fremme det her.

T: Ja de er ligesom også ved at få øjnene op for det her område. Man kan sige, de er langt bagud lige nu, men når de beslutter sig for noget, så rykker de også.

K: Ja. Så derfor er det en balancegang, og vi står heller ikke og råber og skriger på mere regulering lige nu. Nu siger vi, det er fint, hvor vi er, så følger vi udviklingen og tager det derfra. Altså vi vil stadig helst have europæisk lovgivning på det her område, men det er lidt sværere på byggeområdet, fordi der er og har altid været meget forskellig kultur for, hvordan du bygger. Så det vi tror, vi kan regne med fremadrettet, det er, at der stadig kommer nogle rammer fra EU, men hvordan og hvorledes man fylder de rammer ud, det bliver mere op til de enkelte lande pga. klimaforskelle osv. Altså, der er forskellige ting, hvor du kan sige, det bliver svært at få et europæisk bygningsreglement. Man vil i hvert fald nok være nødt til at følge op med noget nationalt lovgivning på en eller anden måde. Men vi ved godt, at nu skal den ikke strammes mere, altså.

T: Hvordan har I det med – altså i USA, der har man jo LEED certificeringsprogrammet. Jeg læste lige en artikel forleden dag, om at de har nedsat et dansk Green Building Council.

K: Ja, og det er jo netop det med, at vi nu går hen og kigger lidt mere på det bæredygtige byggeri. Vi har det ikke særlig godt med LEED. Og vi har det ikke særlig godt med BREAM. Og vi har det ikke særlig godt med de løsninger, blandt andet fordi hvis vi skal have en certificeringsordning, så ser vi igen gerne, at den bliver europæisk. Og problemerne med LEED og BREAM er gerne det her; at hvad er det, de vægter? Hvad er det for nogle indikatorer, man skal gå ind og opfylde? Man kan selvfølgelig sige, i dag kan man gå ind og LEED certificere et dansk nybygget hus, det vil leve op til, det ved jeg ikke, den øverste standard i LEED – og det er et *standard* byggeri, så det er også, hvordan måler vi og hvad er det, vi måler på? Plus at så er det også endnu en certificeringsordning, en frivillig certificeringsordning, som på andre måder kan gå ind og give nogle problemer, også i forhold til at give nogle handelshindringer, simpelthen. Så umiddelbart har vi været modstandere af, at man går ind og tager en LEED og gør den til dansk eller en BREAM og gør den til dansk.

T: BREAM, det er det, de har i Storbritannien, ikke?

K: Storbritannien har en BREAM, ja. Og så er der også en tysk ordning, rent faktisk, og en fransk ordning. Så det er den der med, jamen skal vi så have dem alle sammen eller hvad? Og hvem er det, det ender med at gavne? Og hvem er det, der kommer til at betale gildet for de her løsninger? Men vi er også godt klar over, at der kan være et behov for – fordi vi har udenlandske investorer, som måske *vil* have, at husene skal certificeres efter en eller anden løsning – og den udvikling er vi jo heller ikke interesseret i at stoppe, så der ikke kommer nogen udenlandske investorer ind på markedet. Det vi har sagt, det er, at der rent faktisk – den europæiske standardiseringsorganisation, CEN, er på vej med en certificering af bæredygtigt byggeri, faktisk også. Og det er den vi gerne vil have, at man tager udgangspunkt i. Det bliver også en frivillig ordning, men man ved også godt, at med CEN-standarder, så har de det med at blive obligatoriske på et eller andet tidspunkt. Men det arbejde sidder vi med i og har mulighed for også at påvirke og præge, og så bliver det en europæisk ordning. Og den skulle – altså de siger, den er ved at være færdig. I 2011 skulle den gerne være klar. Så er det så spørgsmålet, om det kommer til at holde stik. Det er ikke sikkert, at det gør det. Det er jo EU. Men det er det, vi arbejder for. For én ting er, at man har nedsat et dansk green building council, men man har rent faktisk også nedsat et certificeringsudvalg i Erhvervs- og Byggestyrelsen. Og de to arbejder tæt sammen. Det er så meningen, at Erhvervs- og Byggestyrelsen, de laver certificeringen, altså det er dem, der ligesom er ankermand for at få lavet en certificering, mens det så bliver Green Building Council, som skal udmønte certificeringsordningen, dvs. man skal tage kontakt til Green Building Council for at blive certificeret. Jeg tror det bliver noget i den dur – men konturerne er ikke fastlagt på nogen måde endnu. Vi har lige meldt os ind i det danske Green Building Council, faktisk, og mange af vores medlemmer sidder der også. Vi sidder også i certificeringsudvalget i Erhvervs- og Byggestyrelsen. Deres første ambition var, de var meget hooked på at kigge på BREAM, faktisk, i Danmark, men efter de sidste møder, så er de nu også blevet gjort klart, at man er nået så langt i CEN, at man måske lige skal stikke fingeren i jorden og finde ud af – hvor langt er de egentlig? Holder deadlinen? Og det man ligesom har meldt ud derindefra nu, det er, at hvis man inden for de næste 2 år kan se, at de bliver færdige, så vil man hooke en dansk løsning op på det. Hvis ikke man bliver færdig, hvis der er tale om en længere tidshorisont, så vil man tage så meget af det, man kan, fra dem, men så lave ens egen danske ordning stadigvæk. Så det er dér, vi er. Og så undersøger man så stadigvæk – LEED er slet ikke i spil der – men BREAM er stadig i spil. Man er ved at undersøge, hvad ville det koste osv. Så den er ikke ude, men man hælder mere til den anden retning.

T: Okay. I forhold til det du sagde med, at vi er langt fremme i forhold til energi osv. – Er der nogle bestemte områder, f.eks. isolering eller sådan – altså hvis du skulle nævne 3-5 områder, er der så nogle områder, hvor det er dér, vi er foran?

K: Altså, det er helt klart isolering, når du snakker Danmark, og så er det pumper, altså varmepumper – det er Danfoss i den grad – og jordvarmesystemer, som vi er rigtig dygtige til. Og så ventilation er vi faktisk også ret langt fremme med. Og vinduerne er ved at komme med. Vi har ikke været ret dygtige på det område, men den er altså ved at komme. Og så sådan en relativ sjov ting som tætningsløsninger, altså det der med tætningsfolier og sådan noget, det er vi faktisk også ret gode til.

T: Nu nævnte du nogle af de andre lande, som vi sammenligner os med eller som også er begyndt at satse meget på det her. Er det nogle af de samme områder, hvor de også rykker eller?

K: Ja, altså inden for isolering, der tror jeg vi er – i hvert fald inden for mineraluldsisolering – der tror jeg stadig vi er nogle af dem, der er i front, der tror jeg ikke konkurrencen er helt det samme, men de andre rykker jo selvfølgelig også på nogle af de samme ting. Tyske vinduer bliver man altid ved med at høre om.

T: Ja, for jeg kan huske, jeg var på en messe i USA, og der var deres U-værdier og sådan noget, de var ret gode.

K: Ja, de er ret gode. Det man så kan sige, det er, at Danmark har så valgt på vinduesfronten, at det er fint at have en U-værdi, men det er også nødvendigt at – altså den varme, der kommer ind gennem ruden kan jo også bruges til noget, så derfor har man i Danmark valgt en måske lidt anden tilgang. Den vedvarende energi, solfangere, er vi også okay med, men ikke så meget på solceller.

T: Hvad er det forskellen er på de to?

K: Solceller producerer strøm, elektricitet, hvor solfangeren den er med til at varme vandet op.

T: Er der områder, hvor vi er decideret bagud i forhold til den udenlandske konkurrence?

K: Altså, jeg tror ikke materialemæssigt, der tror jeg faktisk, vi er rimelig godt med på de fleste områder, men jeg skal lige sige – jeg ved faktisk ikke helt hvor langt fremme, man er med den teknologi, men man begynder at arbejde meget med – det er også Tyskland, der er fremme med den – med at putte i væggene, for eksempel sådan noget, hvor man putter noget pulver i, som kan opsuge varmen og så frigive den igen ved temperaturskifte. Dér ved jeg ikke hvor meget, vi er med. Der er Tyskland altså – eller den virksomhed, der hedder BASF – igen meget langt fremme med at bruge det der skift og intelligente byggematerialer, men der ved jeg ikke, om vi er meget længere bagud end mange andre, hvis jeg skal være helt ærlig. Danmark har jo altid været kendt for højkvalitetsprodukter og det er jo også det her marked her. Så kan det godt være de også har en højere pris, men… Så, tror jeg, bygge*teknisk*, er de længere i andre lande, altså det med at sætte materialerne sammen og bygge husene.

T: Jeg lagde nemlig mærke til, at der er mange, der taler om – og det er så spørgsmålet, om du er enig i dette, og det vil jeg gerne høre din mening om – men at noget af det, vi også er kendte for i Danmark, det er det, at vi er gode til at samarbejde tværfagligt. Hvordan ser du det?

K: Hm… det er byggeriets kæmpestore problem. Problemet i Danmark, det er – og det er meget specielt for Danmark – at vores værdikæde i forbindelse med at bygge en bygning, den er stykket op i rigtig mange forskellige led. Og i de lande, vi sammenligner os med, der er mange af de led vokset sammen. Og det gør altså, at du kan styre processen på en helt anden måde, end du kan i Danmark. Og vi taber enormt meget viden, fordi vi starter forfra, hver gang der skal bygges et hus. Altså simpelthen. Der er mange af de samme ting, der går igen, og det er måske fordi, det er nye, du sætter sammen i nye konstellationer, og så er det måske, at de ikke har bygget et lavenergihus før, og så starter de forfra én gang til. Og viden, den bliver ikke automatisk flyttet over i et nyt led. Derfor taler man meget om at digitalisere byggeriet – det har man gjort i lang tid. Altså, jeg har været her i 3 år, og det har også været her 7 år før, jeg var her. Og man snakker meget om, hvordan kan vi blive bedre til at effektivisere vores byggeproces og flytte viden med over i leddene og lære af, hvad har andre gjort, og hvordan kommer vi videre her? Og der har vi stadig en *kæmpe* udfordring foran os. Og i mange andre lande, der er det jo også sådan, at entreprenørerne, altså håndværkervirksomhederne er kæmpe store, og de har både ingeniørerne siddende og arkitekterne siddende i samme virksomhed. I Danmark er vi jo i den grad kendt for at have nogle meget få, meget store spillere i det her marked, som står for en relativ lille del af byggeriet, faktisk, af det der bliver bygget. Og resten det er små håndværkervirksomheder – nogle gang med ned til 3-10 ansatte. Og der er altså et problem. Der er et stort problem dér. Og det bliver ikke løst inden for de næste tja… der skal de konsolidere osv.

T: Okay, så det er i hvert fald ikke dér, vi er foran i Danmark.

K: Nej, det er det bestemt ikke. Der er det i hvert fald ret sikkert og vist, at der er vi ret langt bagud pga. den måde, det er bygget op på.

T: Nu springer jeg lige lidt, men du nævnte Danfoss før. Er der andre virksomheder, som du kan nævne som markedsledere inden for nogle af de her teknologier, som du sagde, vi var foran med?

K: Jamen der er også Exhausto, de er inden for ventilation. Så er der selvfølgelig VKR, som nu kommer hastigt fremad med deres ting. Og så er der Grundfos, men det er mere på vandsiden af det, kan man sige. Og så er der sådan en lille virksomhed som Protec, der laver nogle af de bedste vinduer. Og så er der Rockwool og Saint Grobain, som jo i den grad også har det her som marked. Og Velux forsøger jo også.

T: Men Velux hører jo også ind under VKR, gør de ikke?

K: Jo, de gør. I forhold til tætning, der er det sådan nogle som DAFA, som stormer frem. Som virkelig har formået at få lavet noget og få nogle store markedsandele på det her.

T: I USA der er de jo netop, især efter alle de her hjælpepakker, der er kommet, så fokuserer de meget på det her "retrofitting", som de kalder det – især med henblik på energieffektivisering af bygninger. Men det virker som om, at det primært er mindre tweaks, end det er sådan en overordnet, gennemgående renovering, de satser på, men der kunne man jo forestille sig, at Danmark med vores viden inden for det, ville have nogle gode muligheder for at byde ind dér?

K: Ja, jamen det tror jeg også helt klart, vi ville. Jeg ved også, at nogle af dem er på vej derover, men altså vi har mest hånd-i-hanke med de danske afdelinger, det tror jeg også jeg skrev til dig, ikke også? Og mange af de store virksomheder, de har jo så etableret egne fabrikker derovre, simpelthen, eller egne enheder. Rockwool, tror jeg faktisk ikke har gjort det, men de har etableret sig i Canada.

T: De er i Canada, ja. Men jeg tror vist, at det er under Roxul brandet, at de har etableret sig derovre.

K: Nå det er under det brand. Okay.

T: Jeg lagde mærke til, at I under COP 15 havde et side event ude i Bella Centret. Hvad var det egentlig, at det gik ud på?

K: Jamen det gik lidt ud på at vise, hvad Danmark kan på det her område og sige, at vi er ret dygtige. Og det var jo så hele den danske byggebranche, der gik sammen der for at sige, at vi kan faktisk ret meget! Så det gik både på at fortælle noget om, hvorfor det er, at Danmark er nået så langt på det her område, blandt andet fordi vi har haft den regulering, vi har haft, og så gik det også noget på at sige, jamen arkitekterne, de stormer jo også frem, og mange af de danske arkitektvirksomheder, der er jo ude i udlandet. Også fordi man kan forene arkitektur og bæredygtighed, og det er jo så meget det, det også handler om. Og så blev det også sat ind i en større kontekst, det her med hvordan er det, vi også skaber byrum, og hvordan er det, vi skal tænke det her ind, når vi får mulighed for at kigge på hele bydele? Og der går vi mere på bæredygtigheden. Én ting er, at vi sørger for energi og miljø og klima, men også det her med det sociale aspekt – liv – og hvordan kan vi sørge for at få det fremmet? Og så gik det også på at fortælle lidt om det danske realkreditsystem – altså hvordan vi finansierer det her, og hvordan det adskiller sig fra andre lande?

T: Og hvem var det målgruppen var?

K: Målgruppen den var selvfølgelig deltagerne på COP'en og det var også det her med at sige "hallo, bygninger er enormt centrale og udgør en vigtig del og er måske ikke så fremtrædende i forhandlingerne ved forhandlingsbordet, så at sige". Så det var selvfølgelig også at gøre opmærksom på, at der er et stort potentiale i bygningerne og det her med, at det er en billig – relativ billig – og rentabel løsning og et godt sted at starte for mange. Så det var både at gøre opmærksom på det og sprede budskabet dér, og så var det selvfølgelig også over for vores medlemsvirksomheder. Det at organisationerne gik sammen, men også for at vise dem, at vi er her og vi vil gerne fortælle verden om, hvor dygtige i er. Så den havde også det fokus.

T: Hvordan gik det?

K: Vi fik relativ god respons. Ikke helt så god som Rockwools arrangement

T: Nå, de havde også noget derude?

K: Rockwool havde lavet en fantastisk sideevent. De havde fået IEA [International Energy Agency] og WWF – Verdensnaturfredningsfonden? – åh jeg er så dårlig til at huske de forkortelser. Men det var fantastisk. De havde formået at få naturfredning – som man normalt forbinder med pandaer – til at stille sig op og fortælle, hvorfor vi skal isolere huse. Det synes jeg var et scoop uden lige. Plus at IEA kom og sagde, at vi skal kigge på bygninger, og bygninger er det smarteste at se på.

T: Var det også ude i Bella Centret? Jeg troede ellers ikke, at enkeltvirksomheder kunne få lov til at holde events derude. Var det fordi de gik sammen med WWF eller?

K: Nej, de fik lov, fordi Klimakonsortiet havde nogle sideevents, de solgte. Og man måtte gerne, hvis man ikke brandede sig selv. Og det gjorde Rockwool ikke åbenbart, idet de ikke stod og fortalte om hvad Rockwool kunne, men de fortalte om, hvorfor Rockwool så der her som en spændende dagsorden, at det var vigtigt osv. Og så havde de de andre til at komme og fortælle, hvorfor det var, at man skulle isolere ens huse. Eller ikke kun isolere, men reelt set var det jo det, de stod og sagde. Og de formåede jo at komme 10 minutter i nyhederne om aftenen, så der var virkelig noget, vi alle sammen kunne lære noget af. Men det er selvfølgelig også mange ressourcer at bruge det, men det var en rigtig god eksponering.

T: Kender du egentlig til andre fremstød i forbindelse med COP15 eller ved du om nogen af jeres virksomheder har forsøgt at udnytte, at der nu var alt den opmærksomhed på Danmark i forbindelse med COP15?

K: Ja, altså der var flere. Saint-Grobain havde et passivhus, der stod ude i København på en af pladserne og så gik de sammen med en af radiostationerne om at sende ud om det – altså hvad fordelene var. Jeg ved ikke om det var The Voice eller hvem det var. De kørte hele ugen. Danfoss havde forskellige arrangementer rundt omkring også i København: En energieffektiv husbåd og flere forskellige ting, de kørte. Jeg tror også, de var repræsenteret på nogle af side eventene.

T: Ja de var i hvert fald hovedsponsor på Bright Green.

K: Ja der var de i hvert fald godt eksponeret. Og så havde Velux vist en sideevent med Lykke Friis, tror jeg.

T: Men de havde også fået lov til at sponsorere den der udgang ved Bella Centret, ikke?

K: De havde udgangen, ja netop. Og så var de selvfølgelig koblet op på EnergyTours. Og jeg tror også de kørte deres egen tur ud til Green Lighthouse. Så der var mange af vores medlemmer – og der er jo også mange af vores medlemmer, som er involveret i byggerier på den måde, som viser, hvad det er, vi kan. Så jo, de brugte det i den grad. Der blev sat rigtig mange kræfter af og mange ressourcer af til at markedsføre sig i forbindelse med COP'en.

T: Hvad tror du egentlig er konsekvensen af, at det ikke blev til en så ambitiøs aftale? For mange havde jo snakket om, at hvis der blev sat alle de her stramme krav, så ville det betyde, at udlandet blev nødt til at følge med, og så var Danmark allerede klar med løsningerne.

K: Jeg tror i hvert fald, der var en stor følelse af skuffelse og tomhed bagefter og sådan lidt "nu er vi ved at komme i gear igen" og nu er vi ved at tænke okay, jamen hvad gør vi så? Men altså, jeg tror de store virksomheder, de store koncerner, de ser det ikke som et tabt slag. Så arbejder vi bare på, at vi får en aftale under COP16 i stedet. Jeg tror, at selve budgetterne til at brande sig selv, de vil ikke være så store, som de var i forbindelse med COP15. Det tror jeg helt klart, vi kan sige. Og man kan måske også forestille sig lidt, at – jeg tror der var nogle meget urealistiske forventninger til, hvor meget vi kunne nå i Danmark – og jeg tror måske, at forventningerne rundt omkring i verden og andre dele af Europa var noget lavere. Og så dårligt resultat var det måske heller ikke. Og når man først har spist den, så tror jeg også, så kommer vi til at kigge på det her igen. Jeg tror måske, at det bliver lidt mindre på CO2 og lidt mere på forsyningssikkerhed i en dansk kontekst i hvert fald. Men det betyder sådan set ikke så meget for virksomhedernes dagsorden i den her henseende. De skal stadigvæk sælge de samme produkter, kan man sige. Og der er divergerende… der er også stadig nogen, der tror mere på klimatilgangen end den anden, men jeg tror ikke, den bliver lige så markant, den markedsføring, vi kommer til at se. Jeg tror også, at vores virksomheder havde en måske lidt urealistisk holdning til, hvor meget man kan påvirke i forbindelse med en COP og et globalt topmøde. Hvor meget er det, vi kan få indflydelse på området i forhold til hele verdenen? Og det tror jeg måske lidt de havde regnet med, at uhh vi skal ud til COP'en, og så skal vi sidde og forhandle med Obama nærmest. Og der kan man sige, der er selvfølgelig også en opgave for os i at få forventningsafstemmet fremadrettet, men jeg tror, de har fået en rigtig god plads at fortælle budskabet fra, og jeg tror også, at de er kommet igennem, så fokus vil også være der fremadrettet. Det tror jeg ikke, der er nogen tvivl om. Også fordi det er dér, vi skal sælge noget – altså det er dér, de kan noget. Men det bliver måske ikke med helt lige så mange kroner og ører bag.

T: Lige til sidst: Er der egentlig noget, som du synes kunne være interessant, når jeg nu skal ud og undersøge blandt en masse målgrupper i USA, som du synes kunne være interessant at få belyst i forhold til deres syn på Danmark og vores kompetencer?

