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ARTICLE

Developing policies for green buildings: what can the United States learn from the Netherlands?

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Political jurisdictions in the United States have begun to develop plans that address green buildings, a topic on which the Netherlands has extensive experience. This article analyzes the literature on Dutch green buildings to look for lessons that might be relevant for the development of polices in the United States. Through a metasynthesis of seventeen studies on green building policies in the Netherlands, the study identifies patterns in the literature and creates a holistic interpretation. These data are compared with the literature on green building policies in the United States. The article concludes that guidance from the federal government—including a stronger research agenda for green building policy issues—could help spur innovation. Reliance on voluntary green building certification has very limited potential and stronger regulations are needed in the United States to minimize the environmental impacts of buildings. A flexible, broad policy system is also required.

KEYWORDS: buildings, housing, construction, energy efficiency, sustainable development, planning, stakeholders, public policy, sociopolitical aspects

Introduction

One of the first countries to enact policies and implement plans for green buildings is the Netherlands, where such initiatives began during the mid-1980s and advanced significantly during the mid-1990s before commitment waned in the new century. The United States, in contrast, is just starting to develop a policy system for green buildings. Planners in the country have only just embarked on development of policies and plans for green buildings during the last few years, and most of these programs are confined to the municipal level with little coordination or guidance from either state or federal governments. Because green building policies have a long history in the Netherlands, is of recent interest in the United States, and is important in mitigating global climate change (McKinstry, 2004; Northrup, 2004; Osofsky & Levit, 2008; Sussman, 2007; 2008; Codiga, 2008; Irvin et al. 2008), there is likely to be benefit to analyzing the Dutch experience and literature for insights that could help formulate an American approach.

The current article takes up this challenge. Because of significant differences between the political systems and cultural contexts of the two countries, this treatment focuses on theory development, not on specific policy techniques such as zoning, building codes, or incentives. The first part briefly summarizes the historical development and contemporary state of green building policies in the Netherlands and the United States. This discussion is followed by a review of the methodology used for this research. The findings are divided into eight sections: conceptual framework, the evolving idea of green buildings, research and education, policy development networks, methods of building assessment, the focus of green building policies, cost and flexibility, and effectiveness. The article concludes by outlining some ideas that the United States can take away from the history of Dutch green building policy.

Green Building Policies in the Netherlands

The Netherlands first began to devote serious political attention to green buildings in 1973 after the Organization of Petroleum Exporting Countries (OPEC) imposed an oil embargo against many western countries—including both the Netherlands and the United States—that drastically reduced supply and increased price. The resulting instability in energy markets prompted the Dutch government to reevaluate all energy use in the country, including in buildings. A major policy shift during this period was adoption of the first Dutch Energy Policy document in 1974 and the completion of several subsidized green buildings (Melchert, 2007).

During the 1980s, green building policy in the Netherlands became more institutionalized, prodded by two publications: the report of the Brundtland Commission in 1987 and the response of the Dutch government the following year, *Zorgen Voor Morgen* (Concern for Tomorrow), that concentrated on the

status of the natural environment (Hajer, 1995; Gouldson & Murphy, 1998).

The country's first National Environmental Policy Plan (NEPP), *Kiezen of Verliezen* (To Choose or to Lose), based in part on the Brundtland Commission's report, was issued in 1989 and it gave high priority to the construction industry (VROM, 1989). In 1993, the Dutch government released its second such plan, focusing on the importance of separating economic growth and pollution (VROM, 1993). The third plan, published in 1998, sought to promote overall prosperity (VROM, 1998) and the fourth plan, issued in 2001, stressed the need to balance quality of life and environmental objectives (VROM, 2001; Sunikka, 2001). The Dutch government issued an action plan for sustainable construction in 1995 that outlined broad goals and policies for all areas of green buildings, including energy use, water consumption, and air quality. The plan was revisited and updated in 1997 and 1999 (Bossink, 2002). Despite these advances at the national level, implementation of green building programs was left up to the discretion of individual municipalities.

