

Communicating Sustainable Building

The Image Conveyed by Media

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ABSTRACT

Media have an important role in the communication of environmental issues and in the way the public understands sustainable building. The aim of this paper is to explore some of media's conveyed images of sustainable building, here exemplified by demonstration projects, and to discuss how these images influence sustainable development of building practices.

Four databases containing a majority of current influential Swedish media were scanned for articles concerning three widely known Swedish demonstration projects. A corpus of 94 articles was reviewed according to forum, author, date, source, text type, predominant theme, and tone. Articles published in trade magazines, in which the building project in hand served as the predominant theme constitutes a core corpus of 24 articles. The content of the core corpus was qualitatively analysed according to main topics, purpose of the article, sustainable themes and terms, implicit tensions and supporting arguments, and knowledge content.

The content of the articles was based on a few sources, either oral or written information, provided by dedicated spokespersons. The authors of the articles do not seem to reflect upon nor question the veracity of these sources. Therefore a majority of the articles are found to be promotional rather than provocative about the issue.

Findings show that what is emphasized in the articles depend largely on the environmental ambitions of the project while important aspects for the building sector (according to the Ecocycle Council of the Building Sector) are not reflected. The experiment itself, rather than the environmental targets, is highlighted as the motive for the projects' accomplishment. Social motives (such as solidarity, collaboration, and health and safety) are sometimes mentioned. More often, various technical solutions are described. These are designated as the main solution to environmental degradation.

Which environmental problem they solve is seldom mentioned. Sustainability is described as an odd phenomenon, not compatible with good economy.

Articles written in the beginning of the project have a positive tone while articles with a more critical tone were written after the completion and evaluation of the demonstration project. The criticism is that the project has failed to reach environmental targets. Managerial aspects of the construction process (such as poor coordination, conservative management, non-reliable environmental information and poor quality control) are pointed out as the main cause of failure.

The assembled picture from the survey is that media continues to place sustainability issues as externalities on the building industry's agenda. This, together with an over-emphasised technocratic perspective, hinders sustainability from becoming an important part of the business strategy. In addition the focus on experimentation in the demonstration projects indicate that the environmental aspects are not taken seriously by the building industry.

The incomplete, ambiguous and not very trustworthy image given by media entails that future decisions based on conveyed results of demonstration projects are biased towards subjective values. This in turn may cause stagnation in the development of sustainable building. More importantly for the building industry, the study indicates a knowledge gap in terms of how organizational and managerial aspects can support sustainable building.

Keywords: sustainable building, demonstration projects, media

INTRODUCTION

Scholars argue that media has little effect on public attitudes (McGuire, 1985) and studies show that decision-makers do not believe that they are more than slightly influenced by information conveyed by media (Strannegård et al, 1998). However, media exert an individual and collective influence through "agenda setting" (Anderson 1997). Thus the media do not tell us *what* to think but set the agenda of what issues to think *about*. Media's impact on public attitude is also increasing if the public is repeatedly exposed to messages advocating a particular view (Eagly and Kulesa, 1997). It is therefore reasonable to assume that media work as a 'silent' influencer through the common debate about sustainable building. This is also confirmed by the following statement by the CEO of a large Swedish construction company (Öqvist, 1999):

"[Project X] was never an environmental scandal, it was blown up to be one by media."

Actors in the building industry obtain information concerning sustainable building from easily accessible sources, such as trade magazines (Femenías in press). The actors seem to have difficulties adapting to new scientific research since they never or seldom read research reports or scientific articles (Femenías, in press; MiljöRapporten, 2000). As a well-reputed Swedish architect expressed it:

“We frequently read a great deal of trade magazines and expect, of course, that research results are reflected in the trade press.”

Since evaluations of demonstration projects in most cases are presented in research reports, the knowledge about, attitudes towards as well as behaviour connected with sustainable building are partly dependent on the discourses in trade magazines. Furthermore, as illustrated in Figure 1, the image presented in the media influences the way persons involved in the building process understands sustainable building and also sets the directions for future environmental measures in construction projects. This motivates the present study, which is to explore how the media convey results from demonstration projects. That is projects with a formulated ambition to be in front-line considering development of sustainable building.