K: Ja, det kunne være interessant at vide "hvad er kendskabet overhovedet?". Kender de overhovedet til Danmark og danske produkter på det her område? Og så måske også deres indstilling til … altså hvad er det for nogle typer produkter, de efterspørger, og hvad er det for nogle typer huse, de bygger. Altså, er de ambitiøse? Vil det blive byggeri i samme kvalitet som i Danmark eller vil det – fordi, hvis du kigger på LEED, så er det jo standardbyggeri i Danmark, stort set, det der bliver opført. Og hvor er vægtningen dér? Er det på energieffektivitet eller på hvilke materialer, du bruger eller hvordan kommer vi af med dem igen og alle de der ting? Og så også i forhold til regulering. Det kunne også være rigtigt spændende, fordi der kan man sige, at der kunne være en stor case i at gå hen og sammen lobbye for, hvad det er Danmark har gjort på det her område reguleringsmæssigt og lære af den måde, vi har gjort det på, og hvad det kan gøre. Og så samtidig køre det sammen med noget markedsfremstød for de her danske virksomheder. Det kunne være meget interessant at prøve at koble det sammen på den måde.

Appendix 2: Transcription of interview with Anita Kurowska Larsen

The interview was conducted (in Danish) on March 1, 2010 at the Danish Construction Association. Duration: 37 minutes. (**T**= the interviewer and **A** = the interviewee).

Interviewee's professional background:

Export Advisor at Danish Construction Association (**Dansk Byggeri**)

Transcription:

T: Jamen lad mig lige kort fortælle, hvorfor det er, jeg har kontaktet jer. Det er som sagt fordi, jeg er ved at skrive speciale om, hvordan Danmarks indsats på klima- og energiområdet kan udnyttes kommercielt af danske byggevirksomheder, som eksporterer. Og mit fokus er primært på Danmarks image inden for det her område i USA, men det her møde var egentlig mere tænkt på hvordan ser vi selv vores kompetencer inden for det her område, og også måske, hvis I er ude på et eller andet marked – det behøver ikke nødvendigvis at være USA, hvad er det så for nogle ting, I fremhæver ved Danmark?

A: Ja okay. Jeg vil sige det her med klima og energi, det er inden for vores branche stadig lidt nyt stof. Det har jo selvfølgelig ikke været i forbindelse med henholdsvis COP14 og COP15 derefter. Men vores branche har været lidt langsomt til at begynde at tænke i de baner. Og det er ikke udsædvanligt, kan man sige. Byggebranchen er lidt konservativ og det er ikke hovedparten af vores virksomheder, der er banebrydende. Man kan sige, at hvis du tager byggebranchen helt bredt, så har du jo arkitekterne, og de har jo selvfølgelig tænkt i holistiske baner i rigtig lang tid. Men tager du vores medlemmer, det er lidt over 6000 virksomheder, det er primært håndværkere, det er entreprenører, det er de helt store virksomheder, men det er også de helt små – helt ned til enkeltmandsvirksomheder. Og så har vi en del betonvirksomheder. Det kan være nogle som laver bittesmå ting, som betonsten, som du har på fortovet, det kan være store ringe som laves til rør, til kloakrør, det kan være dem, der laver elementer til byggeri, og det er dér, de også er begyndt at kigge lidt på, jamen beton er faktisk et bæredygtigt materiale og det argumenterer de så for. Tager du vores træbranche – ca. halvdelen af vores virksomheder er med i noget, der hedder træsektionen – og det vil sige, det er alle de virksomheder, som på en eller anden måde arbejder med træ. Og det kan være på mange forskellige måder. Det kan være virksomheder, som laver vinduer, det kan være nogle som laver møbler, og det kan også være nogle, som laver store strukturelle elementer. Og de vil jo også godt være sig fra sin mest bære dygtige måde. Jeg har samlet lidt materiale til dig…. *(forklarer lidt om disse materialer)*.

A: Noget af det, som danske virksomheder også har arbejdet på, det er klimasikring. Hvis du f.eks. tænker på det nye skuespilhus. Det er bygget klimasikret, dvs. det er bygget højere og bygget med nogle fundamenter, som kan tåle at vandstanden stiger. Og så er der også noget med at bygge diger og veje og anlæg, altså tænke fremadrettet, så man bygger det på en måde, så det bliver klimasikret. Det er måske noget, som er mere relevant i forhold til hvad vores virksomheder kan præstere, også måske i USA. Fordi vi har jo nogle enkelte husproducenter, som godt kunne noget der, men det er meget dyrt at tage et helt hus til USA, og så har jeg også hørt, at i hver stat i USA, så er der anderledes bygningslovgivning.

T: Det er der også. Hver stat har hvert sit bygningsreglement. Jeg ved, at der arbejdes på at harmonisere dem, men der er laaang vej igen.

A: Ja, altså det er langt væk, det er et vanskeligt marked, som har et vanskeligt ry, også. Så det er ikke et marked, som nogle af vores ville kaste sig over sådan umiddelbart. Vi har noget, der hedder eksportsektionen *(viser en brochure med profiler på en række virksomheder)*. Det er sådan nogle, som arbejder i hele verden. Fuldstændigt ligegyldigt om det er Norge eller det er Panama, eller hvad det er. De er primært i Europa, men også i mange lande. MT Højgaard har godt nok meldt sig ud af Dansk Byggeri, så de er ikke med i eksportsektionen mere. Men i forhold til den gruppe, der ville være interessant for dig, der er de også med. Her kan du også se, hvilke aspekter, de forskellige specialiserer sig i. Så, altså tænker vi huse, så er det vanskeligt. Tænker vi enkelte elementer, vinduer osv. så er det mere aktuelt. Der er også allerede nogle, der er derovre, men jeg har ikke helt tjek på hvem. Men jeg kunne forstille mig at Velux og Velfac selvfølgelig er der, for de er over hele verdenen.

T: Nu sagde du før, at der ikke var så mange af jeres medlemmer, der har beskæftiget sig så meget med det her, men fornemmer du, at der er ved at ske et skift imod mere fokus på energi- og klima osv. i den danske byggebranche?

A: Helt sikkert. Altså dels har vi jo snakket en del om det – her får du også en oversigt over, hvad er der egentlig er byde på. Det er min kollega, der har lavet den. Den er godt nok fra foråret 2009, han har ikke haft mulighed for at opdatere den, men der har du faktisk de produkter, projekter og systemer, som har relevans til energieffektivitet. Og der er den altså delt op, man kan se, hvad der er inden for boliger osv.

T: Ja for er der nogle bestemte områder, som du kunne nævne, f.eks. vinduer eller isolering, hvor I mener, at der er Danmark foran udlandet?

A: hvis jeg skal være helt ærlig, så kan jeg simpelthen ikke bedømme det, om vi er foran eller ikke er foran. Jeg tror, det kommer utroligt meget an på, hvilket perspektiv, du kigger fra. For der er enkelte produkter, som er rigtig rigtig glimrende, men jeg ved også, at der på et tidspunkt for ikke så længe siden ikke har været – i forhold til aktivhuse – vinduesproducenter i Danmark, så hvis man ville noget, så måtte man importere dem fra Tyskland og det er jo lidt pinligt. Men det er ved at ændre sig nu. Dansk Byggeri udbyder også nogle energivejledningskurser. Og det er noget helt nyt. Og de første hold, de første 700 mener jeg, er igennem. Der er en del interesse, dels blandt private folk, der gerne vil have minimeret deres energiregning, men selvfølgelig også virksomhederne, der skal lave det. For de har ikke før følt sig rustet til at kunne vejlede forbrugerne omkring de bedste løsninger på det her område. Så der er simpelthen kommet nogle energivejlederuddannelser. Dels med hvad er der af tekniske løsninger i dag på markedet og hvordan regner man ud, hvad der kan betale sig for den enkelte husejer.

T: Og det er noget, I udbyder til jeres medlemmer?

A: Ja. Det er nogle forholdsvis korte kurser, men det er jo ikke fordi, at håndværkerne skal lære alting fra starten af. Det er mere, hvordan beregner man de her ting og hvad er der af nyt på markedet og hvordan rådgiver man om det. Hvad er der ellers…? Altså, der er tre ting. Det ene er nybyggeri, og ret så skrappe krav for fremtiden. Men det er jo en ganske lille andel af den samlede bygningsbestand, der består af nybyggeri. Så den største udfordring er jo selvfølgelig energirenovering af de eksisterende bygninger. Og der kan du se i noget af det materiale, du har fået, at der er allerede sket noget. F.eks. Albertslund Kommune er godt i gang.

T: Ja for i USA, også i forbindelse med alle de hjælpepakker, der har været, er der jo meget fokus på forbedring af energieffektivitet i forbindelse med renoveringer. Og der kunne man jo forestille sig, at der ville Danmark med de kompetencer, vi har, der ville vi jo have noget at byde ind med dér.

A: Altså, vi har jo kæmpet for at der skulle komme hjælpepakker på bordet herhjemme i forhold til energirenoveringer, fordi det har været vanskeligt for enkeltpersoner at skulle låne til de ret så store og gennemgribende investeringer med et marked, der har været. Og når det er noget, som betaler sig tilbage over meget lang tid, så er det svært at punge ud med så mange penge. Og der har jo været en pulje, men den var jo ikke ensidigt rettet på energitiltag. Der var vist nok noget med enkelte materialer, som var godkendt, som man kunne få støtte til, men det var ikke helt som vi godt kunne tænke os. Vi kunne godt tænke os, at der kom noget, som var mere udtalt i retning af energieffektivitet. Så der kan man sige, der har vores naboer været fremme i forhold til os.

T: Hvad er det typisk for nogle lande, vi er i konkurrence med i forhold til det her område?

A: Altså, vi plejer at kigge på Norge, Sverige og Tyskland. Men lige præcis i forhold til energieffektivitet, der er Norge bagud. Fordi de pga. deres olie og vandkraft har haft enormt billig energi, og dermed fulgte der også en vis mentalitet. Hvor vi jo i 1970'erne har haft en oliekrise, der tvang os til at tænke anderledes. På det tidspunkt havde vi også en bølge, hvor der blev hulmursisoleret osv. Og de første vinduesløsninger kom også den gang. Og der havde man også uddannelser osv. Altså, der var en ordentlig bølge, hvor der skete noget på det område, og så har den ligget fuldstændig stille siden. Der har Tyskland så buldret derudaf med deres solenergi, hvor de har givet flere penge i tilskud til dem, som har solenergi og så putter det ind i elnettet. Det har vi også haft lidt af i Danmark, men Tyskland stærkere på området. Tyskland har også haft meget mere målrettet, og i længere tid, programmer, som CO_2 bygningssanering.

T: Hvad vil det sige?

A: Det vil sige, at man dels kunne få gratis rådgivning helt konkret på *din* bygning. Der kommer en person ud og måler og regner på din bygning og siger, at i dit tilfælde vil det bedst kunne betale sig at putte penge i den her løsning eller den her løsning – Fuldstændig gratis – eller var det gratis, nu kommer jeg i tvivl… Men det kan vi tjekke. Men så derefter, så kan man få meget meget rentebillige lån fra et særligt kreditinstitut – KFW – Der kunne man så få meget, meget billige kreditter, som er øremærket til bygningssanering, dvs. energieffektive renoveringer af eksisterende byggeri. Og der var også muligheder for at få nogle direkte tilskud på nogle enkelte ting. Og der er etableret nogle lokalecentre, så du ikke som privatperson skal ud og finde ud af en masse. Du ringer bare til dem og spørger, hvad man kan få tilskud til. Så de har altså sat det fuldstændig i system, og det kan de jo så få lov til at blære sig med. Siden de startede de her programmer i 2006, så er der allerede flere millioner boligenheder, som er blevet renoveret. Og der har vi jo altså i Danmark sovet i timen fra det politiske holds side, kan man sige, fordi… - eller der var jo en meget bevidst holdning fra politikkernes side, der sagde, jamen det er markedet, der skal styre det. Vi kommer ikke med nogen tilskud eller noget hjælp. Hvis der er et behov, så skal markedet nok svare. Og man kan sige, det har det også gjort, der er et behov og markedet er ved at svare, men det kunne godt have været gjort noget hurtigere.

T: Ja, for I har jo også arbejdet for – som du siger, så har vi et af verdens strengeste energikrav i vores bygningsreglement – men I har også arbejdet for, at det skulle strammes, ikke?

A: Jo, det har vi. Og der sidder vi jo, altså ikke mig, men der sidder selvfølgelig en række folk med i de forskellige udvalg, der er med til at bestemme lovgivningen, hvor vi også kommer med høringssvar og ønsker og der kunne vi selvfølgelig godt tænke os, at politikkerne lyttede endnu mere til os, men sådan er det jo. Det er jo vores medlemmers interesser, vi skal repræsentere i de henseender. Men lige i forhold til energieffektivisering, der kan man sige, at det jo ikke kun er vores medlemmer, det vil komme til gode. Det er lidt bredere, vi ser på det. Det vil også komme klimaet til gode – og de mennesker, som kommer til at bo bedre. I forhold til renoveringen af eksisterende bygninger, der ville det hjælpe, hvis regeringen gik ud og sagde, at det næste stykke tid, vil vi fokusere målrettet og gå efter kontor- eller fabriksbygninger, eller boligbyggeri, fordi selv hvis der ikke kommer nogen tilskudsordninger, men man melder ud, at fokus vil være her, så begynder branchen at målrette deres udvikling af metoder til lige præcis det byggeri. Men det er lidt ønsketænkning. Dér hvor man er gået i gang med at lave meget meget interessante eksperimenter, det er Energy Flex House. Det de gør, det er, at de har bygget en skal og ved at sætte skillevægge op inden i, kan de simulere et helt bestemt type byggeri. De kan f.eks. lege at det er en blok eller boligbyggeri, der er bygget af beton i 70'erne osv. Og så kan de lave skallen om inden i og simulere forskellige typer byggerier. Og så kan de tage én ting ad gangen og ændre på den og måle hvilken effekt, det vil have. Det er utroligt interessant, i og med at de hele tiden kan afprøve forskellige teknologier. I et af husene har de så hele tiden en familie boende i 3-4 måneder, som gerne skulle repræsentere en gennemsnitsfamilie i Danmark til at afprøve de her ting på deres egen krop.

T: Har I været inde over det projekt? Nu kan jeg nemlig se, der står Dansk Byggeri på den her pjece?

A: Øh, ja det har vi, men lige i hvilken form, det ved jeg ikke. Men det er en af de ting, som vi helt klart støtter. Under EnergyTours, der var det også et af de steder, der blev meget besøgt. Kender du EnergyTours?

T: Ja, det gør jeg.

A: Og jeg kan fortælle, at EnergyTours kommer til at fortsætte – også ud over maj, fordi der er et marked.

T: Det er jo Klimakonsortiet, der arrangerer dem, og der er I også medstiftere, ikke?

A: Jo, vi har været en af de medstiftende og kassegivende medlemmer, ja.

T: Har I følt i det hele taget, at al den opmærksomhed, der har været på Danmark i forbindelse med COP15, at jeres medlemmer har kunne udnytte den eller at I som organisation har?

A: Ikke så meget, som man vi kunne have ønsket os, fordi at vores medlemmer som sagt ikke har været så meget fremme i skoene selv. Og det, der blev vist frem, det var jo meget – ja Energy Flex House, som er en teknologisk legeplads for fremtiden, hvor man kigger på fremtidens løsninger. Og så har vi haft nogle enkelte medlemmer, som lavede noget interessant. Altså, det andet det var Københavns Universitets kontorbyggeri – Green Lighthouse – som et af vores medlemmer har været med til at opføre. Så der er nogle enkelte steder, hvor vi havde noget at vise frem, men slet ikke så meget, som man kunne have ønsket sig. Men sådan er virkeligheden.

T: Var I med til den event ude i Bella Centret, jeg tror den hed Building Green in Denmark?

A: Der var vi med ja, via Klimakonsortiet og sammen med flere andre organisationer, arkitekterne, rådgivende ingeniører og DI. Jeg ville godt have været med til det, men vi havde så mange problemer med vores akkreditering. Det var meningen, vi skulle have været på Klimakonsortiets stand hele ugen, men det viste sig at være nærmest umuligt at få adgangskort.

T: Men hvad var formålet med den sideevent, I havde derude?

A: Det var jo selvfølgelig at vise de danske kompetencer. Der var faktisk alle de her underoverskrifter, både med arkitekter og så fra forretningsorganisationer, med de typer byggerier der er, og de typer problemstillinger, der er. Og der var faktisk også noget med finansiering. Altså vores lidt enestående finansieringsmodeller med realkredit osv. og hvilke udfordringer, der er dér. Det er muligvis noget, der kunne fremskaffes, altså de præsentationer, der var der, hvis du er interesseret?

T: Det må du meget gerne.

A: Men altså Energy Flex House, det synes jeg virkelig også kunne være interessant at se nærmere på, fordi det ikke er én producent, der står bag og siger "mit produkt er det bedste", men det er mere objektivt, hvor man tager og afprøver forskellige teknologier og siger, hvor fungerer det bedst? Hvordan påvirker de forskellige løsninger hinanden? Og hvordan opnår vi bedst mulig energieffektivisering, samtidig med at vi beholder et godt indeklima? Altså, der tænker man virkelig helhedsorienteret.

T: Laver I i jeres afdeling – måske ikke lige til USA – men laver I eksportfremstød for jeres medlemmer til andre lande?

A: Vi laver dem ikke selv. De fremstød, som der er lavet, det er typisk ambassaderne, der står bag. Og så kan vi jo så støtte det og cirkulere det i medlemskredsen og være med som sparringspartner omkring hvilke virksomheder, der kunne være relevante, og hvilke markeder, der kunne være relevante. Men vi laver dem ikke selv. Men altså, vores branche er rimelig hjemmemarkedsorienteret. Lige i disse tider, hvor konjunkturerne har det som de har det, der er rigtig mange spørgsmål, men det er primært fra håndværkere og entreprenører, der skal give et tilbud på udskiftning af vinduer i Norge eller levering af betonelementer eller sådan noget. Det vil sige, det er nogle helt andre spørgsmål, vi sidder med.

T: Så I har ikke rigtig nogle materialeproducenter i jeres medlemskreds?

A: Vi har en industrisektion, hvor der er måske 50 medlemmer. Altså vinduesvirksomheder, men der er mange af dem, der er gået konkurs eller har opkøbt hinanden. Der er virkelig sket en konsolidering i branchen. Og resten af industrisektionen, det er sådan nogle som industrilakerer, så der er nogle virksomheder, der virkelig har en industriel tilgang til det, hvor der er tale om industriproduktion og ikke sådan traditionelt håndværk. Og så har vi de her betonfolk, som laver de forskellige betonelementer. Så det er ligesom den type producenter, vi har. Ja, og så nogle enkelte virksomheder, som laver møbler, altså snedkere. Men vi opfatter os meget som dem, der omfatter branchen – dvs. industri er en del af det, men det er altså primært bygge- og anlægsvirksomheder – de udførende erhverv, altså.

T: Som du selv siger, så er der mange interessenter i værdikæden i byggeriet. Hvordan vurderer du Danmarks evne ti at samarbejde tværfagligt og levere totalløsninger? Altså videndeling i branchen?

A: Vi har forsøgt at få branchen til at tænke mere helhedsorienteret. Vi har LEAN og vi har partnering og det har måske slået igennem på enkelte områder. Men ikke godt nok. Der kunne sagtens ske forbedringer i forhold til sammentænkning af det hele. Men altså, hvis man kigger ud i verden så har vi i Danmark ry for – i hvert fald når vi tænker på de her store danske virksomheder, som går ind og løser projekter, hvor det er jo ikke sådan at de tager folkene fra Danmark, de kommer og leverer løsningerne – og det, som de er gode til, det er at kigge på situationen og finde frem til den helt perfekte løsning. Så ja, det er vi gode til. Vi kunne være endnu bedre til at gøre det herhjemme. Der er meget spild og meget dårlig kvalitet, som man sagtens kunne undgå. Men sammenligner vi sådan på verdens plan, så er vi faktisk ret dygtige. Kuldebroer er især noget, vi har været meget opmærksomme på i mange år at minimere. Altså det der med, at tingene skal sættes rigtigt sammen, så man undgår kuldebroer. En anden ting, som vi er vist nok de bedste i verden til, det er det digitale byggeri. Det er et system, som i enkeltdele findes i hele verden, men vi er vist de første, som har taget hele processen og digitaliseret den. Og den er ved at blive implementeret i disse år. Vi har været med til at udvikle systemet og til at teste det med diverse virksomheder. Det foregår på den måde, at man har computersystemer, hvor man tegner og dvs. at man ikke sidder og tegner på papir mere. Og hvis der så kommer ændringer undervejs, så har man adgang til serveren, og så kan man ringe og tale med arkitekten. Så næste gang en håndværker går ind i skuret med computeren, så har han hele tiden adgang til den nyeste version af tegningerne og derved sparer man en masse spildtid ved at det hele foregår digitalt. Det gør det også meget lettere i forhold til indkøb af materialer osv. Der kan undgås en masse dumme fejl. Og det er noget, man laver efter international konglamatur. Så det er også potentielt noget, som man kan eksportere senere. Og det er møntet på hele byggeprocessen – ikke kun med henblik på energieffektivisering – men det vil kunne implementeres meget nemt her.