The national government became much more involved in green building policies in 1996 with the National Sustainable Building Packages. Four separate packages were issued and they addressed residential and nonresidential buildings, infrastructure, and urban planning. The National Packages contained extensive and detailed specifications for green building from the urban design scale to the building-component scale (Melchert, 2007) and were presented in a clear format that classified sustainable measures according to the sets of environmental issues to which they contributed. The National Packages were based on life cycle analysis to assess the sustainability of each of the measures and to give corresponding cost information (van Bueren & ten Heuvelof, 2005). They were typical of Dutch environmental policy, which is to say that the construction industry was expected to take part in negotiations to develop voluntary covenants for sustainable building that the industry would be required to follow.[1]

While the sustainable building programs in the Netherlands were expanding, the country was also working to find ways to address global climate change and to reduce greenhouse-gas emissions. In 1995, the Dutch government enacted the Energy Performance Standard that specified the amount of energy that new industrial and office buildings would be allowed to use. In addition, existing buildings were required to reduce their energy use by 25% over ten years.

Throughout the 1990s, and with the issuance of the NEPPs, the decision-making process in the Netherlands became more open and flexible, with greater autonomy given to local authorities. In addition, industry groups came to be consulted on many issues. The system of communication and open negotiation on environmental policy matters occurred in almost every industry in the country (Arentsen et al. 2000). For instance, regulators worked hard to negotiate covenants to reduce pollution in the construction industry and one account notes that the covenants covered "90% of the pollution, waste disposal, recycling and energy use of the industry, [and] construction and energy sectors" (Keijzers, 2000).

By the late 1990s, sustainable building policies in the Netherlands contained a wide variety of instruments and strategies including demonstration projects, mandatory policies, voluntary incentives, and covenants with industry groups. However, these innovations in sustainable building policy began to unravel in 2002 when a rightward leaning coalition assumed control of the government and support waned for the hierarchical, top-down approach to planning and environmental policy previously carried out by the Ministry of Housing, Spatial Planning and the Environment (Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheers, or VROM) (Bontje, 2003).

Green Building Policies in the United States

Like the Netherlands, the United States first devoted attention to the issue of green buildings after the oil embargo of 1973. While the Dutch persevered on this front as we have seen, interest among Americans faded by the 1980s. Green buildings did not reemerge as a policy issue in the United States until about ten years ago and it is still in its infancy. As a result, green buildings have a much shorter history in the latter case and there is less coordination than in the Netherlands. Green building issues lack guidance from the federal government (and most states), and most policy innovation to date has been at the local level.

The first municipal green building initiative in the United States took root in Austin, Texas in 1991. The program initially used a tool to evaluate single family homes that had been developed by staff of the local electric utility, Austin Energy, and it evolved

[1] The policy construct of voluntary covenants in the Netherlands is less voluntary than it might seem. As Liefferink & Mol (1998) explain, "So-called voluntary agreements between the state and private actors, particularly industry, are in fact seldom entirely voluntary. Quite often, they are linked to more general legal obligations and can as such rather be seen as implementation agreements. And even if they are not placed in a broader legal context, the state may use the introduction of formal regulations as a stick to beat with if 'voluntary' negotiations do not bring the desired results."

over time to cover commercial, multifamily, and public buildings.[2] Since Austin developed its program in 1991, other cities and counties in the country have experimented with green building policies such as tax incentives (Rosenberg, 2001; Busch et al. 2008), density bonuses (Retzlaff, 2005), zoning requirements (Circo, 2008; Retzlaff, 2009), government-building mandates (Kibert, 2002; Del Percio, 2004; King & King, 2005), and comprehensive green building planning programs (Theaker & Cole, 2001).

It is not clear how many green building polices have to date been adopted in the United States.[3] One survey of 661 of the largest American cities found that 92 of them had green building programs (Rainwater, 2007). A database of green building initiatives assembled by researchers at the University of Wisconsin included 194 programs in 2009 (Gruder, 2009).