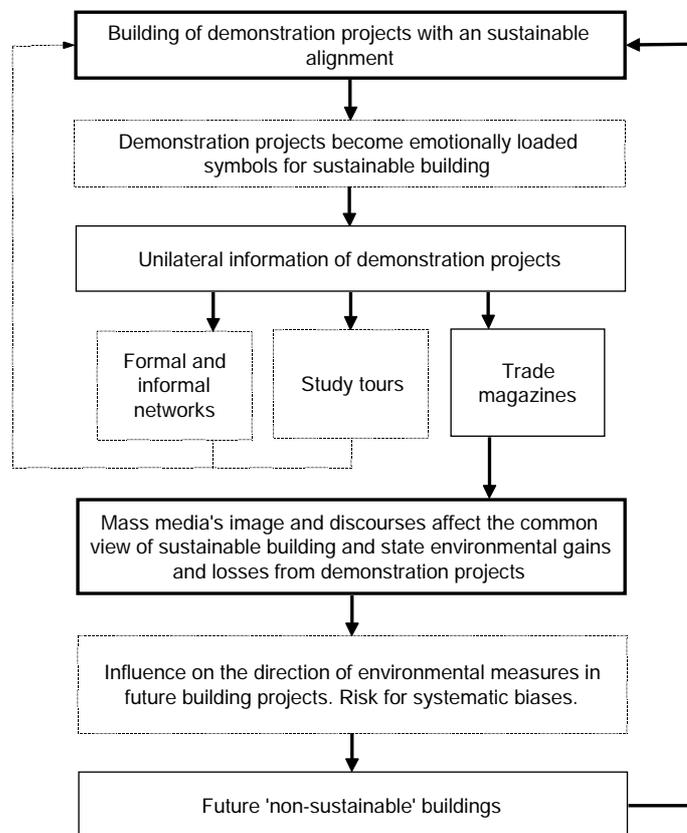


Figure 1 The translation of results from demonstration projects

In this paper we discuss how a number of Swedish demonstration projects have been presented and debated in selected influential Swedish trade magazines. We ask two questions: *What function do media fulfil as information carriers for sustainable building?* and *How is sustainable building presented in trade magazines?* The aim is to explore media's conveyed image of sustainable building and to reflect upon how this image may affect sustainable development of building practices.

THE CORPUS AND METHOD OF DATA COLLECTION

This study used qualitative content analysis as a method to describe media's representation of sustainable building. As in quantitative content analysis, the text must be analysed according to a systematic procedure, but with the difference that the categories are iteratively tested and revised as they emerge (Djerf-Pierre, 1996; Thompson, 2001). The result from a qualitative content analysis is an inclusive representation of patterns found in a corpus (Thompson, 2001).

Three widely known Swedish demonstration projects carried out during the 1990-2000 and in a position of setting the agenda for sustainable building in Sweden, were chosen: Ekoporten, Understenshöjden and Gårdsten, the Sunhouses. These projects are completed and represented in a large, but manageable number of articles. Furthermore, they are driven by the client (the building proprietor), have been or will be evaluated (Botta et al, 1999; Levin et al, 2000) and learning experiences from these projects are intended to be transmitted to forthcoming building projects.

Table 1: Features of three cases studied¹

	Understenshöjden	Ekoporten	Sunhouses/Gårdsten
Type of project	New development with row houses. Located in Stockholm.	Reconstruction of a multi-family block from the 1960s. Located in the suburbs of Norrköping.	Reconstruction of a multi-family block from the 1970s. Located in the suburbs of Göteborg.
Size of project	44 private owned (co-operative) single-family row houses.	18 rental apartments	255 rental apartments.
Initiative (year)	1990	Not indicated	1997
Built (year)	1993-1995	1995-1996	1999-2000
Evaluated/documented	1998-2000	1995-1998	2000-2001
Project organisation	Bottom-up project	Top-down project	Top-down project
<i>Client</i>	Co-operative building society	Municipal housing company	Municipal housing company
<i>Contractual relationship</i>	Design-build contract	Design-build contract	Design-build contract
Total costs	48,2 MSEK (4,8 M €)	31 MSEK (3,1 M €)	100 MSEK (10 M €)
Extraordinary investments	No data	18 MSEK (1,8 M €)	20 MSEK (2 M €)
Subsidies	No	4 MSEK (0,4 M €) (Swedish Gov.)	5 MSEK (0,5 M €) (EU/Swedish Gov.)