T: Jeg skal lige høre her til sidst: Er der noget som du eller i forhold til jeres medlemmer synes kunne være interessant at undersøge, når jeg nu skal ud og undersøge det her blandt målgruppen derovre, som du synes kunne være interessant at undersøge i forhold til, hvordan de ser os og vores kompetencer?

A: Det kunne være interessant at se, hvad de anser for vores styrker. Altså, hvis de ved noget konkret er det jo dejligt, men meget af det er også sådan noget med forventninger. Altså hvad forestiller de sig, hvordan ser de Danmark? Og branchen? Det kunne være meget interessant at finde ud af.

T: Men der er ikke nogle specifikke områder, hvor man kan sige ”sådan mener vi selv, at verden hænger sammen, men gad vide om de andre også opfatter det sådan?”.

A: Nej, det kan jeg ikke lige komme i tanke om.

T: Okay, men hvis du kommer i tanke om noget, er du meget velkommen til at skrive til mig.

A: En anden ting, man forresten kan sige, at vi er gode til i Danmark, det er genvinding af varme, altså i forbindelse med isolering. Og så er det genanvendelse af materialer. Vi har en meget høj genanvendelsesprocent i byggebranchen i Danmark på omkring 90%, og det er noget specielt i forhold til andre lande. Og det kunne måske være interessant i forhold til USA, som jo har meget byggeri, der skal rives ned. Lad os sige, at de har rigtig dårlige huse, der på grund af storm eller hvad ved jeg, så kan man måske genanvende en stor del af det, hvis man ellers ved, hvordan man skal sortere det og komme af med de materialer, så der var måske noget?

Appendix 3: Transcription of interview with Martin Lidegaard

The interview was conducted (in Danish) on February 25 at Concito. Duration: 38 minutes.
(**T**= the interviewer and **M** = the interviewee).

Interviewee's professional background:

Chairman of the Danish green thinktank, Concito.

Transcription:

T: Jeg vil høre, om du ikke kort lige vil starte med at fortælle lidt om Concito?

M: Jo, altså Concito er en ny grøn tænketank, der har eksisteret i ca. halvandet år. Vi har 90 medlemmer – en tredjedel er virksomheder, herunder for byggebranchen Rockwool, Henning Larsen og så alle de rådgivende ingeniørvirksomheder. Den anden tredjedel er forskere, en del også inden for bygningsområdet, og den tredje slags medlemmer, vi har, det er så grønne organisationer som Green Peace og Verdensnaturfonden . Og det fordeler sig sådan med en tredjedel på hver. Og det vi laver, er løsninger, kan man sige, som vi dels prøver at formidle til politikere – det er sådan noget med rammevilkår, skatter og afgifter, lovgivning, dels til virksomheder – det er et spørgsmål om at fremme energibesparelser i virksomhederne og til almindelige borgere – vi laver skolebøger og har et netværk af unge studerende, som vi prøver at uddanne til at blive klimaledere og sådan. Så det er det vi laver basalt set og vi favner ganske bredt, som du kan se både i medlemskredsen og i de aktiviteter vi laver og er fundet af almene private fonde.

T: Jeg kunne godt tænke mig at starte med COP15, som der, må man sige, har været utroligt meget fokus på herhjemme og som også gerne skulle skabe noget fokus for Danmark sådan udadtil. Nu gik det jo ikke helt som man kunne have håbet på i forhold til den her store bindende aftale. Hvad tror du det har af konsekvenser for Danmarks eksport?

M: Ja, altså der er to spørgsmål. For det første, hvad betyder det for hele klimadagsordenen? Og det er jo en lang historie, som – altså jeg er ikke så pessimistisk som andre er, fordi der er en utrolig stor del af erhvervslivet, der har engageret sig i det her og fordi prisen på de fossile brændstoffer stiger, så der vil komme et naturligt fokus på det. Men altså, lad os tage det væk og så kigge på Danmarks position – og helt overordnet tror jeg, at vi skal være helt klar på, at selv om det har fyldt helt utroligt meget i Danmark, at Danmark skulle have det her værtskab, selv om både kritikken af Lars Løkke og formandskabet og alt muligt andet har fyldt enormt meget, så helt overordnet set så er resten af verdenen bedøvende ligeglade med det. Det har været totalt overvurderet, synes jeg, hvor meget det kunne give Danmark, men af samme grund tror jeg ikke man skal være så bekymret for at det manglende resultat ved COP15 vil afspejle negativt.

Når du så spørger, hvilken position *har* Danmark, sådan mere permanent, så – altså det er ikke noget, vi har undersøgt, det bliver jeg lige nødt til at sige, så det er sådan lidt et skud fra hoften – men jeg kan give dig 2 eksempler, som fortæller mig, at inden for de miljøområder – på det amerikanske marked for eksempel, hvor man beskæftiger sig med det her, der tror jeg sådan set, at Danmark har et ret godt navn. Når jeg nævner det, så er det fordi, at under COP'en, der gav jeg et interview til Los Angeles Times, hvor jeg gjorde opmærksom på – de kom og spurgte om det samme – og der var jeg ondskabsfuld nok til at sige, at Danmark er rigtig gode til nogle ting – og det er vi også – men der er altså også nogle ting, som vi ikke er så gode til, og så nævnte jeg vores affaldssektor, som vi ellers er meget stolte af, men vi er faktisk et af de lande i verden, som producerer mest affald per indbygger. Det er der ikke så mange, der er klar over, men det er vi – og det er jo ikke så fedt. Og det tog altså en forsideoverskrift i Los Angeles Times, hvor historien så netop blev vinklet sådan, at det mest grønne land i verden har altså også deres problemer. Jeg modtog en overvældende reaktion fra amerikanske grønne aktivister som synes det var illoyalt og forkert af mig, at jeg påpegede det, fordi at Danmark, skrev de, i den grad er den rollemodel, som man har brug for at have i USA for at kunne sige, at man kan godt være et veludviklet industrisamfund og rigt samfund og samtidig være miljøvenlige. Så det gav da sådan en indikation af, at der faktisk er lagt mærke til det – Obama brugte det i den berømte tale og og så videere … Og når du så spørger specifikt ind til bygninger, så kan man sige: én ting er, hvad vi gør godt. En anden ting er hvad opfattelsen os er. Det tror jeg vi skal skille lidt ad.

T: Det vil jeg meget gerne, ja.

M: Ja, skal jeg bare fortsætte eller…?

T: Ja, hvis du vil starte med hvad du så mener, at vi gør godt – altså hvor er vi foran i forhold til udlandet og hvor sagter vi måske bagud.

M: Ja – på bygningsområdet altså?

T: På bygningsområdet, ja.

M: Der er to områder, hvor Danmark er outstanding i forhold til resten af verden. Og det ene er regulering af vores boligsektor, altså hvis du kigger på den lovgivning, vi har med energikrav, energimærkning og alt det der, så findes der ikke noget land i verden, der har en mere detaljeret og mere gennemgribende regulering af byggesektoren – både for så vidt angår nybyggeri og for så vidt angår – nu, omsider – af renovering. Det andet er, at vi jo har indlemmet to tredjedele af vores boliger i fjernvarmeområder. Og det største eventyr, vi har haft i Danmark og grunden til den berømte flade kurve i energiforbruget samtidig med, at vi har haft økonomisk vækst, det skyldes kraftvarme. Altså at du bruger det spildvarme, når du producerer elektricitet, typisk, så skal du køle dine turbiner af bagefter og det varme vand…

T: Altså rent faktisk udnytte den i stedet for at lade det gå til spilde.

M: Ja. Alle andre de smider det bare lige i havet. Det gør vi også meget mere, end vi burde, men vi bruger også størstedelen til at varme vores boliger op. Og dén effektivisering og udbygning af fjernvarmesektoren, det er der ingen andre lande, der har gjort i samme omfang. Der er mange lande, der kender til fjernvarme og princippet, men dét at over 60 procent af boligerne faktisk er tilsluttet, det er ganske specielt og er grunden til at vores såkaldte energieffektivitet… Ja, det behøver jeg egentlig ikke uddybe nærmere… Nu røg jeg lidt ud af en tangent, men altså de to ting er virkelig specielle og noget vi kan i Danmark. Så er det klart, at energien kommer også fra vedvarende energi og så videre, men det har egentlig ikke noget med boligerne som sådan at gøre. Så det er vi gode til. Hvad vi er mindre gode til, det er jo så nybyggeri, forstået som det at udvikle lavenergiklassehuse, passivhuse og dem slags, der er lande som Tyskland, Østrig og Schweiz laaangt foran i at lave komponenter og sådan – altså du ved jo mere du kan få sådan et hus ned – det gælder både den ene og den anden slags, på komponenter, sådan at du ikke skal bygge unikke huse, men kan seriefremstille…

T: - standardisere i stedet?

M: Ja, så bliver det meget billigere at bygge – der er de andre lande altså meget længere fremme, altså inden for nybyggeri. Det har vi ikke været specielt gode til. Man må også sige – og det er sådan mindre kendt – at én ting er hvad vi har stående i vores lovgivning, så selv om vi har en god regulering, så bliver det altså ikke fuldt, ved vi også. Dels fordi håndværkere og boligejerne ikke kender til den, og det er fordi – vil nogen sige – de er for restriktive… I hvert fald, én ting er at du har det stående på papiret, en anden ting er om du rent faktisk gennemfører det. Det tror jeg så heller ikke, der er andre lande, der gør, men det er bare for at sige, at man skal også passe på med at pudse glorien, fordi der er altså et ret stort stykke vej fra at skrive noget på et stykke papir til det rent faktisk sker ude i verdenen.

T: I forhold til USA, der har der været alle de her vækstpakker, hvor der har været ret meget fokus på det begreb, som de kalder ”retrofitting”, altså energiforbedringer i forbindelse med renoveringer, der alligevel skal foregå i bygninger – især offentlige bygninger er blevet afsat mange midler til det. Altså, det er vel noget vi kan finde ud af her i Danmark?

M: Altså de offentlige vækstpakker inden for bygningsområdet, endte jo i Danmark med – af uransagelige årsager – ikke at blive specielt grønne. Altså, man kunne godt få tilskud til at lave grønne ting, men man kunne også få tilskud til at lave samtalekøkkener. Altså, det var ikke fokuseret på energi sådan set, hvor der er nogle af de ting de laver i USA er sådan set langt mere fokuserede. I bygningssektoren – du ved de lavede en ordentlig vækstpakke – men altså i forhold til bygningssektoren, var de ret nøje udvalgt til at gå til grønne renoveringer og isoleringer osv. – de har også noget at skulle indhente skal man så sige. Så der er vi ikke specielt meget foran. Offentlige bygninger ved vi ikke – jeg sad faktisk netop, da du kom, og arbejdede på en undersøgelse, vi er ved at lave sammen med kommunernes landsforening – og det er jo kommunerne, der ejer langt den størstedel af offentlige bygninger i Danmark. Staten har jo kun ministerierne og så lidt fredede bygninger. Langt de største dele af kommunerne – er det vores indtryk efter vores foreløbige resultater – der er vi ganske godt med. Der er meget få kommuner der, når de alligevel skal ud og renovere, ikke gør det ordentligt, siger de i hvert fald. Så det er nogenlunde okay. Men igen, det der gør, at Lars Løkke, Connie Hedegaard og Lykke Friis kan løbe rundt i hele verden og på det amerikanske marked og sige "Danmark har haft 70% økonomisk vækst siden 1980 og ingen stigning [i energiforbruget], det er ikke isolering af bygninger – det er fjernvarme. Det skal du være opmærksom på. Vi lavede i forbindelse med den første oliekrise i starten af 70'erne, blev det isoleret ganske pænt, i stor del af den danske bygningsmasse. Men siden da, er det ikke blevet til så vidt.

T: Kom det første bygningsreglement ikke også i slutningen af halvfjerserne eller sådan noget?

M: Nej… Vi havde et bygningsreglement allerede tilbage i 1930'erne…

T: Men altså i forhold til energi og indføring eller energikrav eller er det noget jeg har misforstået?

M: Hm… nej… Altså det er rigtigt at man først for alvor satse turbo på her, men jeg tror der allerede havde været en meget lempelig regulering inden, men det er rigtigt at man satte først tommeskruerne på dér og begyndte at lave tilskud osv. i halvfjerdserne, ja.

T: Hvordan tror du egentlig, nu nævnte du selv regeringen, nu har der jo været rigtig meget fokus på det i 2009 i hvert fald, og der er blevet oprettet Klimakonsortiet osv. Tror du det dør nu, hvor ligesom ikke rigtig er – altså jeg synes jeg har hørt Lykke Friis være ude at sige, at det ikke bliver Danmark, der – selv om vi stadig officielt har værtskabet – kommer med nye klimainitiativer op til COP16…

M: Altså, Danmark gør jo en hel del… Danmark er faktisk det land i verden, hvor cleantech i andel af eksport er den langt højeste – altså det har jo for længst overgået svinene og alt andet… det kører bare sådan her opad [løfter armen for at vise en stigende udvikling]. Og nu hvor vi har krisen, kan vi se, at det er uden sammenligning energiindustrien, der klarer sig bedst ude i de forskellige produktionsvirksomheder. Så, altså jeg tror, at – og Klimakonsortiet vil fortsætte i en eller anden konstellation. Man har lavet en rimelig stor pulje, som de blandt andet kan søge i, men også sådan nogle som os og andre erhverv med henblik på at promovere dansk cleantech – dét spor, vil man forfølge, det tror jeg. Det er nok det eneste jeg kan sige med sikkerhed, at enhver regering ville forfølge. Hvad der er mere skuffende, er hvor langt man har at gå i forhold til rammereguleringen på det danske marked. Og det er fordi, man tænker, alle de store aktører på området; Vestas, Grundfos, Danfoss, der betyder udemarkedet meget mere end hjemmemarkedet, så det med at der skal være et hjemmemarked, det tror vi ikke rigtigt på. Dernæst, så har der været en tendens til at tro, at det koster penge, at det at stille krav til nybyggeri, det at udvide vedvarende energi, sætte gang i en livs-cost-cyklus det er noget, der koster penge.

T: Det er sjovt, fordi det virker som om, at byggebranchen, de vil gerne have mere regulering.

M: Byggebranchen, altså dansk byggeri osv. de står i kø for at sige "Kom nu i gang for helvede" med at stille nogle flere krav, sæt gang i nogle flere offentlige renoveringer, lav en effektiv energimærkningsordning og alt det der. Og der er et ganske stort potentiale, hvis man ville og kunne være med til at skabe flere grønne jobs, som med sikkerhed ville ligge i Danmark med investeringer der vil gavne vores budgetter markant i de kommende 10 til 20 år. Så altså jeg synes jo det er politisk idioti ud fra enhver betragtning, økonomisk, politisk whatever, at det skal være så svært og jeg tilskriver det simpelthen, at der – ja jeg ved ikke hvad fanden der foregår – manglende viden.

T: Jeg har tænkt over, hvis man gerne vil have den strammeste regulering på området, om man ikke på kort sigt i hvert fald risikerer, at forværre Danmarks konkurrenceevne ved at gøre det så meget, men det bliver måske hentet ind på lang sigt eller hvad vurderer du?

M: Hm… Altså det er jo en klassisk diskussion. Du kan sige, du har 2 yderpunkter i den diskussion: Den ene vil sige, nu skal der simpelthen bare knaldes på med grønne afgifter og restriktiv regulering, for så tvinger du industrien til at udvikle sig. Dem, der har dét synspunkt, har det helt klare – og det viser en undersøgelse, der er lavet af nationalbanken, af de økonomiske råd, alle mulige, der siger, at det er der noget om. Der er en grund til, at de danske produktionsvirksomheder er blandt de mest effektive i verden. Det er fordi vi har haft grønne afgifter i modsætning til de andre. Helt modsat i den anden ende, er der det, der typisk er Dansk Industris synspunkt, at hver gang man lægger grønne afgifter på en dansk virksomhed, så selv om den er blandt de mest effektive i verden, så tvinger man den til at flytte produktionen udenlands, sådan at de grønne afgifter egentlig arbejder helt imod det, de skulle. Og for det taler selvfølgelig at der i forvejen er store omkostninger forbundet med produktionen i vores del af verden i forhold til mange andre steder i verden. Så svaret ligger et eller andet sted midt imellem, men der hvor vi er nu, der er det jo meget meget over i retning af Dansk Industri. Altså efter vores opfattelse er der et betydeligt potentiale i, at forøge grønne afgifter, som for min skyld gerne måtte kanaliseres tilbage til virksomhederne på en eller anden måde.

T: Altså så man kan bruge dem som incitament på en eller anden måde?

M: Ja. Der mangler økonomisk incitament i mange virksomheder til virkelig at få sat fokus på det her og gøre tilbagebetalingstiden på de investeringer endnu mindre, end det er i dag. Og det får man aldrig Dansk Industri til at sige højt, men de ved det godt.

T: Jeg læste en artikel her forleden dag om, at der er blevet taget initiativ til at etablere et dansk Green Building Council, som skal finde en eller anden frivillig certificeringsordning lidt ligesom BREAM eller LEED. Har I været inde over det?

M: Ja vi var inde, analyserede og snusede til det, og løb skrigende væk.

T: Okay. Må jeg spørge hvorfor?

M: Jamen, det var fordi, der er SÅ mange parter og så mange dagsordener, at det blev for indviklet for os at skulle gå ind og prøve at samle det og sådan noget. Det er det ene. Det andet er, at vi er meget i tvivl om, og det er sådan en meget dansk ting, du ved vi har jo sådan en energimærkningsordning og sådan nogle mærkningsordninger i USA som LEED og sådan noget, fylder meget dér og det er ligesom meget sådan noget man gør. Og det vil danske rådgivningsvirksomheder jo gerne have i Danmark, så de kan gå ind og tjene penge på at lave den certificering i Danmark. Der kan man jo så omvendt sige, at vi jo har en energimærkningsordning i Danmark, hvor vi har en offentlig myndighed, der har været inde og lave sådan noget – og man kan så sige, det har ikke fungeret særlig godt, men for mig at se er der ligesom to veje at gå – og jeg ved ikke hvilken en der er den rigtige – men enten så siger du: Nu har vi den her energimærkning, vi har postet så og så mange milliarder i den – nu gør vi den fandme effektiv og så gør vi den obligatorisk og gør sådan så husejeren meget let kan overskue, hvad er det så jeg kan gøre? Og så tror jeg, at hvis man gjorde det, så ville det være mere effektivt, end hvis man havde en 3-4 konkurrerende private certifikater. Hvis målet er – og det er det jo for sådan nogle som os – at få omstilling så hurtig som mulig. Men omvendt hvis ikke der sker noget politisk og der ikke er nogen, der tager initiativer til at gøre det – så har vi i den grad brug for at der bliver introduceret nogle private ordninger, så der i det mindste sker et eller andet igennem dét. Men jeg har ikke helt gjort op med mig selv, hvad vores position er her. Men det er sådan lidt grunden til, at vi ikke er gået ind i det.

T: Jeg tænker lidt på hele konceptet – altså LEED er jo en frivillig ordning, der er jo ikke noget regulativt i det, så man kan bruge det som brandingværdi, vil jeg sige, eller som salgsværdi, når du skal sælge bygningen videre. Så hvad mener I om hele den ide om frivillige ordninger? Eller synes I mere det skal være obligatoriske ordninger? Eller kan begge dele fungere?

M: Altså vi synes nok, der skal være en obligatorisk ordning med en bundregulering, der sikrer at der er en eller anden minimumsstandard – både i vores almindelige byggeri, men så synes jeg det er helt fint at lave noget ”on top” af det, som er endnu mere ambitiøst, som er frivilligt. Men så er det jo yderligere noget kompliceret noget for f.eks. LEED dækker jo ikke sådan noget som fjernvarme, så med alle de der skal man jo massere dem lidt, så de passer til den nationale kontekst, som de skal indgå i, og det er meget kompliceret.

T: Jeg talte med DI Byggematerialer tidligere i dag, og de sagde at alle danske bygninger sådan set allerede ville leve op til LEEDs standarder, fordi de er så langt bagud i USA. Så det ville ikke give noget at overføre det til det danske marked. Men omvendt tænker jeg, at hvis danske virksomheder har kendskab til LEED og kan sige ”hvis du implementerer den her løsning, så er du garanteret LEED platinum” eller et eller andet, så ville det være en rigtig stor force i forhold til det amerikanske marked. Jeg tænker på, hvis det rent internationalt, hvis der er så mange forskellige nationale standarder, om det ikke kan være et problem i forhold til eksportmarkeder?