At the federal level, green buildings were the subject of a memorandum of understanding (MOU) between the Office of the President and seventeen federal agencies in 2006. Signatory agencies endorsed "federal leadership in the design, construction, and operation of high-performance and sustainable buildings." However, the MOU did not commit the agencies to a policy of actually constructing green buildings (OFEE, 2006).

Multiple approaches to assessing the sustainability of buildings exist in the United States. A commonly used method is Leadership in Energy and Environmental Design (LEED) that has multiple assessment systems for many types of buildings including new construction, homes, and commercial rehabilitation, as well as one for neighborhood design. An extensive body of literature now exists on the assessment of buildings, technical issues, construction methods, and design in the United States (Cole, 1997; 1998; 2006; Brochner et al. 1999; Larsson & Cole, 2001; Theaker & Cole, 2001; Retzlaff, 2008; Garde, 2009), but little attention has been given to broader policy issues.

Methodology

Qualitative metasynthesis is the integration of the findings of different, but related, qualitative studies with the purpose of interpreting rather than aggregating results. The method was developed in the fields of education and health, although other researchers have begun to use it in recent years (Martin & Helge, 2000; Gough & Elbourne, 2002; Lauria & Wagner, 2006; Howland, 2007). Qualitative metasynthesis has many potential uses for informing policy decision making because analyses are often predicated on qualitative studies of single cases. Moreover, it is often necessary to synthesize and interpret across studies and to develop evidence-based policy (Sherwood, 1997; Davies & Nutley, 1999; Maclennan & More, 1999). Metasynthesis also has the potential to help inform international comparative policy analysis because of the importance of contextualizing findings.

Metasynthesis is not just concerned with summarizing existing research findings, as in a literature review. It is rather used to develop new interpretations and to create new knowledge (Noblit & Hare, 1988; Gough & Elbourne, 2002). Metasynthesis uses the findings of existing studies as primary data (Zimmer, 2006), with each study deployed as a separate data point (Weed, 2005). In other words, the goal of metasynthesis is to create a holistic interpretation of the subject—not to aggregate or average the studies (Jensen & Allen, 1996; Denyer & Tranfield, 2006).

The metasynthesis for this research analyzed literature on Dutch and American sustainable building policies from 1998 to the present. Inclusion criteria were broadly defined as studies that used a qualitative research approach to assess sustainable building policies in the Netherlands or the United States since the issuance of the National Packages in 1996. Only articles published in refereed journals were included to assure that the research was academic in nature and to avoid opinion pieces (Sandelowski & Barroso, 2003). It is important to note that studies highlighting technical, construction, or building performance issues—which account for the majority of the green building literature—were not included in this sample. Only research that discussed policy issues (in the entire paper or part of it) was included. Seventeen studies of Dutch green building policies and four of American green building policies were included in the study.[4] The Netherlands has a much longer history and larger literature on green building policies than is the case for the United States. While the size

[2] An usual arrangement for the United States, the City of Austin owns the electric utility company Austin Energy.

[3] While the United States Green Building Council (USGBC), through its LEED program, has some characteristics of a policy clearinghouse, this is misleading. Other systems are used—Green Globes and the National Association of Homebuilders (NAHB) system, for example. Some green building requirements for the construction of affordable housing are based on the system developed by Enterprise Communities. Furthermore, many municipalities use a system formulated on an internal basis because they cannot meet certain LEED criteria (such as density requirements).

[4] The author of this article authored two of the studies analyzed in the metasynthesis described here.

of the American literature is perhaps too small for metasynthesis, the focus of this research is on how the United States can learn from the history of green building policies in the Netherlands. Therefore, the American literature was analyzed more for comparative purposes than to interpret and build theory. Appendix A describes the literature used in the metasynthesis.