In identifying articles to be used in the analysis we attempted to be as inclusive as possible. Four Swedish databases² containing a majority of current influential Swedish media, such as daily newspapers and trade magazines were reviewed for articles concerning Ekoporten, Understenshöjden and Gårdsten the Sunhouses, which resulted in a corpus of 92 articles³.

¹ Data collected from articles, brochures and reports.

² Presstext, Mediarkivet, Byggdok and Artikelsök

³ A list of the articles selected for analysis is available from the authors.

An analytical schema with a battery of questions 'asked' to the material was used in order to structure the empirical data collected from the corpus. The articles in the corpus were reviewed according to forum, date, predominant theme, intended reader, tone and source. Articles published in trade magazines, containing some kind of argument and in which the building project in hand served as the predominant theme, constitutes a core corpus of 24 articles. The content of the core corpus was qualitatively analysed according to author, text type, key terminology, main topics, purpose of the article, sustainable themes and terms, knowledge content, implicit tensions and supporting arguments, as well as involved actors. Pictures, figures, tables, and captions have only been taken in consideration as part of the overall picture given by the articles.

In order to locate which part of the construction process is described in the articles a simplified process scheme based on the different stages in a building project (planning, design, construction, operation/use and demolition) were set up. In this scheme involved actors that correspond with different stages were mapped.

To determine key subjects involved in the sustainable building discourse key words were picked out in an iterative review of the core corpus. These key words were arranged in eight groups. The topics of the groups were: involved actors, general environmental terminology, environmental measures, environmental effects, technical solutions, social issues, indoor-climate, and economic and managerial issues. In order to figuratively illustrate, word-count analysis was used where, instead of counting individual words, all sentence-bearing words that were found in the core corpus were arranged according to the topic of the groupings. In doing so not only a particular word was detected but also synonyms and related words to that particular word. For example: searching for recycling also words such as re-use, separation at source, composting, eco-cycle, and waste separation were recorded.

INTERPRETED FEATURES AND CONTENT OF THE ARTICLES

Based on the corpus of 92 articles almost two thirds of the articles were found in daily newspapers while trade magazines only represented one third. A cluster of articles occur around the construction start and serve as information about the first sod of the projects while only a few or no articles cover the construction and the planning phase of the building process. A majority of the articles are written after the building projects have been completed and reflect the usage and operating phase of the building process as well as presenting results from evaluations. Most articles have a positive undertone. Simplified, articles written before or in the beginning of the project are always positive while more critical articles are written after the construction projects were completed or evaluated.

As shown in Table 2, the number of articles written by in-house journalists outnumbers the other categories of authors found. A few articles, mainly found in the trade press, were written by researchers and actors involved in the building process.

Table 2: Authors, text type and number of sources of the 92 articles in the corpus, C, respectively the 24 articles in the core corpus, CC.

		C	CC
Author	Number of articles written by journalists	78 ⁴	15 ⁵
	Number of articles written by news agencies	4	0
	Number of articles written by involved actors	5	4
	Number of articles written by involved researchers	5	5
	Total	92	24
Text type	Report	49	15
	Exposition	16	8
	Blurred (mixed exposition and report)	19	0
	News item (indirect report)	8	0
	Total	92	24
Sources	Source not mentioned ⁶	25	10
	1 source mentioned	35	7
	2 sources mentioned	18	6
	3 sources mentioned	8	1
	4 or more sources mentioned ⁷	6	0
	Total	92	24

Most articles in the corpus were reports written by journalists and few provide argumentative or analytical information to the reader. Short interviews were the most frequently occurring direct source. Almost 30% of the articles in the corpus and more than 40% of the articles in the trade press do not mention any source. Articles written by persons involved in the building process often rest upon their experience. In other cases, where no explicit source was mentioned it was, by looking at phrasings and use of vocabulary, possible to reveal that much of the material conveyed in the articles were collected from a limited number of original sources. These sources were, often found to be information material supplied by the project developer (owner, initiator). The authors seem to strongly rely on their source and do not reflect nor question the veracity of the matter. This implies that a majority of the articles have a positive undertone and thus seldom provocative to the matter in hand. More critical articles are found when negative results from evaluations are presented after the project has been completed.