M: Det ville være langt bedre, det gælder sådan set næsten alt inden for klimaområdet, ville det være langt bedre, hvis der var en international rammelovgivning, no doubt. Ét kvotesystem, én certificeringsmodel. Det drømmer vi alle sammen om – men det kommer ikke. Det ville være det bedste, men det er utopi. Men jeg vil sige, hvis jeg var dansk klima- og energiminister og hvis mit mål var på den ene side at få CO2 udledningen ned og på den anden side at styrke dansk byggeerhvervs kompetencer på eksportmarkeder, så tror jeg altså, at min hovedstrategi ville være, og det er der et kæmpe potentiale for, det ville være at sige hvordan sikrer jeg at over de næste 20 år, hvert år, får vi taget en substantiel del af boligmassen og energirenoverer, når det alligevel skal renoveres, hvordan sikrer vi at den handling sker når en almindelig parcelhusejer, en byggematador og det offentlige skal renovere? Og der tror jeg personligt, at så ville jeg tage energimærkningsordningen, gøre den obligatorisk og så ville jeg sætte en pisk på og så ville jeg også bruge en gulerod, f.eks. ved at sige, at så kan man tage et rimeligt billigt lån til at dække ekstraudgifterne ved at gøre det rigtigt – sådan lidt ESCO-agtige principper. Så ville jeg lave en køreplan, rimelig systematisk over de næste 10-20 år, fordi så ville jeg være ret sikker på to ting: For det første, at det ville ske. For det andet, at de danske bygningsvirksomheder ville få et tilpas stort marked til at afprøve de forskellige modeller på plus en eksemplarisk model at vise frem for resten af verdenen. Det ville være min grundindsats. Og så ville jeg i øvrigt sige til COWI og alle de andre, at hvis I vil ud at sælge noget af det her som LEED eller forbedre LEED eller bygge ovenpå LEED eller I har nogle amerikanske kunder der har brug for det eller hvad ved jeg – så do it. Fint. Men vi kommer til at ligge i en helt anden liga og det kan garanteret udnyttes og det skal også fortsættes. Men det er ikke en offentlig opgave.

T: Du ved jeg ikke hvor meget du er inde i detaljerne omkring byggeriet, men du siger at Danmark er foran inden for energieffektivitet osv. men er der nogle bestemte områder, hvor vi virkelig er foran – f.eks. isolering eller… har du kendskab til det eller ligger det udenfor dit kendskab?

M: Altså, vi har jo tradition for – blandt andet på grund af Rockwool og sådan nogle – der har vi jo en stærk markedsposition inden for isolering osv. men det er jo noget andet. Hvis du spørger mig om de danske huse, altså boligmassen ligger over eller under gennemsnittet for så vidt angår vinduer eller hulrumisolering eller hvad ved jeg, så har jeg ingen anelse. Men buddet er, at vi ligger nok forholdsmæssigt godt. Der, hvor vi ligger bagefter, er inden for udvikling af komponenter til nybyggeri, som vi talte om tidligere. Der ligger vi dårligt, men jeg vil tro på renovering, at vi, selv om vi ikke klarer det helt specielt godt, helt klart ligger i den gode ende. Det vil være mit bud pga. indsatsen i 70'erne og fordi der har været så meget fokus på det de sidste par år. Men om det lige er isolering eller gode vinduer eller fjernvarme, det ved jeg ikke.

T: Jeg havde egentlig indtryk af, at noget af det, vi var gode til i Danmark, det var tværfagligt samarbejde inden for byggeriet og levering af totalløsninger. Det fik jeg så lidt indtryk af, at det er vi måske i virkeligheden slet ikke. Men hvordan vurderer du det? Altså i forhold til samarbejdet mellem ingeniører, arkitekter osv.?

M: Altså en af de udfordringer, der er i den danske byggebranche, er, at vi har et forholdsvist meget stort antal små og mellemstore virksomheder og at det er sgu sådan lidt ”wild west”. Og på den ene side, så tror jeg, at der er mange små forskellige uformelle netværk, så hvis man bestiller en murer, så kender de også en ingeniør, hvis man skal bruge sådan en osv. Men på den anden side, så tror jeg, at de har ret, dem du har talt med, at der er ikke mange systematiske samarbejder eller konsortier, hvor man siger, nu kan vi gå ind og tilbyde en færdig energirenovering for dig og vi kommer med arkitekten og ingeniøren osv. og du skal ikke foretage dig noget, det har vi styr på det hele. Det tror jeg næsten ikke sker.

T: Jeg spørger, fordi man i USA ser flere og flere arkitekter og ingeniører, der bliver LEED Accredited Professionals, men det virker som om, de stadig mangler den overordnede viden om, hvordan man tænker helhedsløsningen igennem, og der var det jo netop, at hvis det var noget, vi var gode til i Danmark, så kunne man trække på det, men det virker så åbenbart ikke sådan.

M: Nej, men vi har da for helvede et stort potentiale for at udvikle det. Det tror jeg er rigtigt set. At det har vi. Men når du spørger om det er her, så er jeg mere i tvivl.

T: Nu siger du, at de store virksomheder, de er egentlig ikke så bange for resultatet af COP15. De kører videre alligevel. Tror du, at hvis den her proces med at få en global klimaaftale ikke rykker så meget, tror du så i højere grad, at det vil være industrien der kommer til at trække af sted, end det er politikerne?

M: Det tror jeg faktisk, ja. Det er et meget broget billede, for der er også virksomheder, som knalder derudaf og har det meget højt på deres agenda. Både fordi der er penge at spare på energieffektiviteten, men også fordi de har nogle produkter, der kan bruges [til energieffektivisering mv.]. Men også fordi kineserne og asiaterne i det hele taget investerer så mange penge i det, fordi det er fremtiden og fordi det er deres egne energikilder og forsyningspolitikdebatten, der går ind i det. Så der er ingen tvivl om, at der er meget meget stærke private kræfter, der går ind i det, men der er altså også virksomheder, som vil det absolut stik modsatte og som lever af olie og gas og bilindustri og hvad ved jeg. Og som i dag jo repræsenterer flere arbejdspladser end de nye industrier gør, stadigvæk, så det er et meget broget billede, når du kigger på erhvervslivet. Jeg tror desværre ikke, at man kan læne sig tilbage og sige, det klarer de nok, men jeg er helt sikker på at der er nogle stærke drivere i det private erhvervsliv, som vil gøre hvad de kan for at køre den videre og som gør det. DONG Energy, der går ud og siger, at de vil halvere CO_2-udslippet på 10 år, det er da noget, der rykker. For 5 år siden ville de bare bygge flere kulkraftværker. Så der sker noget på den front. Men hvis du så kigger på det amerikanske marked, og så ser på hvad olie og kul lobbyen laver derovre, så er det vildt. De er benhårde. Man siger jo at olieindustrien alene har 4 lobbyister for hvert eneste medlem af kongressen. Så det er man jo så oppe imod på den anden side.

T: Nu har jeg jo selv siddet i New York og Bloomberg har jo en ambition om, at det skal være USA's grønneste by. Han vil have vindmøller på husene osv. så det er selvfølgelig ikke så repræsentativt for hele landet, men jeg synes da, at man ser flere ude på kysterne især – f.eks. Californien men også flere af øststaterne, der går foran, så det går jo i den retning. Måske mere på delstatsniveau end på føderalt niveau.

M: Det er jeg enig i. Det ser man også. Man kan sige, at toget kører. Der er bestemt mange ting, som man kan græmme sig over og blive frustreret over, men der er bestemt også mange ting, som kører og fortsætter med at køre og vil blive styrket. Det er jeg helt sikker på.

T: Super. Lige til sidst vil jeg høre: Er der noget, som I i forhold til det amerikanske marked, synes det kunne være interessant at undersøge blandt målgruppen i forhold til deres syn på os og hvad vi kan, altså for det første i forhold til, er der overhovedet kendskab til hvad vi kan?

M: Jeg synes jo det er meget spændende, især fordi det måske vil kunne bruges politisk herhjemme, så det er det, jeg tænker på. Altså, jeg vil gætte på, at når du kommer over og taler med amerikanerne, så vil de fleste have en ide om, at det er vi nok meget gode til uden egentlig at have en specifik ide om, hvad det er vi er gode til. Det, jeg synes, er rigtig interessant, det er "hvor er lommerne derovre"? Fordi, altså, nu har vi f.eks. talt så meget om fjernvarme derovre, men er det det de har gang i derovre eller er nye elhuse eller vindmøller på husene eller lavenergihuse – hvor er det deres fokus ligger? Så når du snakker med byggebranchen, arkitekter osv.; hvad er det de tror de kan sælge til de amerikanske boligejere. For det har jeg ingen anelse om. For der er så mange strategiske veje, man kan gå, når man taler bæredygtig byudvikling især, som det f.eks. vil være i New York, for det er jo stærkt omdiskuteret, også herhjemme. Og der vil være folk, der siger alt det med isolering osv. "forget about it", så skal du ud og have fat i hver enkelt boligejer og så skal de ud og have viden om det osv. Forget it. Udbred fjernvarme til hele Danmark og så før at energien er vedvarende og så drop alt det isoleringspis. Det er der jo virkelig nogen, der mener. Altså, det er ikke den mest økonomiske måde at gøre det på, vil de sige, men det er den realistiske. Hvor andre vil sige det stik modsatte. Jamen altså det er jo hul i hovedet, hvis du kan halvere det danske energiforbrug, og det kan du sagtens, så koster det halvt så meget. Og så kan du gå ud og bygge vindmøller bagefter for de penge, du har sparet. Og jeg aner ikke, hvordan den debat er i USA og hvordan de satser på og hvad, de mener, er vejen frem.

T: Nu er der jo, hvis man ser bort fra New York og nogle af de andre storbyer derovre, så er de geografiske afstande ret meget større i USA og uden at kende specielt meget til fjernvarmesystemet, så kunne jeg forestille mig, at en af grundene til, at det har kunnet fungere i Danmark fordi vi er et rimeligt kompakt land.

M: Ja, men altså alle byområder er som hovedregel velegnet til fjernvarme, for selvfølgelig har New York også industri, som bare fosser vandet ud i dag og så længe du har en by – og især en med højhuse – så er det bare at knalde et rør op og så "pff". Selvfølgelig kræver det en investering, men den er ret hurtigt betalt hjem, fordi det er gratis. Du skal bare betale for røret osv. Og jeg ved at de har noget fjernvarme i USA, men hvor meget og hvor og hvorvidt det indgår i deres strategier osv., det ved jeg ikke. Omvendt ville mine fordomme fortælle mig, at der sad de fancy New York arkitekter og ville gerne lave nye total energi-selv-supplerende huse, og det kunne være interessant at vide om der er dér, det amerikanske marked ligger eller hvor ligger det, hvem ved?

Appendix 4: Transcription of interview with Pelle Lind Bournonville

The interview was conducted in Danish on March 9, 2010 via Skype. Duration: 50 minutes.
(**T** = the interviewer and **P** = the interviewee).

Interviewee's professional background:

Senior Commercial Advisor and Sector Expert, Architecture, building and civil engineering at the Consulate General of Denmark, New York. Has 10 years of experience working with strategic sourcing and business development in a major Danish contracting firm.

Transcription:

T: Jeg kunne godt tænke mig at starte med at høre, hvordan du vil definere green building? Er der forskel på, hvordan man ser det i Danmark og i USA?

P: Ja det tror jeg helt klart, der er. Der er forskellige definitionsområder for green building, og grønt byggeri og sustainable building og bæredygtigt byggeri. Det er de fire hovedbegreber, der bliver brugt i hvert fald.

T: Og hvad med energi effektivt byggeri?

P: Ja, men så er vi nede i en subkategori. Så bliver det lidt snævert. Jeg vil sige for amerikanerne, der tror jeg at definitionen er langt bredere og langt mere dækkende, end den er i den danske terminologi. Altså i den danske terminologi, der er der et meget kraftigt fokus på energieffektivitet, dvs. reducering af bygningers energiforbrug, og det er ligesom dér, det strækker sig til. Det kommer ikke så meget videre end det. Der er nogle tiltag, så vidt jeg kan lytte mig frem til, hvor vi begynder at kigge lidt på, hvad er det for et særligt vandmæssigt impact som et byggeri har på det omkringliggende miljø og så har jeg ikke hørt så meget mere. Hvor i USA, der er det vand, det er belastning på kloakering, det er transport – altså energiforbrug til at transportere materialer fra producent til byggeplads – det er hele indeklimadiskussionen, som kører meget separat i Danmark, vil jeg sige. Vi har selvfølgelig også nogle krav til indeklima, men vi lægger det ikke rigtig ind under sådan en grønt byggeri-definition.

T: Nej, men er det ikke på vej – det med indeklima?

P: Altså sådan en konvergering i mellem det? Det ved jeg ikke rigtig. Altså, vi er rigtig dygtige til det at lave godt indeklima og vi har nogle rigtig gode krav til at lave godt indeklima i bygningsreglementet, men det virker ikke rigtig som om, det er en del af den samme diskussion.

T: Nej okay, og det er det i USA til gengæld?

P: Det er det helt sikkert i USA. Fordi det er LEED, der ligesom trækker læsset, og fordi LEED ligesom betragter alle de her 5 hovedområder, som værende ligelige, så bliver det set som en helhed.

T: Hvor meget fokus er der på grønt byggeri i branchen i USA i dag?

P: Det er det eneste område, hvor der er vækst. Så det er der! USGBC's annual impact report – Green Building Market Impact Report 2009 – den fortæller noget om, hvor langt de rent faktisk er kommet og hvad potentialet er endnu for at køre videre med det. Og der er bare vækst over hele linjen. De er faktisk selv meget overraskede over det. De havde forventet en afmatning eller i hvert fald en stagnation i forbindelse med krisen, men det har de slet ikke oplevet. Det er bare kørt videre. Så der er stadig et enormt fokus på det herovre, det er der ingen tvivl om. Og jeg tror det er et vedblivende fokus. Det går ikke væk det her.

T: I forbindelse med at de vedtog vækstpakken sidste år, der var der jo rigtig meget fokus på Green Retrofitting. Er det også stadig noget, der bliver afsat masser af midler til?

P: Ja det synes jeg helt klart. Hvad er det der sker med den udvikling der? Hvis du kan huske Green Homes, Green Jobs – den her idé, der blev fremlagt…

T: Af American Center for Progress, ikke?

P: Jo lige præcis. Den er jo blevet vedtaget af New York State oppe i Albany og er nu ved at blive skrevet som lov. Og den her finansieringsmodel via elregningen, den er nu ved at blive implementeret i virkeligheden i New York State. Og de regner med at de første demoprojekter, de kommer op at køre her i løbet af i år. Det går en lille smule langsommere, end de havde drømt om, men sådan er det jo, når det skal igennem det der politiske maskineri. Så er der en række andre stater, som har shortcuttet, og som simpelthen bare har sagt til energiselskaberne: ”I skal tilbyde det her – kom i gang!”. Vermont og Connecticut, for eksempel. De har bare sat det som krav over for energiselskaberne: ”I skal tilbyde det her”.

T: Okay, og hvad vil det sige, at det er energiselskaberne, der skal tilbyde det?

P: Jamen i virkeligheden så har de bare lagt hele koordineringen og udmøntningen af, hvordan de har tænkt sig at gribe det an og hvordan de har tænkt sig rent praktisk at styre ongoing-financing af green retrofits ud til energiselskaberne. Så frem for at lave et eller andet stort politisk apparat ud og styre det via de politiske organisationer, så har de bare til energiselskaberne og sagt: ”Det er et krav, at I skal tilbyde det her til jeres kunder. Og få det til at virke i øvrigt”. Man kan sige, der er en risiko for, at de lavest stillede så ikke får noget ud af det – at de måske ikke har en credit rating, der er god nok eller et eller andet, som gør, at energiselskaberne ikke vil bære risikoen. Det er derfor, at det i New York er slået ret stort op. Det er jo for, at de netop alle de lavest lønnede kommer med i det, fordi det er dem, det er sværest for…

T: Okay, altså er det de lavest lønnede, som skal bygge bygningen, eller dem der skal have foretaget renoveringen på deres bygninger?

P: Det er dem, der skal have lavet renoveringen på deres bygninger. Altså dem der skal have reduceret deres energiforbrug. Det er også dem, der har allermest brug for det. Det er en social udvikling i virkeligheden, det som Center for Working Families har gang i i New York State. Fordi oftest så handler det om, at de lavest stillede skal vælge mellem at have varme i huset om vinteren eller spise aftensmad. Det er den situation, vi står i. Så der sker rigtig meget på det område. Der sker rigtig meget i New York City også. Rigtig mange steder, der rykker det.

T: Hvad er det for nogle andre steder, hvor de rykker på det her? Altså, Californien snakkede vi også om var langt fremme, ikke?

P: Jo. Californien er rigtig langt fremme. De har også vedtaget deres 2010 bygningsreglement, som er blevet skærpet en ekstra tand. De fleste stater er godt i gang med at skærpe deres bygningsreglement, dvs. de opdaterer simpelthen kravene i bygningsreglementet. New York State har gjort det, New York City har faktisk lige indført deres eget bygningsreglement – det blev vedtaget her mellem jul og nytår og træder vist officielt i kraft 1. juni 2010. Og det kommer sådan lidt som perler på en snor. Jeg får en mail en gang om måneden og der er sådan ca. 5 stater hver gang, der har opdateret deres bygningsreglementer og de opgraderer dem enten fra 9 eller 6 år gamle bygningsreglementer til nuværende standarder. De fleste er på det niveau. Og så er der nogle enkelte, som bare trækker den fra 2006 til nu. Så de kommer hele tiden, de er fuldt klar over det. Men det er jo en kombination af, at staterne jo er blevet pålagt, at de skal opdatere deres bygningsreglementer fra centralt hold af, så de kan lige så godt komme i gang med det, selv om klimapakken jo ikke er blevet vedtaget herovre endnu.

T: Nej for det skulle jeg også til at spørge om: Den er ikke blevet vedtaget endnu, vel?

P: Nej, den er stallet i Senatet.

T: Er det på grund af sygesikringsreformen?

P: Nja… vi er alle sammen lidt i tvivl om, hvad det er der sker, fordi healthcare pakken, den staller også lidt, ikke? Vores totalt lægmandsanalyse den går på, at Obama måske lavede en fodfejl ved ikke at lade flere politikere tage til COP15. Han tvang dem til at blive hjemme for at fokusere på healthcare, hvilket måske er meget smart i forhold til healthcare, men det var rigtig dumt i forhold til klimapakken, fordi så forsvandt fokus på klimapakken og folk blev sådan lidt: "nå, men hvis vi ikke kan arbejde på det, så er vi også ligeglade".

T: Okay. Har der egentlig overhovedet været fokus på COP15 derovre? Fordi herhjemme har man jo ikke hørt om andet…

P: Ja, er du sindssyg. Der var jo 20-25 individuelle politikere, måske endda flere, som ville have taget til København og deltaget og de eneste to, der fik lov til at gøre det, det var Schwartznegger og John Kerry. Og John Kerry blev nødt til at tage hjem, inden de nåede til de afgørende forhandlinger, fordi han skulle hjem og stemme til Healthcare pakken. Ellers ville der nok have været en 20-30 yderligere, men dem tvang Obama til at blive i landet, fordi de skulle tage stilling til healthcare. Det gjorde han af to grunde, så vidt vi kan forstå. Han gjorde det for selv at have kontrol over diskussionen og det budskab, som USA ville sende på den politiske scene og for at fokusere på healthcare pakken. Men i forhold til klimapakken så begik han nok lidt en fodfejl, for det mistede fuldstændig momentum. Og nu hænger den bare i senatet, og der er ikke rigtig nogen, der gider at tage sig af den. Men altså interesseorganisationerne herovre, blandt andet USGBC, forsøger at lægge rigtig meget pres på at få gennemført et eller andet. Men hvad det bliver det er lidt uvist, det bliver sikkert udvandet og i virkeligheden, så bliver det nok mere på statsniveau, at det bliver trukket og så eventuelt, at han kommer med den der trussel fra EPA – forstået på den måde, at han har fået opbakning til at gøre CO_2 til en miljøskadelig substans. Det vil sige, at han rent faktisk kan indføre nogle ret strenge krav via Environmental Protection Agency *udenom* senatet – han kan lave sin egen klimapakke så at sige, fordi det har de bemyndigelse til. Det har han truet med tidligere, men det kan være han bliver nødt til at eksekvere det – jeg ved ikke rigtig hvad det er, der sker…

T: Nu springer jeg lige lidt i det, men det at COP15 har ligget i Danmark, er det blevet bemærket derovre? Og har I gjort noget for at gøre opmærksom på det?