The metasynthesis for this research follows closely the methodology outlined by Sandelowski & Barroso (2007). In the initial phase, the findings were grouped into a common coding scheme. Findings were defined as any conclusion that was drawn directly from the evidence in the study. The coding scheme was developed through a combination of the literature review and from an analysis of the studies themselves. Tying the coding scheme to the literature review allowed this investigation to be linked to research questions, while tying it to the studies themselves fine-tuned the coding scheme by adding new categories that were directly pertinent to the text (Gaber & Gaber, 2007). A second pass at coding the findings was completed within three days to ensure that the process was consistent. Any discrepancies (which were minimal), such as when something was identified as a finding in one pass and not in another, were reexamined using the original documents (Wilson & Lipsey, 2000). Using the procedure above, the findings of the studies were grouped into fourteen categories: flexibility, cost issues, research, education, policy development, policy expansion, technical expertise in sustainable construction, redevelopment of existing buildings, new construction, energy issues, holistic focus of green building issues, methods of assessing buildings, policy outcomes, and sustainable housing (see Table 1). The categorized findings that dealt with similar theoretical issues were later grouped together, allowing generalization about the major themes in the data. The coded findings were then regrouped several times into more precise themes.

Table 1 Formulation of Thematic Subcategories

Theme 1: The evolving idea of green buildings
Subtheme A: Policy expansion
Theme 2: The need for a strong research program
Subtheme A: Research
Subtheme B: Education
Theme 3: Policy development networks
Subtheme A: Policy development
Subtheme B: Technical expertise in sustainable construction
Theme 4: Methods of assessing the sustainability of buildings
Subtheme A: Methods of assessing buildings
Theme 5: Narrow focus of green building issues
Subtheme A: Redevelopment of existing buildings
Subtheme B: New construction
Subtheme C: Energy issues
Subtheme D: Holistic focus
Subtheme E: Sustainable housing
Theme 6: Cost and flexibility
Subtheme A: Flexibility
Subtheme B: Cost
Theme 7: Effectiveness
Subtheme A: Policy outcomes

As the clustering of the coded findings became more refined, I was able to develop new conclusions about the process, context, and experiences of sustainable building policies in the Netherlands and the United States. Seven broad themes ultimately emerged from the analysis: the evolving idea of green buildings, research and education, policy development networks, methods of building assessment, the focus of green building policies, cost and flexibility, and effectiveness. Both the Dutch and American literatures focused on each of these themes to varying degrees; however, the limited amount of published work on the United States made it somewhat difficult to analyze. As a result, the two countries had an imbalance of emphasis on the themes, particularly on the narrow focus of green building issues and on cost and flexibility (both of which were much more prominent in the Dutch literature).

MetaSynthesis of Dutch and American Literatures

Conceptual Framework

The metasynthesis identified seven broad and interconnected themes in the Dutch and American literatures.

1. The evolving idea of green buildings: green building policy development has been dependent on past events and shifts in attitudes.
2. The need for a strong research program: research and education on both the technical and policy aspects is crucial to the strength and innovativeness of green building initiatives.
3. Policy development networks: expertise and interest in green building issues is dominated by a small network of government and industry professionals.
4. Methods of assessing the sustainability of buildings: government and industry leaders view how building-assessment systems influence policy implementation.
5. Narrow focus of green building issues: policies take a relatively constrained view of sustainability.

6. Cost and flexibility: actual and perceived cost increases for green buildings hinder widespread adoption and innovation.
7. Effectiveness: the effectiveness of green building policies is spotty and the ambiguous concept of green buildings has contributed to policy failures.

Both the Dutch and American literatures highlight these seven themes to various extents, although there is a much larger green building policy literature in the Netherlands. Each of the themes is discussed below.

The Evolving Idea of Green Buildings

Without the shifts in attitudes and policies that have occurred in the Netherlands over time, green building policies in the country would look very different today. During the 1970s, the issue was motivated by a need for deep-seated change as advocates of green buildings—primarily the middle-class—sought to disconnect buildings from the existing infrastructure grid and to develop several prominent self-sustaining "ecocommunities." Because of this radical image, interest in green buildings did not translate into changing lifestyles for the broader population. Further, the popular image of green buildings was not one of holistic sustainability, but of energy efficiency, a narrow focus that still persists today.