Two main purposes can be detected in the core corpus: promoting and informative. Promotive articles are 'selling' either the demonstration project as a good example, or environmental concepts used in the demonstration project, or even an actor, often a fiery spirit, involved in the project. Most informative articles describe technical systems, give background information to the demonstration projects accomplishment or provide information about the results held from evaluating the projects.

Only approximately one third of the articles in the core corpus provide, based on our judgement as civil engineer and architect, the building industry with valuable

⁴ Five authors figuring as journalists are identified architects. However not involved in the project.

⁵ Two of the authors have been identified as practicing architects.

⁶ This category also includes articles where actors write out of their own experience.

⁷ Even though several sources are used, mostly they are of similar kinds (for example actors from the same organization) and seldom provide views from different perspectives.

knowledge that can serve as exemplification, information or inspiration for future environmental decisions. The knowledge content mostly involves examples of technical measures and solutions used or to be used in the building project. Others provided knowledge concerning: evaluations of the demonstration project, examples of solutions to social problems, causes to problems that appeared through the process in making the building environmentally sound, and issues regarding communication and cooperation. Articles with less valuable information are either too general (Bengtsson, 2000a; Jerström, 1997), or focusing on more daily matters than on building or building process related issues (Karlsson, 2001; Lindgren, 1998). Others provide ambiguous or at least biased information, as in articles about Gårdsten where two promoters of the project figured as main spokesperson in 6 out of 8 articles.

In addition, comparing the knowledge content in the articles with the original source, several misleading errors can be found. Ignorance and misinterpretations can be identified as the main cause of these errors. For example some technical solutions, as sun-panels, are taken out of their context and described as energy reducing just by being technical solutions. Also falsely cited researchers and research reports occur. Articles most critical towards sustainable building in the corpus, were for example based on a falsely cited researcher (Nordling, 2000). It was stated that the buildings were subjected to moist and mould problems caused by poor design. This rendered in headlines as: *Understenshöjden, rich on moist and draught* (Bengtsson, 2000b), *Environmental ideal questioned* (Lundholm, 2000), *Fiasco for honoured ecovillage* (Westmar, 2000). That this one false citation in one article (Bengtsson, 2000b) was repeated in at least eight other articles, published in trade magazines or daily newspapers and written by eight other authors, witnesses how uncritically data is published and how unreflecting the authors are towards their source.

THE CONVEYED IMAGE OF SUSTAINABLE BUILDING

Figure 3 shows that a large number of different actors figure in the articles. Nevertheless, only a limited number of persons are cited or in another way active in the articles. These *solitary* spokespersons are usually represents from the client or actors engaged by the client such as researchers or consultants. Often these persons are fiery spirits with a lot of engagement for the project. The articles focus on design and briefing and later the operational phase (with evaluation) why spokesmen for the construction industry are seldom cited.