P: Altså, vi har gjort rigtig meget for at gøre opmærksom på det, selvfølgelig. Det gjorde vi op til og under COP15. Siden da har vi forsøgt at lave nogle forskellige arrangementer, som ligesom prøver at tage det momentum, der var i København og så sejle videre med det. Og der er en bevidsthed omkring det, der foregik i København. Altså da jeg var ude på Green Build i Phoenix, der lå i slutningen af november, der blev der talt rigtig meget om, hvad der skulle foregå i de efterfølgende uger i København. Så det blev der talt rigtig meget om, og Al Gore henviste til det i sin store tale, der var ovre på stadionet og det gjorde præsidenten for USGBC også. Så der har helt klart været en bevidsthed om, at der skulle foregå noget dér, og der er en bevidst om, at danskerne har nogle kompetencer inden for det her område. Stort set alle jeg taler med ved godt, at Danmark har nogle kompetencer inden for det her område. Det de så ikke ved, det er, hvad det er for nogle kompetencer. Og det er jo dét, der er udfordringen. For danskerne sidder og hviler på laurbærrene og siger "vi har sgu noget"… Altså hvis vi gik ud og talte om det her, så ville der være genlyd hos dem, vi taler med. Og dem vi taler med vil synes, det er interessant at tale med os om det. Men det gør de ikke rigtig, og det er dødærgerligt, fordi der ikke er nogen, der helt håndgribeligt siger, jamen hvad er det så for nogle teknologier? – Jo, de fleste kan svare "vind", ikke? De fleste ville kunne sige, at på vindområdet, der er vi stærke. Det er vi også. Super super stærke, men hvad er der ellers? Og selv den vidende amerikaner ville her komme til kort.

T: Ja det kunne jeg også godt forestille mig. Men så lad os tage den. Hvad er det egentlig vi er gode til i forhold til, når man snakker byggeri? Ifølge den der der intermediate report, der var det blandt andet isolering og facader, men kan du nævne nogle ting, som du lige kan komme i tanke om "off the top of your head", hvad det er for nogle områder, hvor vi er foran?

P: Altså, jeg vil helst ikke gøre det på produktniveau, men det vi er rigtig gode til – jeg kan også godt nævne nogle produkter bagefter – men det vi er rigtig gode til, det er at have en viden om, hvordan vi laver en helhedsmæssig fornuftig løsning. Vi mangler selv stadig meget viden om det, men i forhold til amerikanerne, så ved vi bare meget mere end dem. Vi ved rigtig meget om, hvorfor det er, vi skal lade være med at have kuldebroer og sådan rent byggeteknisk, hvad der giver fornuft i et eller andet klima, der minder om et dansk klima. Det vil sige, hvorfor det er, vi isolerer, hvorfor det er, vi prøver at lave kuldebrosafbrydelse, hvorfor det er, vi gerne vil lave tætte huse, hvorfor det er, vi gerne vil lave varmegenvinding i huse – altså alt det her, det ved vi rigtig meget om, og vi har rigtig mange produkter, som understøtter den viden. Fordi de to ting er ligesom gået hånd i hånd gennem den danske udvikling.

T: Hvorfor er det det, tror du? – Er det på grund af regulering?

P: Ja, i Danmark er det på grund af regulering. Det er der ingen tvivl om. Men det at reguleringen er blevet gradvist skrappere for hvert tredje år der er gået i Danmark, jamen så har producenterne måtte følge med og ingeniørerne følge med. Så vi har rigtig god ingeniørmæssig viden på det her område. Og det er rigtigt, at vi har jo rigtig mange produkter, som også understøtter det. Varmegenvinding er et område f.eks. hvor man – altså, når man bygger et meget tæt hus, så skal der skiftes noget luft, for ellers så bliver indeklimaet forfærdeligt. Og den energi, der så er i den opvarmede luft, den er vi gode til at genvinde, idet vi skifter luften ud – altså overføre den der termiske energi fra den luft der blæser ud, til den luft vi suger ind. Det er vi rigtig gode til. Og så er vi rigtig gode til alt inden for pumpe/opvarmning/styring/regulering af varmesystemer.

T: Hvis man ser i forhold til andre lande, hvem er så vores konkurrenter, sådan rent landemæssigt? Nu hørte jeg Tyskland f.eks. er blevet nævnt flere gange i forhold til både passiv byggeri, men også i forhold til vinduer.

P: Ja helt klart. I forhold til sådan nogle højenergivinduessystemer, der er der bare rigtig rigtig mange i Tyskland, der beskæftiger sig med det her. Og det gør de, fordi de er nået rigtig langt, og det er kommet bredt ud til markedet, den her ide med et passiv-hus. Altså et hus, som formår at være energineutralt, altså det bruger ikke rigtig noget energi. Men den designfilosofi, som ligger til grund for passiv-hus, er ikke rigtig noget, som passer til dansk mentalitet. Fordi vi har færre solskinstimer og færre lysdage, end de har et eller andet sted nede midt i Tyskland. Så vi har behov for at få mere lys ind. Og passiv-husene er meget tillukkede. Det er meget meget små og meget tykke vægge – det kan vi selvfølgelig også godt lave i Danmark, men der er simpelthen noget, der ikke passer overens med en dansk sensibilitet både over for æstetik, men også over for vores behov for lys i forhold til passiv-huse. Og det er derfor, at passiv-huse, den vil aldrig nogensinde jage rundt i Danmark. Der er så mange gode forsøg på at lave vores eget i form af Aktiv Hus og Flexhouse og Rockwools forsøg med energihuset og hvad har vi, ikke? Selvfølgelig ud fra de forskellige producenters og initiativtageres kommercielle interesser, ikke? Hvis du tager f.eks. VKR's Aktiv Huse er meget fokuserede på deres vinduer og det at få lys ind – og i særdeleshed ovenlys, fordi Velux er det, der driver butikken, ikke? Men altså at have produkter, der passer til den designfilosofi og energimæssige betragtning, det er der, hvor vi er rigtig stærke. Altså, vi formår simpelthen at kunne lave nogle byggerier, som er meget meget energi effektive og samtidig meget meget rare at opholde sig i.

T: Ja, så det ikke nødvendigvis bliver sådan nogle typehuse eller som du siger, huler, man er indeni.

P: Ja, eller termoflasker, for at sige det rigtig groft.

T: Men er der nogen lande, hvis man skulle prøve at sammenholde det lidt, som også fokuserer rigtig meget på green building, som kunne være potentielle konkurrenter til Danmark som ophavsland?

P: Jamen, helt klart Tyskland, ikke? Helt klart tyskerne. Tyskerne og deres energireglement er jo på højde med Danmark, måske endda en lille smule skrappere, vi ligger og slås lidt om det. Så det *er* tyskerne. Franskmændene har ikke noget at komme med. Englænderne, de har jo forelsket sig i passivhus, og det virker ingen steder. Svenskerne og nordmændene, jeg aner ikke, hvad de foretager sig inden for det her område, men det ER tyskerne – det er helt klart dem. Det er der ingen tvivl om. Og sådan på produktområdet, det bliver så noget sværere. Selvfølgelig inden for vinduer, er der en masse tyske vinduesproducenter. Der er ikke rigtig nogen ovenlysproducenter. Der er Velux bare – altså de har jo 50% af verdensmarkedet, så der er ikke noget dér. De har i øvrigt også 50% af det amerikanske marked efter at to af deres største konkurrenter er holdt op med at lave ovenlysvinduer.

T: Så Velux er ovre i USA under Velux brandet nu?

P: Ja ja, det har de været i 30 år. Velux mærket har været her siden i starten af halvfjerdserne. Så er der meget småt. Set i forhold til de helt store vinduesproducenter herovre, der er de meget små, fordi det er et nicheområde, men inden for ovenlys, der er de helt unikke. Det de gjorde her den 1/1, det var, at de lancerede et helt nyt program, helt fuldstændig nyudviklet ovenlysvindue og udstedte en installationsgaranti. Det er aldrig sket før, at en vinduesproducent nu yder garanti på at vinduespartiet bliver installeret korrekt. Og det er simpelthen, fordi de har genopfundet og lavet det mest pædagogiske installationsvindue ever seen i verdenshistorien, så man kan næsten ikke gøre det forkert. Så der har man simpelthen udstedt det. Jeg tror det er 10 eller 15 års garanti på installation. Så det er ret vildt.

T: Er der andre store danske virksomheder – eller små for den sags skyld – som du ved, er på det amerikanske marked og som der måske kunne være kendskab til udover Velux?

P: Inden for de områder, som de 4 store virksomheder beskæftiger sig med, der er de rigtig store. Danfoss og Grundfos. Grundfos har *ikke* en grøn profil herovre. Det har de simpelthen ikke gjort endnu. De arbejder med det, men den er ikke blevet færdigformuleret og de har endnu ikke lanceret den, så indtil videre, så er de ikke grønne.

T: Nå okay, ja for under Bright Green, som vi havde med DI hjemme i Forum, der var de *meget* grønne?

P: Jamen, det er fuldstændig rigtigt. De er meget grønne i Europa og sådan set også på det meste af resten af verdensmarkedet – jeg ved ikke lige med Kina – men det er de ikke herovre , ikke endnu. Danfoss på den anden side, de er. De udvikler sig en rimelig stærk grøn profil herovre og har selvfølgelig også nogle meget store konkurrenter inden for det space – ikke mindst Johnson Controls.

T: Nu sagde du de 4 store. Hvem er den sidste store?

P: Ja, undskyld 3 store. Med mindre vi ser på hele det nordamerikanske marked, for så er Rockwool selvfølgelig stadig i spil. De er i Canada under Roxul brandet. Og så er VKR jo også på vej herover inden for andre områder. De har købt en canadisk facadevinduesproducent, og så har de Heliodyne inden for solvarme. Og Velux markedsudvikler jo også deres eget solvarmesystem. Det bliver en færdig pakkeløsning til det, de har nu. Og så er der lidt snak om, hvorvidt de også skal gå ind i det der industrielle solvarme-space.

T: Og hvad vil det sige?

P: Det vil sige, hvis man har en eller anden form for district heating system stående, så kobler man en park af solvarmeceller sammen og så spæder man simpelthen op med solvarme i district heating systemet.

T: Og district heating, er det det der svarer til fjernvarme?

P: Det er fjernvarme, ja. Men det er ikke fjernvarme som vi forstår det, hvor det går ud til individuelle bohavere og foreninger. Herovre, der er det mere brugt i forhold til universitetscampuses og sådan noget, hvor der er tæt bebygget.

T: Og industriparker og sådan noget?

P: Ja – men det er ikke rigtig så udbredt herovre i forhold til industripakker. Men det er et område, hvor vi har en styrkeposition, det er klart en styrkeposition.

T: Er der nogen områder, hvor der er vi decideret bagud i Danmark? Altså nogle svagheder i forhold til det amerikanske marked inden for grønt byggeri?

P: Hm… altså, jeg synes ikke vi skal råbe højt om at være fantastiske inden for arkitektur i hvert fald. Det er lidt mere komplekst at forklare. Hvis vi starter med at sige, at danske arkitekter har nogle meget stærke kompetencer inden for arkitektur, altså inden for æstetik, space planning, lys, alt det her at arbejde med byggerier, som understøtter menneskers velvære og produktivitet. Det er vi rigtig rigtig gode til og hvis dét er en del af tanken bag det grønne byggeri, så har vi nogle kompetencer, men er vi ovre på energisiden og på vand og i særdeleshed måske energiforbrug og ressourceforbrug i det totale perspektiv, så har vi rigtig meget at lære af dem herovre.

T: Okay, der er de simpelthen bedre end os i USA?

P: De har opfundet et system, der gør det meget hurtigt og pædagogisk at forholde sig til de her problematikker, når de designer et byggeri.

T: Er det på grund af LEED, tror du?

P: Det er på grund af LEED, ja. Og der er vi sgu sat. Det er vi slet, slet ikke stærke nok på. Det har været nogle løse discipliner her og der og en enkelt tegnestue er måske gode til noget og en anden måske til noget andet. Det her med at have et samlende perspektiv, altså den her fuldstændig holistiske måde at angribe et design af en bygnings udformning og indretning på, det… altså de vil sige, at de har det, men det har de ikke. Men *hvis* de havde det, så ville de være uhyggeligt stærke på det. Fordi de har trods alt den anden del af det, og er rigtig gode på den anden del af det. Men det er også fordi, der ligger de kulturforskelle mellem danske arkitekter og amerikanske arkitekter, hvor de amerikanske arkitekter er væsentligt mere tekniske, ikke?

T: Ja for værdikæden adskiller sig vel rimelig meget fra USA og Denmark i forhold til det at bygge et byggeri?

P: Ja, helt klart. Og hvis man så slår de danske arkitekter og ingeniører sammen – altså rådgiverbranchen som sådan i forhold til den amerikanske rådgiverbranche, så er vi måske mere ligeligt stillet, men vi mangler stadig det der samlende system. Den her helhedsbetragtning ud fra nogle… ja, hvad er ordet?

T: Ja, det ved jeg ikke… Men det er sjovt du siger det, når du samtidig siger, at det vi er gode til i Denmark, det er vi kan finde ud af at tænke helhedsløsning på et byggeri og finde ud af hvordan alting skal sættes sammen…

P: Ja. Men det er et lille dilemma, det der. Vi er rigtig gode til det, vi har bare ikke systemet til det. Vi har ikke konventionerne lagt fast på, hvad er det vi vælger, hvis vi skal vælge mellem energieffektivitet og indeklima, hvad er det så vi vælger?

T: Har du hørt, at de lige har nedsat et dansk Green Building Council?

P: Ja det ved jeg godt. Og jeg ved at det er Rambøll som i høj grad er primus motor for det.

T: Ja, men der snakkede jeg med nogle, blandet andet DI Byggematerialer, der er med i det, og spurgte dem, om de overvejede at gå hen imod LEED, men det lød som om, at det ville de ikke adoptere, eller hvad man kan sige. Men der ved jeg ikke hvad du har hørt?

P: Okay, altså hvis man taler om et dansk eller nordisk Green Building Council, så er det LEED, det handler om. Hvis de kalder det det samme, så synes jeg det er meget uheldigt, men det har jeg ikke hørt noget om. Jeg har ikke hørt nogen sige: "Vi vil lave et Green Building Council, men vi vil ikke have noget med LEED at gøre". Det har jeg ikke hørt.

T: Okay, fordi jeg ved, at de startede med mere at ville kigge på BREAM, altså det de har i Storbritannien, men det var de måske også lidt gået væk fra. Men det de mente var, at i forhold til LEED, der var vi i Danmark så meget længere på så mange områder, at LEED – og det vægtede så mange andre ting, end vi gør i Danmark og derfor ville ikke være så godt at implementere det.

P: Nej nej. Det kunne jeg sagtens forestille mig, at kritikerne ville sige. Og det gør det også. Det vægter nogle andre ting. Det er der ingen tvivl om. Men det vi taler om, når vi taler om det her World Green Building Council, så er det LEED-lignende systemer, som er tilpasset de lokale forhold. LEED har ikke en ambition om at have verdensoverdømme. Det har de ingen interesse i. Det, de siger, er, at vi vil gerne have nogle systemer, som er internationale, sådan at vi kan tale sammen om tingene og vi forstår, hvordan vi vægter ting i forhold til hinanden. Men tingene skal være vægtet i forhold til lokale behov og forhold. Og det mener jeg er rigtig smart. Man kan sige, hvem er det, der tager førertrøjen på de her ting? Jeg ved, at rigtig mange af de danske ingeniører de er i gang med at blive både LEED og BREAM certificeret. De bliver nødt til at dække sig ind, hvis de opererer på det globale marked. LEED er jo væsentligt mere udbredt end BREAM er på globalt plan. Og så er der nogle enkeltaktører, som vælger nogle ting. F.eks. har SKANSKA valgt, at alle deres relevante medarbejdere skal være LEED-akkrediteret. Så SKANSKA har valgt LEED som standardplatform. Og det er jo ret så udslagsgivende for rigtig mange steder i verden, fordi SKANSKA er så store, som de er – lige på nær i Danmark, ikke? Så jeg er ret sikker på, at det move, som de laver der, kommer til at påvirke, hvad der kommer til at foregå i Norge og Sverige i hvert fald. Og så er det spørgsmålet om, vi bare kan blive ved med at sidde der og spille hovski snovski. Det er lidt et billede af den danske byggeindustri. At folk er så egenrådige, at det er forfærdeligt. Det er derfor, det er så svært et marked at beskæftige sig med, fordi alle har sine egne holdninger.

T: Men i forhold til det du sagde før med at værdikæden er anderledes i USA, kunne du ikke uddybe det lidt mere? Altså hvordan det adskiller sig fra Danmark…

P: Jo, altså hvor man i Danmark har en forholdsvis ligelig fordeling mellem entreprenører, ingeniører og arkitekter, på trods af at de to sidste som oftest ikke rigtig vil erkende det faktum, så er det at de mere eller mindre skiftes til at være bygherre. Man kan sige, måske i lidt mindre grad her i disse krisetider, jeg ser i hvert fald en meget kraftig stigning i udbuddet af storentrepriser frem for totalentrepriser, så det vil sige, at arkitekter og ingeniører er godt i gang med at tilrane sig mere og mere indflydelse, og det gør de selvfølgelig fordi, at de tjener flere penge på det. Men ellers er det forholdsvist ligeligt fordelt, og de tre er ret afhængige af hinanden, fordi de – i hvert fald de fleste – erkender at de hver især besidder en kompetence. Herovre er det altså noget anderledes. Der sidder arkitekterne 90% af tiden i førersæddet på byggerier over jorden. Så snart det handler om anlægsbyggerier, broer og veje osv., der er de slet ikke i spil, men lige så snart det handler om bygninger over jorden, så sidder de på rigtig meget af magten. Og det gør de, fordi entreprenørerne aldrig rigtig har tilranet sig eller overtaget den indflydelse med hensyn til det bygningstekniske design. Altså i den helt helt, helt klassiske form for arkitektur, så handlede det om hvordan man byggede byggeriet – ikke så meget hvordan det kom til at se ud, det gjorde det selvfølgelig også, men i meget høj grad teknikken bag hvordan man fik et hus op at stå, det var arkitektens hovedopgave den gang. Det har de danske arkitekter i dag jo givet bort til fordel for det kunstneriske og det æstetiske. Og til dels også det funktionsmæssige. Og det har de to andre spillere jo taget det ansvar på sig, så hvordan man bygger, det er meget hen ad vejen blevet en entreprenør- og en ingeniørdisciplin, hvor arkitekten mere får de overordnede ideer. Og du ved, sådan noget med at tegne tingene helt ned i detaljer er heller ikke cost-effektivt længere i Danmark, så der er man nødt til at finde sådan en eller anden mellemvej i forhold til at have projektmaterialet færdigt inden man går i gang med at bygge, og så må entreprenøren og de udførende ligesom selv tage det resten af vejen. Det gør man ikke herovre. Der bliver tegningerne tegnet i bund, fordi ellers så bliver man straffet. Og arkitekterne bærer et langt større ansvar juridisk set i forhold til hvad de danske arkitekter gør. I forhold til at byggeriet blev udført som det skal.

T: Er entreprenørerne så bare udelukkende de udførende eller hvad?

P: Herovre er entreprenørerne fuldstændig 100% de udførende og det er meget meget, meget sjældent, at de får lov til at sidde med ved bordet. Jeg kan sige, at i 2007 blev der færdiggjort en rapport mellem to californiske tegnestuer og The American Institute of Architects i forhold til at prøve at uarbejde en ny arbejdsproces, som hedder Integrative Project Delivery, som går ud på at tage entreprenører og ingeniører tidligere med i fasen for at få deres input på hvordan ting kunne gøres. Det er sådan godt 15 år siden, hvis ikke længere, at nogen begyndte at tale om det i Europa. Jeg er rimelig sikker på, at de første tanker omkring at gøre sådan noget, de startede i midten af firserne i England det blev realiseret i 1987, og det her er så ja næsten 20 år senere, at nogen foreslog det – og det er på ingen måde udbredt herovre. Det var bare nogle, der sagde, at sådan kunne man også gøre det, hvis man altså havde projekter, der passede til det.