During the early 1980s, the Dutch government began to think about the environment in a more integrated way and to realize the need to include more stakeholders in environmental decision making. Industry—including the construction industry—came to be viewed as a partner in solving environmental problems rather than as just a target group for regulation. Public officials also began to understand the need for citizens to have a voice in environmental decision making and that policies needed to integrate environmental concerns into daily life. During the 1990s, the Dutch government gradually shifted its attention from pollution prevention and reactive environmental policy to sustainable development and proactive environmental policy. Nonetheless, sustainable building policies continued to focus on building technologies and the production cycle instead of on building consumers and this emphasis was particularly attentive to energy-efficient technologies.

Despite the fact that the United States and the Netherlands had similar early experiences with green building during the 1970s, interest among Americans waned and the country today does not have the same long history of policy action. These circumstances mean that the American literature is sparser. However, local jurisdictions that have adopted green building policies have tended to expand them over time and green building polices in the United States have generally grown out of larger sustainable development initiatives contained in comprehensive plans. American cities have begun to develop green building policies by using incentives and voluntary measures and they have gradually moved toward stricter requirements for private development. The federal government has also evolved to embrace green building, with many agencies committing to construct green buildings for all or some of their activities.

In both countries, the progression of green building policies is usefully viewed from the history of policy and cultural shifts. Green building issues, like many other policy matters, have built upon a path-dependent history of changes in public attitudes. Although the United States began to encourage green building several decades later than the Netherlands, both policy systems have become products of their current contexts, and both situations are highly dependent on past policy changes and attitude shifts. For example, green building policies in the United States are highly decentralized, with minimal guidance from either the states or the federal government, whereas the Dutch system is built on more expansive national influence and the role of the central government has grown over time.

The Need for a Strong Research and Education Program

Another major theme from the metasynthesis centers on the need for strong research and education programs, though there are important cross-national differences in emphasis. The American literature is more interested in educating developers and city officials about green buildings while Dutch scholarship focuses on research and education to promote innovation of green buildings and green building policies and to change personal behaviors.

Some of the research on green buildings in the Netherlands has taken place through demonstration projects designed to showcase new advances in building technologies. Although these initiatives have been able to disseminate new knowledge, only a small network of experts and developers is familiar with them and, as a result, there has been an implementation deficit. Innovation has therefore been unevenly spread throughout different domains and has not garnered widespread attention.

In addition, researchers in the Netherlands have identified building-assessment methods as important in the past, although it has not been a focus of recent work. To some extent, the Dutch literature, since the issuance of the National Packages, has moved past discussions of how to measure buildings for sustain-

ability and how to define sustainability. While the National Packages have allowed the Dutch to focus more on implementation in recent years, building assessments and the definition of sustainability remain major priorities in the United States and implementation issues have received relatively little attention.

The relationship between the Dutch National Packages and research, innovation, and education is another theme that emerges from the metasynthesis. While the National Packages did succeed at disseminating information about green buildings quickly and efficiently, much of that knowledge has remained relatively stagnant. Further, the metasynthesis suggests that users of the National Packages have little need to become educated about green buildings beyond the contents of the National Packages. Also, the National Packages often do not help users understand the unique and contextual circumstances that could generate the most environmental benefit from sustainable technologies.

Policy Development from a Small Network of Actors

One important theme in the Dutch literature that is lacking in its American counterpart is that a small network of government and industry professionals dominates green building issues. This is because government officials in the Netherlands prefer to work through established relationships, negotiations are easier when both parties already know one another, and green building construction in the country is controlled by a few specialized construction companies. The National Packages were developed by a network of people already active in the field who had previously worked together, a situation that has contributed to a lack of learning and innovation over time. The prevailing situation is problematic for smaller developers and other professionals who did not participate in the negotiations, but must nonetheless adhere to the agreements.