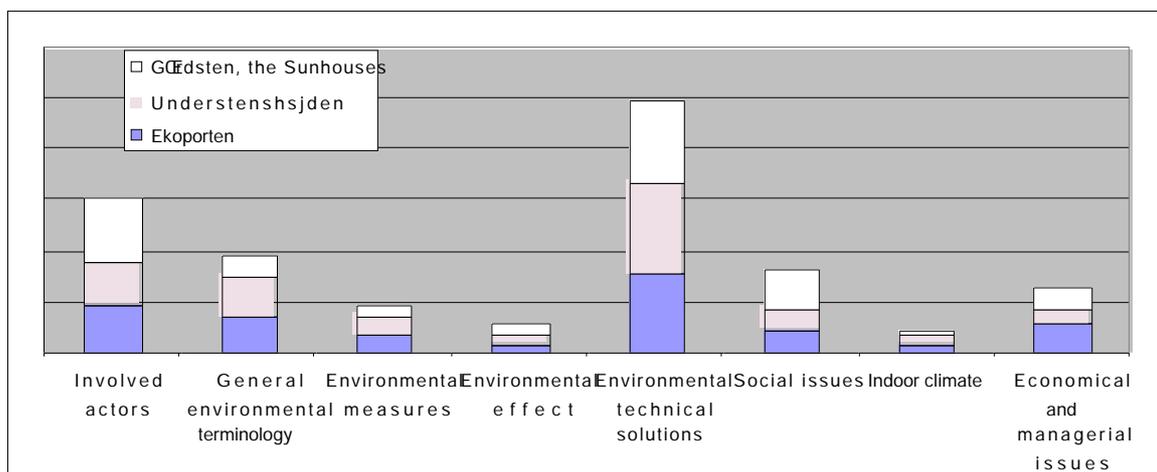


Figure 3: Key subjects involved in the discourse of sustainable building

The study clearly indicates that the core corpus describe sustainable building as foremost a technical issue with the emphasis on technical solutions. These technical solutions and systems are often related to, and sometimes even interwoven with environmental issues. Except for technical solutions are environmental issues most often presented in general terms using a nomenclature characterized by indistinct and fuzzy words. Words as for example environmental, green, ecological, eco, natural, environmental friendly, and sustainable are compounded with words as building, construction, living, adjustment, behavior, habits, perspective, attitude and forming new words. By using undefined terminology the authors rely on already established pictures and (mis)apprehensions of sustainable building.

In line with the common perception of sustainability, social issues, concerning the human sphere and the living environment, is well represented as part of the discourse of sustainable building. Important to notice is that both Ekoporten and Gårdsten are refurbishment projects of buildings located in socially degraded suburban areas, which probably contributed to this emphasis in the articles. Issues regarding the economic dimension of sustainability are difficult to discern from the articles. When the economical issue come up it mostly evolve increased investment costs, received subsidies, or residents' decreased costs due to individual control of electricity, heating and water use. More often managerial issues are mentioned as part of the sustainable building discourse.

While social and technical issues are used as arguments advocating sustainable building, economic and managerial aspects of the building process are perceived as the main cause of failure. Problems concern a variety of aspects, such as organisational, economical, coordination, communication and conservatism. A number of contradictory images, tensions, are depicted in the core corpus. For example both cost savings and non-profitable activity are mentioned in the same article without reflections (Kretz, 1998), as well as marketing effects and experimental effects not possible to duplicate (Bergdahl, 1998). Technical contradictions involve the use of techniques for renewable energy versus the claim that the design used in demonstration projects are 'consuming' more energy than conventional buildings (Botta, 1999; Snis, 1998). Two causes to this occurrence of tensions can be identified: The author has taken a prejudgment and sticks to it by finding arguments that support this position. Secondly, the sustainable building discourse is sensitive towards trends and the author forgets about the context of which the building was accomplished and conveys it according to a view perceived at the time of writing. For example projects accomplished in the mid 90s, when the eco-cycles was emphasized in the common debate of sustainability, are judged upon their energy use in the late 90s when energy is seen as an important aspect to consider.

The list⁸ of five environmental stake areas considered as most important for the building sector to achieve measures within (The Ecocycle Council of the Building Sector, 2001),

⁸ The stake areas are:

- 1) *Energy use during the usage phase including use of renewable energy sources,*
- 2) *Material use during the construction and usage phase,*

are used to distinguish the environmental aspects highlighted in the articles. As illustrated in Figure 4 the reduction of *energy use* during the usage phase and use of renewable energy resources is the main issue in all three cases. Negative results regarding energy use are lively debated. Actors involved in the building or evaluation process have been cited, explaining that the reduction of energy use have not been the highest priority on the agenda in the programming of the project (see for example Snis, 1998). Regarding *material use* during the construction phase and the usage phase, the intention to reduce the amount of materials used is not explicitly mentioned as a measure in any of the cases. The sorting of building waste is only briefly mentioned in two articles. Some materials are vaguely said to be “eco-cycle adapted”. Often focus is on choosing environmentally ‘correct’ materials, also called environmental friendly, reliably tested, “natural” or healthy materials. Implicitly understood as either *material without hazardous substances* or materials developed with environmentally adapted technique, often not specified which. The criteria for choosing materials are not well accounted for and the specific quality attributed to the materials remain vague. In articles about Understenhöjden aesthetics are mentioned as a criteria for material choice. Only one article mentions *transports* of any kind. Implying that that transports of building material is not regarded as an important issues in the articles and probably not in the projects either. *Indoor climate*, is brought up as an important issue in several articles. Some point at more specific considerations, such as creating climates free from emissions and allergenic substances as well as reducing influence of electromagnetic fields and noise while other articles approach this issue in more vague terms as “a good indoor climate”, houses that “breath” etc.