T: Men det er arkitekterne vel heller ikke interesseret i? De tjener vel også penge på at sidde med så meget af det…

P: Jo, men nu har de jo udarbejdet det her IPD sådan, at de stadig sidder rigtig meget i førersædet, de har bare besluttet sig for at tage de her produktleverandører med ind lidt tidligere. I forhold til arkitekterne, så er det jo en hel unik situation i Danmark, vil jeg sige. Vi har fem meget meget meget store ingeniørvirksomheder, altså jeg vil sige vanvittigt store i forhold til indbyggertallet i Danmark og det gør, at de bare er en magt i sig selv – og er jo konsoliderede, så de er jo sande multidisciplinerede ingeniørhuse. Dem er der også et par stykker af herovre – eller der er en del herovre, også nogle der er større end de danske ingeniørhuse – men for langt størstedelen af industrien, altså de byggerier der foregår herovre, der er det stadig enkeltdisciplin ingeniører, som bliver kaldt ind af arkitekterne, så der er en statisk ingeniør og måske en akustisk ingeniør osv.

T: I stedet for, at man ringer til Rambøll eller COWI og så får man en totalløsning?

P: Ja. Nej sådan foregår det overhovedet ikke. Her fakturerer man hver del for sig.

T: Rambøll og COWI er de i USA egentlig?

P: COWI har to shore og off-shore virksomheder. Rambøll pusler herovre på olie- og gas området, men er her ikke rigtig endnu.

T: Okay. Er det egentlig almindeligt, at samme virksomhed har både en arkitekt og en ingeniør siddende? Altså at de udbyder begge dele? For det stødte jeg nemlig på at par gange, da jeg skulle søge på kontaktoplysninger…

P: Nej, men de findes. Og særligt de der helt store multidisciplinære huse som ”URS” f.eks. De har det hele i sig.

T: Og det ville aldrig ske i Danmark eller hvad?

P: Jooo, det kunne det nok godt måske. Men du ville aldrig høre om et hus, der var tegnet af Rambøll forstået på den måde, at det havde nogle rent arkitektmæssige kvaliteter.

T: Nej, men jeg tænkte også mere på om det var arkitekterne, der havde nogle ingeniører siddende inden for deres hus, altså på den måde.

P: Jamen, det har de nogle gange. Men jeg tror ikke det har så meget at gøre med, om de har et par ingeniører eller ej, jeg tror mere det har noget at gøre med, hvordan er det de markedsfører deres forretning? Markedsfører de deres forretning som multidisciplinært hus, så kan de levere sådan en totalydelse og det er der ret få, der kan eller i hvert fald gør.

T: Okay. Kender du til – nu tænker jeg i forbindelse med vedtagelsen af den her hjælpepakke, at den ikke blev helt så protektionistisk, som man havde frygtet – men ved du om der har været nogle ”Buy American” kampagner i lyset af krisen inden for byggebranchen?

P: Jeg tror, de er meget nationalistiske især inden for særligt den udførende del. Så de ville – uanset om de siger det højt eller ej – have en eller anden forkærlighed for amerikanske produkter. Og det er en af de udfordringer, som de danske virksomheder slås med herovre. Så vidt jeg ved – men det bliver indrapporteret mere til Washington og ikke så meget til mig – men der har været et par sager, hvor at der er nogle danske virksomheder, der er blevet mødt med formelle krav om at det skal være amerikanske produkter, hvor det ikke har været lovligt. Der er så blevet oprettet en hotline, som virksomhederne kan ringe til, og vi har direkte kontakt til Secretary of State, som kan finde ud af at slå ned på det her, hvor det ikke er lovligt. Men altså om det hjælper de danske virksomheder i det lange løb, eller om de får opgaven af den grund, det vil jeg forholde mig forholdsvis tvivlsom overfor. Men der er ikke nogle formelle krav, andet end på noget stålleverancer, det var det. Men formelt set, nej, så blev det pillet ud af den endelige lovpakke.

T: Hvor langt er amerikanerne egentlig selv i forhold til at udvikle produkter og også omkring deres viden omkring produkterne derovre? Jeg ved godt, at der er mange, der er LEED certificerede, men hvad er udbuddet?

P: Der bliver udviklet på livet løs herovre. Og selvfølgelig så er det inden for nogle områder, hvor det synes, de har nogle – hvordan skal man sige det – nogle sexede teknologier, altså noget, der har noget mediebevågenhed og som sælger nogle billetter et eller andet sted. F.eks. solar – altså solar power – hvor der bliver kanaliseret helt, helt vildt vanvittige mængder risikovillig kapital, altså helt, helt vanvittigt. Man taler om, at niveauet for investeringer i venture capital fonde inden for green tech, som overordnet begreb, er mere end tre gange så stort som det var under IT boblen. Så det er massive penge, der bliver investeret i det, fordi det på så mange fronter er det rigtige at gøre. Og fordi de tror på, at det her det holder ikke op. Det er noget, vi kan lave store penge på, hvis det lykkes for os. Men det være sagt, så kigger man måske ikke så meget efter de der 100x investeringer længere, men mere de der 20-30x.

T: Har I egentlig lavet nogle fælles fremstød med fokus på det her område? Har der været sådan nogle former for fællesfremstød med sådan Danmark som tema inden for det her område?

P: Ikke specifikt inden for Green building, men vi har en stand på ReTech, som er en mindre kongres, som er arrangeret af det amerikanske energiministerium og en NGO som hedder – det er samlingen af renewable energiproducenter – så business ledere fra dem af – hvad var det lige navnet hedder, ACORE – American Council on Renewable Energy. Der havde vi en stand og det har vi haft i nogle år, som er håndteret af Invest in Denmark og i år var ambassaden i Washington med. Men altså, vi arbejder på det.

T: Lige for at følge op på det du sagde med, at generelt så har amerikanerne en god opfattelse af Danmark som oprindelsesland for det her område, men de ved ikke rigtig hvad det er vi kan – er det rigtigt forstået? For det er nemlig også lidt min tese…

P: Ja, specifikt, hvad er et vi kan, nej. – Udover vind, altså. Overalt når der er tema omkring renewable energy, så kommer der jo typisk et billede af en vindmølle op, og så er det altså enormt behændigt, at man kan nævne det her berømte 20%-tal – altså at 20% af vores energi kommer fra vedvarende energi. Så derfor er der bare en eller anden bevidsthed blandt oplyste amerikanere, som beskæftiger sig med det, som siger ”Nå ja, Danmark, det er noget med at de er ret gode til vind, og så kan de nok også noget andet grønt” – Det er dér, vi er.

T: Lige til sidst. Er der noget specifikt, som du synes komme være interessant at få undersøgt, når jeg nu skal lave den her spørgeskemaundersøgelse?

P: Det er et godt spørgsmål. Det vil jeg godt lige tænke over.. Hvor mange sender du ud til og hvem er det? Sender du kun ud til arkitekter?

T: Ja, det forestillede jeg mig umiddelbart. Hvem kunne ellers være interessante? Jeg ved du talte noget om ingeniører tidligere, men jeg ved ikke rigtig hvordan jeg skal kunne få fat i dem…

P: Prøv ASHRAE – det er Mechanical Engineers’ fællesforening og det vil være smart at spørge dem også.

Appendix 5: Transcription of interview with Susan S. Szenasy

The interview was conducted on March 19, 2010 at Metropolis Magazine's office in New York City. (**T** = the interviewer and **S** = the interviewee).

Interviewee's professional background:

Editor in chief of Metropolis Magazine

Transcription:

T: So basically, I just described to you the purpose of this interview but I was wondering if you could start by saying a couple of words about Metropolis Magazine and your interest in Green Building?

S: Metropolis is nearly 30 years old and I've been here nearly 25 of those 30 years. So Metropolis was always interested in the larger context of design and the cultural movements that shape design so when we started thinking about environmental issues and when the culture began to sort of nibble at these environmental issues and we saw some architects and designers doing some interesting things, but very few of them, we thought that this would be a really interesting thing for us to start reporting on because that's what we are in the business for: to find the news, and the news isn't just the newest, hottest building, which many of the other magazines tend to treat as news, but for us, it's the societal culture and the environmental issues are obviously very important for the built environment. In fact, the first cover of Metropolis, when I wasn't even here yet, had something on photovoltaics, that was 30 years ago. So it was very cool, I mean, solar energy was being talked about and using solar technology in urban environments, they talked about. So it's been part of our breed from the beginning. And then we earnestly, really earnestly – no actually, let me backtrack a little bit. We used to report on developments in more advanced countries like Scandinavia and Germany and we used to write about them all the time, and I got very frustrated because, it sort of didn't apply to us. I mean, it was great stuff but over culture is different, our banking is different, our loan system is different, our building is different – everything is different, so I was very frustrated about that. And then about 6-7-8 years ago, when Ed Mazria, who eventually came up with Architecture 2030, which is by 2030, the U.S. should be zero carbon producing or carbon neutral, he kind of reconstructed the pie-chart and he said that almost 50 percent of the green house gasses came from the building industry, so when he said that to us, we did a story on him, we interviewed him and we put that on the cover and we called it "Architects Pollute" – they got very mad at us! And that really in earnest started the discussion. And that was about 7 years ago, I think. And Ed went on – Ed Mazria by the way, who brought this to us – he couldn't get a hearing from anybody. They wouldn't invite him to the American Institute of Architects' conference to speak – he should have been a key-note there for years, but he was not invited until then and then all of the sudden, people started to say "Oh my god, here's something to pay attention to" and the article was really good and then – we were doing green articles all along but this one, for the architects was a shock. It was a wake-up call. And then the big words on the cover with these rolled-up blue prints plans with smoking on the top and it said "Architects Pollute" in orange on the top and it was a very dramatic moment, and that was the moment when – although we had been reporting on it since the beginning, it sort of put us on a new level.

T: So obviously *now* there is a great focus on it?

S: Oh now, everybody talks about it. It's the *only* thing they talk about, which they have to. You know the LEED system, right?

T: yes.

S: So that had a huge, huge role to play because you could finally have the metric to measure performance. And what the LEED system did, which was really interesting to me, is that is forced architects to ask questions about more than just form and adjacency – not just aesthetics but materials, land use, water use, energy use and as the LEED system evolved, now it has a regional component, it has a large energy component, now it has an innovation component, so I mean, I think that that's a very flexible and innovative system that is evolving and it's pushing the architects to get better and better all the time.

T: Yes, because it seems to me – in my experience with Denmark and the U.S. – that you have a more holistic approach to green building over here, whereas in Denmark, for a long time, the main focus has been on energy efficiency and it seems like you have a more holistic approach or broader scope to it. So I was wondering, how would you define green building, from a U.S. perspective? What do you consider green building? – Because it has become kind of a buzz word.

S: Yes it has. I think really the way LEED defined it: that it's much more than just the building. It's the siting, it's the resource use, it's the interior, it's the structure, it's the mechanical system, it's the water system, it's really basically everything that goes into the built environment and happens around the built environment. And I think that that's really kind of a wonderful thing because that's what architecture should be about. And then it also, in an urban situation, it also considers the urban fabric so that it's not this plunked down building in the middle of nowhere, but it considers; how does it relate to it's neighbors, how do they share air space or how do they not block each other's sun or how do they sort of relate to one another on the street and with the forms of the buildings and so on.

T: So there's a lot more urban planning involved?

S: Yeah, I mean, I think there needs to be and not enough of it, but I think it is beginning to happen with new developments as they are beginning to appear and with new plans, they are really looking at adjacencies, they are looking at surfaces, they are looking at tying green buildings to mass transportation transit so there is a more holistic idea of how to do this, but you know it's a very nice idea to say that that's what it is and that's what it wishes to be but it's not yet happening. I don't think "holistic" is within our vocabulary yet. So we're not advanced. I think we are growing, we are becoming interesting, I think we are innovating a lot of things, I think there are new materials being innovated, which is not by the industry, by the way – the industry is not doing that. It's schools, graduate schools, funded programs at Universities at those kind of technical schools where architecture and engineering is a big part of the curriculum. So I think, that's where a lot of the innovation happens and then there's a lot of sort of really ugly innovation happening, not beautiful design innovation, like geothermal, you know, which is very sort of hardcore boxes and mechanics, but it's the hidden material, but it's the hidden material, the hidden structure that's beneath the architecture that makes the architecture work better and more efficiently. So there's a lot of those innovations happening now.

T: Okay, that's interesting because that was actually one of my questions: it seems that among architects and engineers, there is a big interest in LEED and green building but how about the building materials industry in the U.S., are they not really innovating? Are they then importing the products then or…?

S: Well, they do. There's a lot of importing. But what is interesting is that – you may just want to look at the way they have evolved glass because we build so many glass buildings, and certainly, there's the high energy efficiency glass now, and the low UV rating glass so I mean, that industry in the U.S. and elsewhere, like in Britain, with Pilkington and PPG in the U.S. and all of those big companies, they have done a lot of steady, incremental innovation so I think there's a lot there, and the architects today probably, I'm hoping, at least not the ones I know, they would never use a high-energy guzzling glass, they would go for the most efficient, the most glare-free, the most advanced glass that there is. So I think in that sense, there has been a lot of innovation. I think where the innovation is lacking so far, is the understanding of the location of the building and how do you site it and how do you capture the breezes and the sunlight and how do you use it and how you protect the building against it? I think there are small buildings that are built that way and some buildings that are naturally built that way but you look around here [in New York City] and nothing has been built that way. So that's an area of improvement and also, what's happening now, especially in cities like New York and many other cities around the U.S. is that we have this enormously inefficient building stock. I mean, everywhere you look, these buildings are leaking energy in every pore; the glass is old, the structure is not tight, so all these buildings can't be torn down, they are going to have to be upgraded. So it is going to be a very interesting thing that is going to start happening here.

T: So do you think the main focus is on the new construction or on the existing building stock and green retrofits and all that?

S: I think that what they are saying a lot in cities like New York is that new construction, because of the financing, is probably not going to happen so in the next 3-5 years, it's probably new construction will be few and far between, not as much, I mean, you look around here, and a lot of these buildings were put up in the 80's and 90's, there was a lot of construction going on then. I don't think we are going to have as much. I think the new construction is somewhere in the Middle East or China, where they need new buildings, more buildings. I think we are "overbuilt" now for the use that we have – certainly offices, we have a glut on the office market and a glut on the condo market here in New York and in Miami and other American cities. So I think they overbuilt, that's what the developers do, you know they just build, build, build and then it sort of falls apart and they have to kind of rethink how to adapt those buildings. But I think right now, a lot of the work that people expect to do, are renovations and adaptive use of existing buildings.

T: In that area, what do you see as the most typical area they focus on – is it insulating better, windows… or where do you see the main focus when they do these renovations?

S: I think what's been happening as I've been watching now and I've been seeing some very interesting examples is that the GSA – the government group that runs all the government buildings – the General Services Administration that basically maintains many of the government buildings, has a lot of buildings around the country that are energy guzzlers and are just not functioning any more. So, what I've seen in various places, is that they do the retrofit of the glass, they do the renovation, they do the heating and air conditioning and when they've done all of that, they realize that the interiors aren't working, and then they refurnish the interiors. So I think it's a whole re-make, actually. And I think that's a very interesting thing, because, you know the colors don't work, the lighting doesn't work if the building is remade from the outside and all of these things have been changed, you just can't push the same stuff in there. So it can be a very comprehensive job and that's been very encouraging because that's very exciting for the people who work there. Because their jobs are going to be much nicer, if those buildings are upgraded. You know, President Obama has put out this really important executive order on – actually you should go on whitehouse.gov – and that executive order, I wrote an editorial on this executive order. It's a very comprehensive directive that every government building has to be upgraded and be made better for the employees and more energy efficient. So that's out there. And every building and every manager has to figure out what their way of doing it is and how they can do it best for what they have.

T: Is there a time-span on it?

S: There is a time-span on it. I think, he put it out last fall, and then there was a 3 months period, where they kind of had to think about what they were going to do and start proposing and then now, in 2010, a lot of that funding, that stimulus money that we all talked about is beginning to be allocated.

T: Okay, because that was one of my other questions. The building industry is obviously very sensitive to the financial climate. How do you see the financial crisis has impacted this area? – The green building area?

S: The financial crisis has impacted the building area, period. And the green building area, if anything is built now, it's a green building. The problem is that very few things are being built because there's no financing. But I think that any building that – especially government buildings – the government has standardized no LEED, so they really want the highest performance buildings because they know that they are being held accountable for the tax payers money. So they have to do that. I think that institutions standardized on green a long time ago because they also have energy issues and performance issues with their buildings so I think the problem right now is that there's just no financing. So it's beginning to – I think it will start happening, but it still isn't happening. You know, every architect I know still isn't working. What they are working on – I was just at the HOK office here in New York this morning and they have a big,

big job in Brazil. So there's a lot of South American work apparently. South America, Middle East, India, Asia elsewhere, maybe not so much in Europe but some in Europe. But I think there are mega, mega developments, so these are not singular buildings, these are whole campuses, whole towns that they are working on. So the size of the projects is enormous.

T: Alright, that's interesting. So it seems to me that there is an interest in this on a federal level but a lot of it seems to be moving along more on a state level. Are there any geographic areas, states or cities that you would consider sort of the front runners?

S: Yes, there is. You know, Chicago's Mayor Daley seems to think he is the king of green. But he is. He has really great policies, and he has amazing people working with him and there are all these kinds of programs in place. So Chicago is stellar. I think the Pacific North-West is great. Seattle, Portland, you know, all these cities that do really well, they are very, very interested in green. California, very interested. They have the highest standards in green building. So the west coast has a really wonderful record of innovating and doing some wonderful things. And then the middle east, Chicago and then, our Mayor in New York is actually – I mean, we have a pretty stringent plan to upgrade and to go green.

T: Yeah, and they just passed the first or the new energy codes in New York City, right?

S: Yeah. And that's also very interesting because that is going to change how buildings are made and how they measure up to the new code, which – the code has been in the way of a lot of people who have been trying to build green, you know because old codes are being written for something else, you know if it says you have to have 70 degrees Fahrenheit at all times and so on, so if you have that law and you have that in place, you know, you're dead because you are using all that energy. So I think that there are some very interesting new codes that are being written and that's just the beginning. And I think, maybe it's chauvinistic on the part of New York but they say that when the New York City codes changes, a lot of smaller cities watch how it changes, because we have such an enormous building stock. So they'll watch and then they'll begin to adapt.

T: Do you think – besides the initiatives that are regulatory – are there any incentives for building green or is it primarily building codes?

S: No, no, no, there are incentives. There are tax credits where you can get – various states have it, I think for instance New York and New Jersey has it – if you install for instance photo voltaic, you get some tax credits. If you use energy saving appliances, you get a tax credit. So I think tax credits are really helpful and rebates and all that so that people are encouraged to spend money on retrofitting their houses or buildings with more efficient mechanical systems.

T: Do you think it is more of a supply-led or a demand-led movement? I mean, do you think it is more the architects and that industry that is pushing the green agenda or do you think more and more corporations, for instance tenants or private home owners, are they requiring or demanding more green?

S: You know, I think that's very hard to tell. I think that what I hear now, is that everybody is kind of onboard now, or well not everybody but a large percentage of the population is onboard, so corporate people, they have to watch what they are spending, institutions need the most efficient buildings, schools, I think in public schools, there's the health issue, there's the spending issue, all of that. So I think there's an awareness of all of this, I think they are lucky if they get an architect that really knows what they are doing because they could be given some very primitive green building, which you know as far as I'm concerned, if you are LEED certified, you are basically doing the minimum.

T: You are basically just doing the standard?

S: Exactly, you are basically just doing a couple of recycled products and that to me is meaningless now. I think, even LEED platinum is not as strong as it should be but at least it sort of raises the plateau. So I think it's growing. It's not just the architects and the engineers who are pushing this but more and more people are interested and also, energy prices are so high.

T: So you do think that is the main focus? You know cutting costs?

S: Oh yeah! I don't think people are doing it for anything else. First of all, I don't know how it is in Denmark but here there's this sort of anti-science, anti-anything movement is enormous. So it's like, you know "climate change – there's no such thing". And it's not a proven science and even if it is proven, it's not something that people accept so therefore we don't have to do anything about it. And the fact that human activity might cause the environment to collapse, that is beyond most people's imagination. I think that you [Denmark] and those countries are much more advanced in thinking more holistically about the world we live in. We are… I don't know what we are… we resist anything that's new which is weird given the U.S. history and given the innovation that has occurred here and I think what's interesting is that innovation happens in spite all of that. So I think there is a avant-garde out there that's pushing and an avant-garde among developers now, which is good because they also need to look at this. There are communities being developed by people who understand these issues and the transportation issues, you know you don't build everything around the car, you really basically create dense developments accessible by public transportation so there's a lot more talk about that from the people who fund these new developments. So, it's not as much as I would like it to be, but I see a progression. I see things happening.

T: You mentioned developers earlier. In terms of the process of building a project in the U.S., who is typically in the driver's seat? Is it the developer, the architect or…?