While the American literature has not focused on the narrow scope of actors involved in developing green building policies, research has briefly touched on the idea that—as in the Netherlands—a limited number of specialized construction firms and architects dominates the sustainable construction field in the United States. Researchers in both countries see the inadequate number of people with expertise in green buildings as a barrier to implementing sustainable building polices. Interestingly, although one of the goals of the National Packages in the Netherlands has been to disseminate information about sustainable buildings, many small architecture and development firms continue to deal almost exclusively with conventional buildings.

Methods of Assessing the Sustainability of Buildings

While researchers and professionals in both countries have concentrated on assessing the sustainability of buildings, this has been a greater focus in the United States in recent years. Since the National Packages were issued, the Dutch literature has moved toward implementation rather than assessment. This is perhaps because, as some researchers point out, the National Packages "have become a sort of sustainable building standard in the Netherlands" so there is less need for an ongoing discussion about the methods for assessing buildings (van Bueren & ten Heuvelof, 2005).

The United States, in contrast, has many competing methods for assessing buildings for sustainability—each with significant differences—and practitioners and researchers have not settled on one, or even several, methods. Much of the activity in the country focuses on the details of the assessment systems themselves rather than on implementation issues. Research in the United States has analyzed the technical details of the various building-assessment systems (e.g., LEED and Green Globes) such as their approach to various environmental issues and spatial scales, their underlying values, and how they determine criteria and point values.

Nonetheless, the Netherlands and the United States have experienced similar problems with building-assessment methods. Both American and Dutch architects find the use of life cycle analysis to be difficult because it is not always suited for examining certain key issues of sustainability and difficulty achieving the required quantification. For example, it is hard to quantify the benefits inherent in walkable neighborhoods, diverse communities, and tree-lined and shaded streets—all of which are sources of credits in the LEED system for new development. Furthermore, building-assessment methods are more complicated when applied to the rehabilitation of existing buildings than to new construction due to the special challenges of making existing buildings more sustainable.

Narrow Focus of Green Building Issues

Research on Dutch and American green building policy systems highlights that both countries have a constrained view of sustainability in terms of emphasizing energy issues, new construction, and housing. Energy has continued to dominate green building policies in the Netherlands since the modern movement began during the 1970s. Although the Dutch National Packages contain criteria for many environmental issues such as water and air quality, it is mainly the emphasis on energy that has been strengthened over time. This situation is perhaps due to the

fact that energy efficiency is a convenient focal point for performance-based regulations because it can often be verified objectively, while other environmental issues, such as indoor-air quality for the finished building, are more difficult to quantify.

Despite the attention accorded to energy in the Netherlands, some research suggests that compliance with energy mandates has been spotty. For example, building plans often contain energy-efficiency measures, but they are not included in the final buildings. Policies beyond the National Packages and building codes, such as tying the provision of energy efficiency to occupancy permits, could help with the implementation problem.

Dutch and American green building policies are also narrow in the types of buildings that they target. Many initiatives are geared toward the greening of new construction instead of existing buildings. Dutch building policies require quantification of the environmental impact of new construction, but do not compel the same level of analysis for rehabilitation. Similarly, policies in the United States that require green building certification primarily do so for new construction.

Another way that the issue of green buildings has been constrained is in terms of the definition of sustainability. Commentators have criticized both national systems for ignoring the economic and social dimensions of sustainability. Dutch researchers also point out that green building policies have downplayed the importance of water management and siting. Further, green building policies in the Netherlands rarely address sustainability on a scale larger than the individual building. American researchers echo this observation and note that green building policies across the country are too concerned with building materials and site-specific measures and often ignore larger issues such as site selection, urban design, and neighborhood linkages. A possible explanation for this narrowness is that broader issues such as siting and economic and social concerns are much more difficult for individual building owners and developers to tackle and much harder for government agencies to address through policy measures.