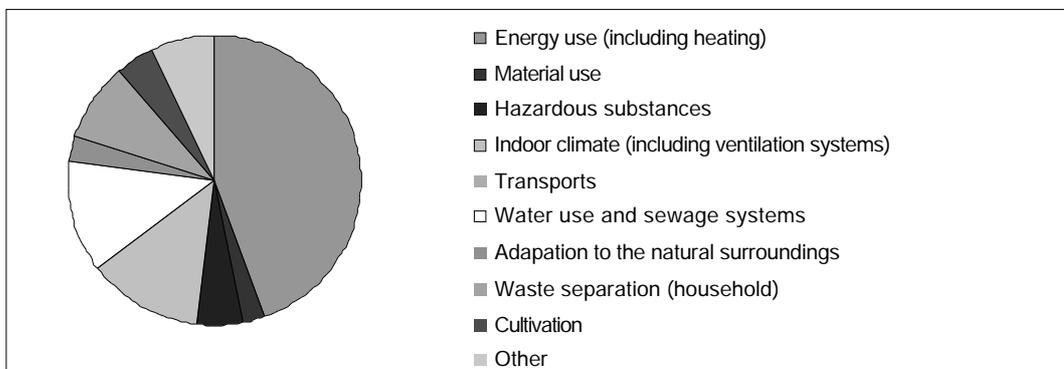


Figure 4: Environmental aspects considered in the core corpus. Based on text analysis.

Some sustainable themes mentioned in the articles are not covered by the list made by The Ecocycle Commission for the Building Sector. For instance, the objective of locally closing-the-loop during the operational phase, for example sewage systems with recycling of nutrition and infiltration of rainwater. Furthermore, waste

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- 3) Use of hazardous substances during the construction and usage phase
 - 4) Indoor climate, including air quality, electric and magnetic fields, disturbances caused by noise and other unhealthy conditions caused by design, construction and operation of housings and facilities,
 - 5) Transportation of building material

separation/compost and cultivation are other issues mentioned as environmental measures. Articles about Understenshögden also emphasize the projects ambitions to adapt the building to natural surroundings.

The problem definition concerning environmental load from the buildings are missing in all articles and specific reasons to why certain ambitions and environmental solutions have been chosen in the demonstration projects are not provided the reader. Reasons as bad maintenance, poor thermal aspects and social problems are not easily connected to the solutions given (see for example Karlsson, 2001; Silén, 2000). In addition experimental effects (see Botta et al, 1999; Bergdahl and Svane, 1999) are 'justifying' made priorities. This whole study has revealed that the environment serve as a sub-ordered aspects in the discourse of sustainable building. Either the effects upon nature and environmental aspects are considered as well known and thus are taken for granted or environmental aspects of building is not fully identified and thus ignored in the articles.

REFLECTIONS AND TENTATIVE CONCLUSIONS

The image of sustainable building given in the articles is largely dependent on the ambition and focus of the projects, which is communicated through only a small number of involved actors and written sources. This implies that a few persons' opinions to a large extent influence the agenda of future development of sustainable building. An over dependency on the image given by media therefore may result that incorrect perceptions are established and if often repeated accepted as the "truth" causing stagnation in the development of sustainable building.

Most articles convey too general, biased, and non-reflective information of sustainable building. This may imply that decision-makers involved in building may not comprehend why environmental aspects are important to consider and thus are unable to identify relevant environmental problems and foresee the consequences of their decisions. The bias towards technical solutions and the scarcity of problem definitions regarding environmental loads may result in an increased emphasis on already defined "environmental solutions". This implies that benefits held from other issues, for example process improvements, are neglected and entails distorted allocation of resources and means. In addition, the focus on experimental effects held from demonstration projects may mediate an image of sustainable building as a passing trend, characterized by conspicuous and 'selling' attributes, and thus not of importance other than serving as 'reputation management'. It can be questioned whether or not trade press are entitled to serve as an appropriate information carrier for sustainable building. Either the industry must rely on other non-biased information sources or the trade press must improve their quality. However that may be, it is important that researchers, when communicating research results, are over-explicit in order to avoid misinterpretations. Furthermore, tensions in the articles indicate that there exists no uniform definition of sustainable building.

This study indicates several gaps to perform research within. For example how the building industry manage environmental aspects and how they perceive sustainable building. To make more definite conclusions of the image conveyed by media and its

influence on environmental decisions made by actors involved in the building process, this study must be evaluated more extensively.

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