S: It's usually the developer. The developer is in the driver's seat because he has the money – and it's mostly a "he" – most of them are these old-fashioned men with the big bucks. So basically, whoever has the money is in the driver's seat. And now what is really becoming interesting are these new systems, software systems, that really help everybody collaborate so the developer, the architect, the engineer, the contractor, the landscape designer, they all are now part of the process before they even draw one single image. So they all work together, put all that information into the system, into this integrated project development system (IPD system) and it's incredibly loaded with all the information about the building, the site, the materials, the needs of the developer, how many floors they need and how much they need to optimize the floor space and all of that – all of that is in there early on. As a result, it's a much more efficient way to build, so there's a lot less waste, so it's inherently greener because of the less waste and because you very early on look at the efficiency of the structure. So it's in the materials that you use, the way you route out the services throughout the building, the way you do all the things you need to do to make the building. I mean, it's really amazing, if you get a change it would be really cool for you to see how these programs work. And what the good thing is that the developer, the contractor and the architects and all the other participants are held responsible for the job. So they can't just blame it on somebody else so this is a new way of building. It's something that everyone is really interested in. A few people are doing it really well and everyone else is just baffled. The big offices are pushing this but the smaller offices not so much although some of the smaller ones specialize in this and then contract themselves out to the larger firms as experts in this area. And what is also interesting is that all the costs are in front of you the whole time, so you know how much money you are spending, how much you are going to be making, how much is going to be left over to pay everybody so whenever you make a move, it's all calculated. And then there's room for some really interesting design to occur when you discover things about the structure that you wouldn't have known unless you had these models, so – I mean we did a story on Autodesk's office in Massachusetts where they were able to do a lot of really nice things for the employees because they found some money, savings in the process of building the project, so had a special ceiling system, a special atrium, they were able to put in. They were able to do some very nice finishes and they wouldn't have been able to do that if they didn't have that system.

T: I'm jumping a little bit now, but you said earlier that there's this fear of the new and skepticism about the climate change and so on. Obviously, there was a lot of really big focus on the UN conference on climate change in Denmark as it took place there, but I was curious to know – was that even noticed over here?

S: Well, what was noticed, which was really disgusting, was that the extreme right attacked Obama – you know they attack him at all levels and Copenhagen was held against him because he went there and he basically didn't come home with the goods, and basically he is trying to find his way through all of this so – Copenhagen was talked about in the news. It was reported as a largely ineffective conference that it didn't make the break trough that was hoped for. But what I thought was interesting is that something like that could actually happen. That people can get together and then next time, they'll learn more. And so to me, it was very positive. I thought it was a great thing that it happened there that the players were all together so there's the possibility of a break-through to happen. So I don't know… I think we, here, want everything to happen immediately – "okay there was a conference, what did they do *now*?." So there's this impatience, where I think other countries, where there are these older cultures, don't have that impatience the same way we do here, so you are allowed to incrementally develop something. I mean, here the question is always "well, when is it going to happen?" I mean, some things won't happen for a hundred years, but if you don't start it, it is never going to happen at all.

T: So the focus was more on the failed outcome and not the actual content of this climate change.

S: Yeah, exactly, on the failure. I think it was reported in a very sort of negative way, that it didn't reach the conclusions maybe it should have and so on. I heard some mention, a couple of weeks ago, they were talking about Obama's failures, which they love to do, and that was one of his failures. They were likening it to this healthcare legislation that he is trying to pass. And it was like "Copenhagen and healthcare", you know.

T: Yeah, because, I don't know if that has anything to do with the healthcare package, but you also had a climate change bill that's kind of stalled in the Senate, right?

S: Yeah.

T: Do you think anything is going to happen with that?

S: I think it's going to happen. It's going to happen. I think what's going to happen is that the healthcare will pass, it has to pass. You know, they'll twist as many arms as they can and then they'll pass it. And then they'll get on to these other issues. And he's not going to let it go. Remember he was a community activist, the guy is tenacious, he is not going to let it go. I think they are underestimating him because they would love to dismiss him, but he knows that these things are important, the people around him know that these things are important, the climate change issues are big for him, for the whole administration, so I have a lot of faith in him. But I think the process of getting there has turned into such a horrible way of doing things now. But I think there are enough people and enough decision makers that know that this is really important and then on the state-level and local level, there are a lot of rising politicians in the U.S. cities, the mayors, the local representatives who begin to understand that these are important issues.

T: So they are sort of driving the movement?

S: Yeah. Do you know of this town in Kansas called Greensberg?

T: No.

S: Okay, Greensberg, Kansas was a small town that was blown away by a tornado about 7 years ago. And when the c ommunity started to thinking about rebuilding, they decided that the whole town was going to be a green town and it would be LEED platinum. And the first buildings are in the ground now. And I mean, that's just one town but it's a great example. And I think when things like that start to happen, people look at it and begin to wonder about it and it's in the consciousness so there'll have to me more of those of course, but I think that's a pretty exciting thing.

T: Do you think that – it seems that both with the passing of the stimulus bill and now with the climate change bill that there's a lot of focus on keeping and creating green jobs in America. Do you think there's a preference for buying American within the building industry or do you think that's more just politics talking?

S: I think the green movement is assessing what can be made locally and what needs to be imported? And I think, I'm not sure it's about buying American, it's more about buying locally. And I think, finally, we are beginning to talk about the fact that maybe local jobs need to be developed to sustain those local communities and so how do you do that? And I think some of the most interesting things right now are green jobs. So places like Oklahoma, where there's this great sort of underground geology that can create geothermal technology – you know one of the fastest growing companies is a geothermal technology company that's based in Oklahoma, because they are developing this stuff. And then in Arizona, it's the photo voltaic, because of the sun. And I think that's wonderful that these local assets that are very specific to those places can be used as a basis for developing jobs, developing communities. And if more and more of that is done, then it will be interesting to see how the market runs, what is broad in, what is taken out, what is produced here? Because until recently, we allowed anything. We allowed manufacturing to go all out of the United States and the implication was that we are only going to have high-tech jobs, but you know that's very fewer jobs than the people who needs those jobs to maintain those communities, I mean, everybody is not going to be high-tech and things still need to be made. And now especially with the LEED program of 500 miles radius – but even if you are not following that, if it costs too much transport, you are going to think about using it. I think, even 2 years ago, I remember some architect was saying that he had used marble that was cut in Italy, finished in China and then brought to the Mid-West. So it basically went all over the world, and it's marble so it's very heavy. And I just don't think you would do that anymore. At least not among the architects. And the developers who don't work with architects aren't going to use that kind of material anyway.

T: And they are probably not part of that kind of decision-making anyway?

S: No. So I think it's kind of interesting to see what's going to happen, because we are beginning to realize that local isn't necessarily a negative, and isn't prevential, but it does have its role, so let's not just give up on everything and consider ourselves high-tech. So I think with the green movement that's also very helpful.

T: I know that you haven't been to Denmark but you said that in the beginning that you were tired of reporting about what we did in Scandinavia and in Germany. What is your immediate impression of where Denmark is as an origin country of green building solutions?

S: I think, it just feels to me that you know how to do this. I mean, you look at those cultures and you see Scandinavia and all of those countries, and Germany, too, and you say, they have been looking at this and they've been committed to this for a *long* time. It was before modernism, and then modernism was shaped according to that and the siting was important, the material was important, the local crafts were important, the integration of all of those things were important. So, I don't know, it just seems natural to me. It's not that super effort that we have to make here.

T: I think part of that also comes from – as you said energy prices are starting to go up, so people start paying attention to this. With the energy crisis in the seventies, Denmark was very depended on foreign oil, so that's really when the movement in Denmark started.

S: That's right and you know, it's interesting because it started here, too. But then we became really rich and then oil prices were insanely low so all of the sudden, there was no crisis – and I mean, Jimmy Carter put photo voltaics on the White House and then all of that was dismantled. And one thing that is interesting to me about the American green movement is that we have everything, we have the technologies, the solar technology that we use in space to power those space probes, they are so efficient that those things work for years and years, beeping down to earth the information we are looking for, that we couldn't harness that knowledge into the larger built environment. I mean, I don't know if you ever looked at the Jetropoltro lab in California, they are responsible for developing all these little Mars-landers and luna-landers and all these small machines that are submitted into space and then land and submit all kinds of information back. And I mean, the solar technology on those things is amazing, it's absolutely amazing. It's think, it's beautiful, it's super efficient and that's what drives those instruments. And there are incredibly beautiful in the kind of engineered way. And I have always been astounded by the fact that here we are, and no-one has never thought to put those things together, and the building PVs that we put up are incredibly primitive, and you know sunlight is a diffuse light so you really have to concentrate it. There are now new products, in fact one of the products developed at RPI has a fresnal lense embedded that moves to track the sun, that actually can capture a huge percentage of the sunlight into energy. So that's being tested at Syracuse now, that's a very cool piece of technology because the building façade actually responds to the sun and gathers the energy as the moves across the sky. Right now it's in a very experimental area where they are testing it, but it's very beautiful. So I think there are things like that that are really interesting, and they need to be monetized, they need to be market ready, standardized because original products like that are very expensive.

T: I don't think I have any more questions left – oh yeah, did you go to the GreenBuild conference last year?

S: Yeah, I go every year.

T: When did that start?

S: That started, I think, 7 years ago. And it's the USGBC that's behind it. And you know that the USGBC is not a government organization, right?

T: Yeah.

S: Okay, so it's a private citizen – a very kind of American sort of thing. Citizens, ties of citizens coming together to create things, so that's a very hopeful thing. And it started – the first one I didn't go to – and the first one had something around 400 people. But that's like 7 years ago and every year it's doubled or quadrupled so last year, there were more than 27,000 people. And that's a great selection of not just architects, but it has developers, city people, government people. It has technical people, engineers, interior designers, everybody who's interested in this area, water specialists, investment bankers – everybody's there. And they are all talking about green. I mean, you have to wait in line for a bus or something because it's all sort of spread out and everywhere, everybody is talking about projects that they are working on. You know, how are we treating mold, how are we getting energy into this place and siting it, so there's all this language around you that you hear all the time. And then, I go to as many sessions as possible because I really want to know what is going on, and the questions from the audience are spectacular, I mean these are very informed people.

T: So they are very specific questions?

S: Very specific, very smart, very knowledgeable. They talk from understanding. The people who are there have totally bought in. They are there to develop a whole new system whatever they are working on. This past year, it was in Arizona. And they had representatives from all over the world, I think something like 70 countries. They are trying to establish their own green build chapters in those countries.

T: Yeah, because I know they have just established – or at least talked about creating a green building council in Denmark, also. Which is actually funny because we have been doing this for many years but we haven't quite systemized it as much as you have over here.

S: Yeah, and I love that. I think a lot of people criticize LEED because it is such a sort of "check-mark" sort of idea, but you know, it had to happen that way. Otherwise, nobody would have done anything.

T: And it's harder to compare as well when you don't have a system.

S: That's right. And also the fact that it made people pay attention to things that they hadn't paid attention to before: How much energy are you using? How do you control it? How do you work with the water system? And so on. And then they now are pushing for very healthy indoor climate, which is a huge issue. Because you know that these sealed buildings are chemical poison. And with the air condition, where it's the same air that's running through again and again… What now is going on now is that there's a lot of ventilation in the air condition system that the air condition take from the outside, so it's not the same sealed, contained thing but there are new systems that are able to cleanse the building and refresh it so it's not the same stale air that comes out. So I think it's really interesting how it's developing but I mean, for me it's going very slowly because I don't know why we can't do this any faster, I really don't . I mean, it's just the right thing to do, and it's the most *interesting* thing to do.

T: And in the long run, it's the most efficient thing, too.

S: Yeah, and also. I mean, you think about it: isn't nicer to know where the sun comes from? And to be engaged in it? Isn't it nice to get a little breeze in one in a while and to somehow engaged with the world that is outside? Isn't it nice to have good fresh air inside a room? Or to have good materials that are pleasant to touch and that smells good and doesn't smell of chemicals? I don't know why this is such a big deal?

T: But do you think that – it's probably more for the commercial buildings and for the larger buildings, for instance New York has a lot of sky-scrapers – but for the private homes – houseowners that it's not really something they focus on?

S: I don't think this happens in Denmark, because you a much healthier than us, but I think what is happening a lot in the U.S. is that a lot of children are growing up with these horrible allergies. And so their parents are forced to deal with these issues of toxicity and air quality and so a lot of families are trying to figure out how to deal with that and as a result there are more and more environmental discussions going on in the individual houses that are built. I think it's not enough. But I think once people see the benefits and the health benefits, and that their energy bills are not as big as they were, I think it's a no-brainer – then it's going to happen. But it is financial first; how much is this going to cost? And I think one of the problems is that the initial cost of systems that have not been truly tried are very high. So that's why I think these financial aides that are coming out and these rebates that the government is giving is helpful. But again, all of these technologies have to be taken to a much higher efficiency level before they can do what the homeowner needs them to do. So I think everything kind of needs to be developed together right now. And we are still in the beginning phases. But you know, I came to America when the space program started. And it was incredibly – it was an amazing time – in the sixties, the world was being discovered, technology, earth relooked at – everything was so incredibly positive and interesting and life could be so much more interesting and innovation was spectacular and it did bring about amazing things but some of it, we forgot. I mean, cell phone technology, all those technologies that we use now are a result of the space program. But we just take all of this for granted and move on and I think if we took advantage of some of these programs that we have already developed and the technologies, we'd be much further.

T: It will be interesting to see, in 10 years, what has happened. Because it is interesting, as you said, in the sixties, America was leading in many technological fronts. And I mean, it seems that there is a big focus on this issue, but you are not really leading yet?

S: No, we are not. And I think it is good that the rest of the world is also interested in this. I mean when various parts of the world begin to invent things, and it's not just one place, like some arrogant place like America, that it becomes much more interesting. But I really think that we could have built, and we can still build on our tradition of innovation here. And I think that our universities are doing it, you know MIT are doing amazing things, I think the California schools are doing great stuff, RPI, too. So it's a question of how do you commercialize these things?

T: Alright, great. Thank you so much. I won't take up any more of your time.

Appendix 6: Copy of email text to respondents found through AIA's website

Dear [First name Last name],

I am currently writing my Master's Thesis at Copenhagen Business School on green building in different countries, including the United States.

According to the American Institute of Architect's "Find-an-Architect" search function and the information provided on your website, your company offers LEED Certification Services and I thus assume that you are (at least to some extent) familiar with green building practices.

I would therefore greatly appreciate it, if you would take a few minutes to answer a brief survey as this would be very helpful to my study.

The survey only takes about 6-7 minutes to answer and your answers are completely anonymous.

Click here to access the survey: http://www.surveymonkey.com/s/YF5FRXB

Should you have any questions regarding the survey or have trouble accessing it, please do not hesitate to contact me.

Thank you very much.

Sincerely,

Tanya Jacobsen
MA in English and Intercultural Market Studies
Copenhagen Business School, Denmark

For more information on Copenhagen Business School, please go to: http://uk.cbs.dk/

Appendix 7:
Copy of email text to respondents found through ASHRAE's website

Dear [First name Last name],

I am currently writing my Master's Thesis at Copenhagen Business School on green building in different countries, including the United States.

I understand that you have earned AHSRAE's High-Performance Building Design Professional certification and I thus assume that you are quite familiar with green building practices.

I would therefore greatly appreciate it, if you would take a few minutes to answer a brief survey as this would be very helpful to my study.

The survey only takes about 6-7 minutes to answer and your answers are completely anonymous.

Click here to access the survey: http://www.surveymonkey.com/s/YF5FRXB

Should you have any questions regarding the survey or have trouble accessing it, please do not hesitate to contact me.

Thank you very much.

Sincerely,

Tanya Jacobsen
MA in English and Intercultural Market Studies
Copenhagen Business School, Denmark

For more information on Copenhagen Business School, please go to: http://uk.cbs.dk/

Appendix 8: Printout of the questionnaire

Green Building

1. Your professional background

* 1. Which job title best describes your professional background?

- ◯ Architect
- ◯ Engineer
- ◯ Contractor

Other (please specify)

* 2. Which state do you primarily operate in?

State:

* 3. Are you a LEED Accredited Professional?

- ◯ Yes
- ◯ No

Page 1

Green Building

2. Focus areas within green building

1. How much do you typically focus on each of the following aspects when designing/building a green building? (Please rate each aspect on a scale from 1 to 5 with 5 being the highest)

	1	2	3	4	5
Site planning	◯	◯	◯	◯	◯
Indoor environmental quality	◯	◯	◯	◯	◯
Water management	◯	◯	◯	◯	◯
Use of sustainable materials	◯	◯	◯	◯	◯
Energy efficiency	◯	◯	◯	◯	◯

Page 2

Green Building

3. Your influence on the choice of materials used

1. How often are you normally involved in the process of selecting the materials used in a building project?

- ◯ Never involved
- ◯ Rarely involved
- ◯ Often involved
- ◯ Always involved

Green Building

4. Decisive factors when selecting building materials

1. Which of the following factors most typically influence your choice of building materials? (select as many as you consider significant)

- ☐ Habit
- ☐ Energy labelling (e.g. Energy Star)
- ☐ Product functionality
- ☐ Short payback time on efficiency savings
- ☐ Manufacturer's image
- ☐ Product warranty
- ☐ Easy to install
- ☐ Supplier's guidance
- ☐ Discount agreements offered by supplier
- ☐ Price
- ☐ "Made-in country"
- ☐ Value-for-money
- ☐ The product's environmental footprint
- ☐ Whether or not the product is manufactured locally

Other (please specify)

Green Building

5. Assessment of new or unknown products

1. When assessing new or unknown products, which of the following parameters do you attach most importance to? (Name as many as you consider important)

- [ ] Quality
- [ ] Price
- [ ] "made-in country"
- [ ] Manufacturer's image
- [ ] Product functionality
- [ ] Design
- [ ] Discount agreements
- [ ] Proven ability/track record
- [ ] Warranties
- [ ] Technical documentation

Other (please specify)

Green Building

6. Global green frontrunners

*** 1. According to U.S. Green Building Council, green building practices should address the following aspects: site planning, indoor environmental quality, water management, materials used, and energy efficiency.**

With this in mind, which countries do you think are leading the way in terms of green building solutions? (Name at least one)

Country 1

Country 2

Country 3

Green Building

7. Country specific competencies

In the following pages, you will be asked to evaluate a building built in 3 selected countries based on a series of parameters.

Please indicate how you would rate this building in terms of each parameter if it was built in the given country compared to the rest of the world.

1. Given your impression of this country's competencies within green building, how would you rate a building built in GERMANY compared to other countries in terms of

	Significantly below average	Below average	Average	Above average	Significantly above average	Don't know
Architectural aesthetics	○	○	○	○	○	○
Implementation of energy efficient heating and cooling systems	○	○	○	○	○	○
Insulation of the building envelope	○	○	○	○	○	○
Low energy, high performance windows	○	○	○	○	○	○
Providing a comfortable indoor environment	○	○	○	○	○	○
Quality of materials used	○	○	○	○	○	○
Successful incorporation of renewable energy sources	○	○	○	○	○	○
Utilizing natural daylight	○	○	○	○	○	○

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Green Building

8. Country specific competencies (continued)

Please indicate how you would rate this building in terms of each parameter if it was built in the given country compared to the rest of the world.

1. Given your impression of this country's competencies within green building, how would you rate a building built in DENMARK compared to other countries in terms of

	Significantly below average	Below average	Average	Above average	Significantly above average	Don't know
Architectural aesthetics	○	○	○	○	○	○
Implementation of energy efficient heating and cooling systems	○	○	○	○	○	○
Insulation of the building envelope	○	○	○	○	○	○
Low energy, high performance windows	○	○	○	○	○	○
Providing a comfortable indoor environment	○	○	○	○	○	○
Quality of materials used	○	○	○	○	○	○
Successful incorporation of renewable energy sources	○	○	○	○	○	○
Utilizing natural daylight	○	○	○	○	○	○

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Green Building

9. Country specific competencies (continued)

Please indicate how you would rate this building in terms of each parameter if it was built in the given country compared to the rest of the world.

1. Given your impression of this country's competencies within green building, how would you rate a building built in THE UNITED STATES compared to other countries in terms of

	Significantly below average	Below average	Average	Above average	Significantly above average	Don't know
Architectural aesthetics	◯	◯	◯	◯	◯	◯
Implementation of energy efficient heating and cooling systems	◯	◯	◯	◯	◯	◯
Insulation of the building envelope	◯	◯	◯	◯	◯	◯
Low energy, high performance windows	◯	◯	◯	◯	◯	◯
Providing a comfortable indoor environment	◯	◯	◯	◯	◯	◯
Quality of materials used	◯	◯	◯	◯	◯	◯
Successful incorporation of renewable energy sources	◯	◯	◯	◯	◯	◯
Utilizing natural daylight	◯	◯	◯	◯	◯	◯

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Green Building

10. Country-specific competencies: Denmark

In the following, you will be asked a series of questions about Denmark and the Danish building industry. Please answer these questions to the best of your ability given the degree of knowlegde you have about this country.