Cost and Flexibility

In both countries, researchers have noted that the time span for recovering the costs of investments in green buildings is prohibitively long and that the investment is usually shouldered by developers (who often do not enjoy the cost savings). Analysis carried out in the Netherlands and the United States has found that cost is a significant obstacle to green building in all sectors. Dutch and American researchers have identified numerous financial barriers such as the perceived cost of managing sustainable buildings, the lack of market demand, the limited availability of some sustainable products, the systematic and regulatory barriers to sustainable construction, and the unwillingness of consumers to pay for sustainable features. These concerns persist in the Netherlands despite findings that the National Packages emphasize reducing the cost of green buildings. In developing the National Packages, sustainable products were assessed largely based on cost implications, perhaps because of involvement from the development industry.

Analysts in the United States have also found cost to be a particular concern for smaller and rural jurisdictions (which is not to say that it is not a factor in urban areas) that may lack access to green building products and expertise. Because of the perception that green buildings are more expensive than conventional buildings, researchers have suggested that policy makers should address the issue of cost from the start by trying to win public support for a green building policy.

The introduction of subsidies and financial incentives for green buildings can help remedy some of the cost (or perceived cost) problems. Dutch researchers have encouraged the use of widespread inducements such as subsidies for energy efficiency and tax benefits for green buildings as a way to embed sustainable measures into construction practices. Further, because developers in the Netherlands normally only adhere to minimum required standards for green buildings, incentives could help to introduce more ambitious technologies. Dutch researchers also point out something that has been lacking from the American literature—that sustainable building policies should concentrate not only on building components, but also on the consumption of the people who use the buildings.

The need for flexibility when addressing green building issues is an additional theme of both the Dutch and American literatures. However, in the United States the focus is on the need for flexible building-assessment systems such as those that can be modified for different climate types, while in the Netherlands the target is on the need for flexible policies. Nevertheless, because many assessment methods center on building products rather than on end goals, they can be difficult to modify for local conditions. Some degree of flexibility is built into the Dutch National Packages that allow local governments to choose the measures most appropriate for them and to enact stricter or more comprehensive green building requirements.

The Dutch have found that relying on voluntary green building labeling systems—the major approach in the United States—does not result in the construction of a large number of green buildings. Similarly,

American analysts have reported that voluntary green building programs are not widely used by developers.

Effectiveness

Researchers in the Netherlands argue that because the National Packages contain primarily low-cost green building measures (e.g., energy-efficient light fixtures) the policies do not result in substantial environmental benefits. More ambitious outcomes require more expensive measures that deal with, for example, siting and growth management. A similar criticism exists in the United States where researchers have found that developers practice "points chasing," a process that entails seeking the greatest number of points under assessment systems for the least cost, regardless of environmental benefit. For example, the LEED system for new construction (Version 2.2) awards one point for reusing most of an existing building (which can be very costly) and one point for using low-emission paint (which is much less expensive).

Dutch researchers argue that the National Packages lack an ambitious vision because they were developed to give buildings a sustainable label as inexpensively as possible. Therefore, they represent only incremental change—not major revisions to how buildings are developed. This is not unlike the situation in the United States where developers use voluntary green building labeling systems to market and promote their projects. Furthermore, in both the Netherlands and the United States it is easier to target environmental policies to government buildings than to private individuals.

Green buildings have been difficult to define because of the myriad issues that they can encompass. Also, as green buildings have begun to be redefined as sustainable buildings, their scope has grown from including just environmental issues to economic and social issues, at least in some circumstances. The ambiguous concept of green buildings has led to some breakdowns in both countries, such as enacting policies that are very difficult to implement. On one hand, the complexity of defining exactly what a green building is gives policy makers, developers, and others a convenient excuse for policy failures. Researchers have found that the lack of a shared vision and clear goals for green buildings has lead to stagnation in the technological development of green building products. On the other hand, this ambiguity limits conflict and promotes consensus on green building issues.

Conclusion

Despite the many differences in policy, social, and environmental contexts in the Netherlands and the United States, such as the acceptance of more control over building issues by the national government in the Dutch setting, this analysis has demonstrated many similarities in green building policy research. Still, due to the long history of action on green buildings in the Netherlands, many differences remain from which Americans can derive some useful lessons. From this analysis, I offer several conclusions.