1. Did you participate in the AIA Committee on Design's study trip to Copenhagen in the fall of 2008?

◯ Yes

◯ No

2. Have you in any other way had first-hand experience with this country? (For example through other visits to Denmark, personal or business relationships etc.)

◯ Yes

◯ No

If yes, please explain:

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11. "Made in Denmark"

Below is a number of opposite statements about your impression of Denmark. Please indicate which ending of each statement best describes your impression.

1. Denmark is a country I associate with

	Poor design	1	2	3	4	5	Great design
-	○	○	○	○	○	○	○

2. Denmark is a country I associate with

	Poor quality	1	2	3	4	5	High quality
-	○	○	○	○	○	○	○

3. Denmark is a country I associate with

	Inexpensive products and services	1	2	3	4	5	Expensive products and services
-	○	○	○	○	○	○	○

4. Denmark is a country I associate with

	Traditional technologies						Innovative new technologies
-	○	○	○	○	○	○	○

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Green Building

12. Danish architecture

1. Which qualities or attributes do you associate with Danish architecture?

2. Which Danish architects or architectural firms have you heard of, if any?

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Green Building

13. Danish building materials

1. Which qualities or attributes do you associate with building materials developed or produced in Denmark?

2. Which Danish brands or companies within the building materials industry have you heard of, if any?

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Green Building

14. Consulting engineers

1. Which Danish consulting engineering firms have you heard of, if any?

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Green Building

15. Architects

1. Which of the following architects or architectural firms do you know or have heard of, if any?

- [ ] 3xN
- [ ] Arne Jacobsen
- [ ] Bjarne Ingels Group (BIG)
- [ ] CF Møller
- [ ] Finn Juhl
- [ ] Friis & Moltke
- [ ] Hans J Wegner
- [ ] Henning Larsen Architects
- [ ] Hvidt Architects
- [ ] Jan Gehl
- [ ] JDS
- [ ] Jorn Utzon
- [ ] Lundgaard & Tranberg
- [ ] PLH
- [ ] PLOT
- [ ] Poul Henningsen
- [ ] Schmidt, Hammer and Larsen Architects
- [ ] SLA
- [ ] Vilhelm Lauritzen

Green Building

16. Building materials manufacturers

1. Which or the following brands or companies do you know or have heard of, if any?

- [ ] Ben C. Gerwick Inc.
- [ ] DAFA
- [ ] Danfoss
- [ ] Exhausto
- [ ] FL Smidth Inc.
- [ ] FlowCon Americas
- [ ] Grundfos
- [ ] Haldor Topsoe
- [ ] Heliodyne
- [ ] Junckers Hardwood
- [ ] Pihl Inc.
- [ ] Protec
- [ ] Rockwool/Roxul
- [ ] Siplast
- [ ] VELUX

Green Building

17. Consulting engineers

1. Which of the following consulting engineering firms do you know or have heard of, if any?

- [ ] Alectia
- [ ] COWI
- [ ] Grontmij-Carl Bro
- [ ] NIRAS
- [ ] Orbicon/Leif Hansen Engineers
- [ ] Ramboll

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Green Building

18. Your impression of Denmark

1. Below is a number of statements about Denmark. Please read each one and indicate to which extent you agree or disagree with it by ticking off the appropriate box for each statement

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Denmark is a country with a high interest in environmental protection and energy conservation	○	○	○	○	○
Denmark is an active contributor to global challenges	○	○	○	○	○
Denmark is a green and efficient society	○	○	○	○	○
Denmark is among the first to adopt new technologies and new ways of thinking	○	○	○	○	○
Denmark is a society that shows ethical accountability and conscientious behavior	○	○	○	○	○
Denmark is a country where there is harmony between tradition and modernity	○	○	○	○	○
Danmark is a country which dares to think in unconventional ways, to question everything and explore new ideas	○	○	○	○	○

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Green Building

19. Additional comments?

Thank you for completing this survey. If you have any additional comments about your impression of Danish green building solutions, please write these in the box below.

Otherwise, please press "Done"

1. Additional comments:

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Appendix 9: See CD-rom

Appendix 10: Knowledge of Danish architects (spontaneous and prompted)

Spontaneous recollection of Danish architects and architectural firms: (Question 2, page 12)

Architect/firm	Response Count	My comments
Jørn Utzon	17	*Danish architect (1918-2008) - Associated with **Modernism***
Arne Jacobsen	9	*Danish architect (1902-1971) - Associated with **Modernism***
Bjarne Ingells Group (BIG)	6	***Contemporary** Danish architectural firm*
Peder Vilhelm Jensen-Klint	3	*Danish architect, furniture designer and painter (1853-1930)*
Henning Larsen	3	*Danish architect (1925-present)* *- Associated with **contemporary** architecture (and Modernism)*
3xN/3xNielsen**	3	***Contemporar**y Danish architectural firm*
Snohetta*	2	*Presumably the Norwegian architectural firm "Snøhetta"*
Alvar Alto*	1	*Finish architect and designer*
Arup	1	*International consulting engineering firm – Not a Danish company. (Although the founder, Ove Arup, was of Danish-English origin)*
Max Buel	1	*Presumably Danish architect, Max Brüel (1927-1995)* *- Associated with **Modernism***
JAJA	1	***Contemporary** Danish architectural firm*
Kaare Klint	1	*Danish architect and furniture designer (1888-1954)*
Rem Koolhaas*	1	*Dutch architect*
Libeskind*	1	*Presumably Polish-born architect (later U.S. citizen) Daniel Libeskind (Designed the Jewish Museum in Copenhagen)*
Lundgaard & Tranberg	1	***Contemporary** Danish architectural firm*
Moeller	1	*Unclear what is referred to here, but perhaps the Danish Architect C.F. Møller (1898-1988) (Since this respondent also listed C.F. Møller in the prompted answers), who is associated with **Modernism***
Steen Rasmussen	1	*Presumably Danish architect, Steen Eiler Rasmussen (1898-1990)* *- Associated with **Modernism***
Hans J. Wegner	1	*Danish architect and furniture designer (1914-2007)* *- Associated with **Modernism** (mostly known for his chairs)*
Zumthor*	1	*Presumably Swiss architect Peter Zumthor*
Jorgenson	1	*Unclear what is referred to here (Perhaps the Danish architect, Thorvald Jørgensen (1867-1946) but too uncertain to tell)*
Arne Odegaard	1	*Unclear who is referred to here*
Sørensen	1	*Unclear who is referred to here*
Don't know / None	27	
Number of respondents who answered this question		**59**

* Architect or architectural firm of other origin than Danish

**One response with just "Nielsen" is included in this count

Knowledge of Danish architects when presented with prompted answers: (Question 1, page 15)

Answer option	Response count	Response percentage	My comments
Arne Jacobsen	41	65,1%	*Modernism*
Jorn Utzon	41	65,1%	*Modernism*
Henning Larsen Architects	19	30,2%	*(Modernism)/Contemporary*
Hans J Wegner	15	23,8%	*Modernism*
Bjarne Ingels Group (BIG)	13	20,6%	*Contemporary*
Schmidt, Hammer and Larsen Architects	12	19,0%	*Contemporary*
Lundgaard & Tranberg	6	9,5%	*Contemporary*
CF Møller	6	9,5%	*Modernism /Contemporary*
PLOT	6	9,5%	*Contemporary*
Poul Henningsen	5	7,9%	*Modernism*
3xN	5	7,9%	*Contemporary*
Jan Gehl	4	6,3%	*Contemporary (urban planning)*
Finn Juhl	4	6,3%	*Modernism*
Vilhelm Lauritzen	3	4,8%	*Modernism/Contemporary*
SLA	3	4,8%	*Contemporary (urban planning)*
JDS	2	3,2%	*Contemporary*
Hvidt Architects	1	1,6%	*Contemporary*
Friis & Moltke	1	1,6%	*Contemporary*
PLH	0	0,0%	*Contemporary*
Number of respondents who answered the question			**63**

Appendix 11: Knowledge of Danish Building materials brands (spontaneous and prompted)

Spontaneous recollection of Danish building materials brands: (Question 2, page 13)

Brand / Company	Response Count	My comments
IKEA*	2	*Swedish origin*
Velux	2	*Danish manufacturer of skylights and roof windows*
Poulsen	2	*Presumably the Danish lighting manufacturer "Louis Poulsen"*
Hans Grohe*	1	*German plumbing manufacturer*
LEGO	1	*Danish origin but not a building material in the traditional sense*
Rais	1	*Danish wood-burning stove manufacturer*
Watco*	1	*Unclear what is referred to here. (Perhaps it is the UK-based "Watco Industrial Floor Coatings" whose product line include "WATCO Danish oil" (However "Danish oil" is simply a type of hard-drying wood finishing oil))*
Generic product categories		
Brick	1	
Teak furniture	1	
Wood products	1	
Wind turbines	1	
Other responses		
"I guess anything with double vowels in the name?"	1	
Don't know / None	38	
Number of respondents who answered this question		**50**

* Brands of other origin than Danish

Knowledge of Danish building materials brands when presented with prompted answers:
(Question 1, page 16)

Company / Brand	Response Count	Response percentage	My comments
VELUX	66	72%	*Manufacturer of skylights and roof windows - Has a U.S. subsidiary "VELUX America Inc.".*
Danfoss	39	42%	*Refrigeration & air conditioning, burners, thermostats etc. – Has a U.S. subsidiary "Danfoss North America".*
Grundfos	39	42%	*Pump manufacturer – Has a U.S. subsidiary*
Rockwool/Roxul	35	38%	*Roxul Inc. is the North American Operations of the Danish company Rockwool International A/S. Currently only represented in the U.S. through its Canadian subsidiary.*
Heliodyne	31	34%	*Subsidiary of the Danish holding company VKR (Originally a U.S. company which VKR bought up). Does not market itself as Danish.*
Siplast	27	29%	*Subsidiary of the Danish company 'Icopal'. Does not market itself as Danish.*
Exhausto	24	26%	*Ventilation systems (green profile) – on the U.S. market*
Protec	18	20%	*Windows manufacturer – surprisingly high percentage of respondents who recognized this company considering that they are not yet on the U.S. market. Perhaps there is another company in the U.S. with the same name – however, I have not been able to find one within the U.S. building industry.*
FlowCon Americas	6	7%	*Manufacturer of HVAC systems and pumps. Fully owned by a Danish company.*
Junckers Hardwood	3	3%	*Floor systems manufacturer. Has both production and sales organization in the U.S.*
Pihl Inc.	2	2%	*The American branch of the Danish owned and based Contracting Corporation E. Pihl & Son A/S. Mentions their Scandinavian origin on their website.*
DAFA	2	2%	*Manufacturer of sealing products, partition walls etc. Currently not on the U.S. market.*
Haldor Topsoe	1	1%	*Catalyst manufacturer – has a subsidiary in the U.S.*
FLSmidth Inc.	0	0%	*Supplier of equipment and services to the cement and minerals industries (operates worldwide, incl. in the U.S.)*
Ben C. Gerwick Inc.	0	0%	*Engineering firm (U.S. subsidiary fully owned by the Danish engineering company COWI). Does not market itself as Danish in the U.S.*
Number of respondents who answered this question			**92**

Appendix 12: Knowlegde of Danish engineering firms (Spontaneous and prompted)

Spontaneous recollection of Danish engineering firms: (Question 1, page 14)

Company	Response count	My comments
Arup	1	*Not a Danish company. (Although the founder, Ove Arup (1895-1988), was of Danish-English origin)*
PA*	1	*Unclear what is referred to here*
People to People*	1	*Unclear what is referred to here*
Ramboll	1	*Danish consulting engineering firm*
Don't know / None	47	
Number of respondents who answered this question		**49**

* Unclear which firm the respondent is referring to

Knowledge of Danish engineering firms when presented with prompted answers: (Question 1, page 17)

Company	Response Count	Response percentage
Ramboll	4	50%
Orbicon/Leif Hansen Engineers	2	25%
NIRAS	2	25%
COWI	1	13%
Grontmij-Carl Bro	0	0%
Alectia	0	0%
Number of respondents who answered this question		**8**

Appendix 13: Perception of Denmark's nation-brand

Denmark is a country with a high interest in environmental protection and energy conservation										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	Value	Count	(%)	Avg. rating	Yes	(%)	Avg. rating	No	(%)	Avg. rating
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	0	0%		0	0%		0	0%	
Neither agree nor disagree	3	17	18%		2	12%		15	19%	
Agree	4	52	55%		9	53%		43	55%	
Strongly agree	5	26	27%		6	35%		20	26%	
Total Responses		*95*	100%	**4,1**	*17*	100%	**4,2**	*78*	100%	**4,1**

Denmark is an active contributor to global challenges										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	Value	Count	(%)	Avg. rating	Yes	(%)	Avg. rating	No	(%)	Avg. rating
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	2	2%		0	0%		2	3%	
Neither agree nor disagree	3	29	31%		3	18%		26	33%	
Agree	4	50	53%		12	71%		38	49%	
Strongly agree	5	14	15%		2	12%		12	15%	
Total Responses		*95*	100%	**3,8**	*17*	100%	**3,9**	*78*	100%	**3,8**

Denmark is a green and efficient society										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	Value	Count	(%)	Avg. rating	Yes	(%)	Avg. rating	No	(%)	Avg. rating
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	1	1%		0	0%		1	1%	
Neither agree nor disagree	3	28	30%		2	12%		26	33%	
Agree	4	47	50%		8	47%		39	50%	
Strongly agree	5	19	20%		7	41%		12	15%	
Total Responses		*95*	100%	**3,9**	*17*	100%	**4,3**	*78*	100%	**3,8**

Denmark is among the first to adopt new technologies and new ways of thinking										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	Value	Count	(%)	Avg. rating	Yes	(%)	Avg. rating	No	(%)	Avg. rating
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	1	1%		0	0%		1	1%	
Neither agree nor disagree	3	41	43%		5	29%		36	46%	
Agree	4	40	42%		8	47%		32	41%	
Strongly agree	5	13	14%		4	24%		9	12%	
Total Responses		*95*	100%	**3,7**	*17*	100%	**3,9**	*78*	100%	**3,6**

Denmark is a society that shows ethical accountability and conscientious behavior										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	**Value**	**Count**	**(%)**	**Avg. rating**	**Yes**	**(%)**	**Avg. rating**	**No**	**(%)**	**Avg. rating**
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	3	3%		0	0%		3	4%	
Neither agree nor disagree	3	36	38%		4	24%		32	41%	
Agree	4	42	44%		11	65%		31	40%	
Strongly agree	5	14	15%		2	12%		12	15%	
Total Responses		*95*	100%	**3,7**	*17*	100%	**3,9**	78	100%	**3,7**

Denmark is a country where there is harmony between tradition and modernity										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	**Value**	**Count**	**(%)**	**Avg. rating**	**Yes**	**(%)**	**Avg. rating**	**No**	**(%)**	**Avg. rating**
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	2	2%		0	0%		2	3%	
Neither agree nor disagree	3	30	32%		3	18%		27	35%	
Agree	4	45	47%		9	53%		36	46%	
Strongly agree	5	18	19%		5	29%		13	17%	
Total Responses		*95*	100%	**3,8**	*17*	100%	**4,1**	*78*	100%	**3,8**

Denmark is a country which dares to think in unconventional ways, to question everything and explore new ideas										
		ALL RESPONSES			First-hand experience with DK			No first-hand experience with DK		
Answer Options	**Value**	**Count**	**(%)**	**Avg. rating**	**Yes**	**(%)**	**Avg. rating**	**No**	**(%)**	**Avg. rating**
Strongly disagree	1	0	0%		0	0%		0	0%	
Disagree	2	3	3%		0	0%		3	4%	
Neither agree nor disagree	3	41	43%		6	35%		35	45%	
Agree	4	43	45%		7	41%		36	46%	
Strongly agree	5	8	8%		4	24%		4	5%	
Total Responses		*95*	100%	**3,6**	*17*	100%	**3,9**	*78*	100%	**3,5**

Appendix 14: Qualities/attributes associated with Danish building materials and architecture

Below is listed two tables with attributes and qualities that the target audience associate with Danish architecture and building materials. The quotes in italics are examples of responses under each category.

A list of all responses in their full length is found in Appendix 9 (CD-rom) - Question 18 and 20.

Qualities and attributes associated with Danish building materials:

Quality or attribute associated with Danish building materials (Percentage of respondents)	
High or good quality (23%) *"Good products" – "Quality products" – "High Quality"*	
Clean, beautiful design style (12%) *"Clean and precise" – "High design" – "Well-designed", "Intrinsic beauty" – "High precision"* *"Clean design, clear organization, simple materials and elegant details"*	
Efficient design (11%) *"Efficiently used – built to purpose" – "Efficient design , it works" – "Energy efficient" – "Efficient design using minimal materials"* *"They are most European and therefore most likely energy efficient but have controls that will be hard to get support for in the US"*	
Durable / Long lasting (9%) *"High durability" – "Long lasting" - "Robust materials capable of withstanding severe environmental forces"*	
Sustainable / Responsive to environmental needs (8%) *"Building materials from local environments, responsive to environmental needs" – "No fillers and by-products"*	
Strong woodworking tradition (8%) *"Danish woods and furniture" – "Strong woodworking tradition" – "Wood and glass"*	
Innovative (6%) *"Cutting edge" – "Willing to explore new technologies" – "Innovative solar and hot water heating products"*	
Craftsmanship (5%) *"Well crafted" – "Proud nation with skilled workers"*	
Expensive/high costs (5%) *"Good quality but probably expensive"*	
Modular (3%)	
Other associations (less than 2% each) *"Ambitious, but quirky (i.e. Spyker)" – "As presented by IKEA – decent quality and cheap" – "Compact" – "Contemporary" – "Expressionism" – "Frugality" – "Functionalism" – "Moisture resistance" – "Prefab"*	
Don't know (29%)	
Total number of respondents who answered this question	**65**

Source: Appendix 9 (CD-rom) – Question 20.

Qualities and attributes associated with Danish architecture:

Quality or attribute associated with Danish architecture (Percentage of respondents)	
Modernism (25%) *"Classic Danish modern design; Arne Jacobsen, Poulsen etc." – "Sleek uncomplicated modernism"* *"Thinking of beautiful Danish furniture, Louisiana Museum, Sydney Opera House"*	
Sustainable / Responsive to surrounding environment (16%) *"Design with nature" – "Bike friendly" – "Sustainable" – "Using natural materials"* *"Compact, pedestrian friendly design. Buildings focused and situated on water (mostly canals)"*	
Clean lines (12%) *"Clean aesthetics without necessary ornament. Functional detailing" – "Clean and simple design" – "Minimalist, airy"* *"Clean design, clear organization, simple materials and elegant details"*	
Traditional architecture with historic vernacular elements (9%) *"Old world" – "Preserving historical architecture"* *"Traditional architecture stock in Copenhagen… beginning to engage in the international stage"* *"Strong traditional/vernacular history that remains relevant" – "Most architecture in Copenhagen seemed fairly traditional"*	
Great design/aesthetics (9%) *"Beauty", "Good design" – "Great design" – "I like the aesthetics" – "Pleasing to the eye" – "Quality urban design"*	
Effective utilization of natural light (8%) *"Great sense of daylight and materiality" – "Lots of windows" – "Use of natural light"*	
High efficiency (8%) *"Energy efficient" – "Very efficiently built in the technical aspects"*	
Innovative (8%) *Incl. "Innovative building envelope design"*	
Wood, glass and steel constructions (8%) *"Fine woods" – "Recently, glass and steel in different shapes"*	
Contemporary (6%) *"Balance of Contemporary with Regional Vernacular traditions"*	
Incorporating renewable energy sources (6%) *"Widespread use of wind power" – "Renewable energy sources" – "Green roofs" – "Wind turbines"*	
Avant garde / Cutting edge (5%)	
Boring (5%) *"Building designs are nice but boring"* *"The newer buildings seem to sometimes sacrifice aesthetics for function more than necessary"* *"There are a lot of old buildings in Denmark and they don't particularly inspire me from the pictures I have seen"*	
Craftsmanship / Well crafted (5%)	
Durable (5%) *"Design for long term" – "Long life expectancy, good maintenance"*	
People oriented / Human scale (5%)	
Progressive (5%)	
European (3%) *"I never thought about Danish architecture other than lumping it in with other European style"*	
Other associations (less than 2% each) *"Inspirational" – "Attention to detail" – "Not traditional" – "Conservative in design approach" – "Solid" – "Rational" – "Sensitive design" – "Color and Vikings" – Successful combination of functionality and design"*	
Don't know (11%)	
Total number of respondents who answered this question	**67**

Source: Appendix 9 (CD-rom) – Question 18.

Appendix 15-18: See CD-rom.