First, the Dutch experience suggests that planners and policy makers in the United States should be very careful about how green building policies develop. Green building policies, like most other policies, exhibit path dependency in the sense that current decisions are affected by past decisions that may not even be relevant anymore. For example, if buildings are assessed based on inputs (building products) instead of on outputs (building performance), that paradigm is very difficult to change once it has been incorporated into normal construction and planning practices.

Second, flexible policies and systems are needed for assessing buildings in the United States. Flexibility will foster more place-based approaches to green buildings and such adaptability is very important for a large and diverse country. For example, requiring a building to use solar energy in a low sunlight location would not be appropriate. Flexibility can also allow for innovation in building technology and design because it can embed ways to modify building assessments and policies as new products and techniques enter the market. Flexibility can also perhaps make green building polices more politically palatable in the United States—especially if the policies originate at the municipal level as such an approach would give local developers more input.

Third, guidance on and attention to the issue of green buildings at the national level is something that the United States can borrow from the Dutch. Despite significant differences in political context, a higher degree of federal facilitation in the United States is practical. A federal-led discussion of green building polices—and federal programs such as grants and tax incentives—could help to foster more state and municipal acceptance. For example, the federal government could assist states and municipalities that are struggling to determine the best way to assess buildings and a federal research and education agenda could help spur innovation. In addition, some of the barriers to implementing green building policies in the United States include concerns about cost and a lack of information and these are issues that the federal government could effectively address

Fourth, the development of green building policies needs to be based on broad and open discussions and negotiations among government and the devel-

opment industry. In addition, green building policies should be approached holistically, in terms of the types of buildings targeted and the environmental and sustainability focus (such as water, energy, air, and other issues). Although green buildings have commonly been associated with energy efficiency and climate-change mitigation, they have many other potential uses, such as in comprehensive planning, watershed management, and other environmental programs. Encouraging the construction of green buildings from within the context of larger sustainability plans (including the issue of climate protection) can help them to realize greater potential.

Finally, there is a need to create capacity for constant innovation in terms of technology and construction practice into green building policies. Policy innovation is also important because programs that remain stagnant will quickly become outdated due to the quick pace of technological change. Because jurisdictions in the United States are new at developing policies for green buildings, they have the opportunity to embed future innovation into the policy structure. For example, policies that require a revisiting of required construction practices over time could allow for the incorporation of new tools and techniques.

In sum, Dutch experience in developing green building policies offers some valuable lessons for the United States. The long history of interest and action in the Netherlands on this front means that the country has gone been through the difficult process of trial-and-error that is necessary for any developing policy system. By looking abroad, planners and policy makers in the United Stated may be able to formulate a very innovative green building policy system and avoid some of the pitfalls that have been experienced elsewhere.

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Appendix A: literature used in metasynthesis

Name of Study	Author Affiliation (number of authors)					Data Collection
	Netherlands	United Kingdom	Brazil	United States	Canada	
Dutch Literature						
Ang et al. 2005	3					case study
Boonstra, 2000	2					case study
Bossink, 2007	1					case study
Bossink, 2002	1					interviews, case study
van Bueren, 2007	2					case study, literature review
van Bueren & ten Heuvelhof, 2005	2					case study
van Hal, 2007	1					focus group, case study, interviews
Hargreaves et al. 1998	2	2				energy use model, case study
Itard, 2007	2					case study, life cycle analysis
Keijzers, 2000	1					case study
Martens & Spaargaren, 2005	2					case study
Melchert, 2007			1			case study
Oostrom, 2001	1					case study
Priemus, 1999	1					case study
Sunikka, 2003	1					case study
Sunikka, 2006	1					case study
Sunikka & Boon, 2003	2					case study, survey
U.S. Literature						
Garde, 2009				1		survey, interviews
Theaker & Cole, 2001					2	case study
Retzlaff, 2009				1		survey
Retzlaff, 2008				1		content analysis