

THE HOMEOWNER'S GUIDE TO GREEN BUILDING:

A CUSTOM SOURCEBOOK FOR SARATOGA COUNTY RESIDENTS

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Introduction

Globally, population growth puts undue strain on the environment and its available resources. The United States population is estimated to reach 392 million people by 2050, an astounding 50 percent increase since 1990 (Day 2010). Between 2005 and 2009, more than seven million new housing projects were completed in the United States to accommodate this growth (EPA 2009). The building industry currently consumes over 50% of the world's natural resources and produces over 40% of its solid waste stream (Phinney Design 2011). In addition, buildings in the United States are responsible for 12% of all water consumption, 68% of total electricity use, and 38% of carbon dioxide emissions (Summers 2010). Each year, between 30 and 40 thousand tons of construction waste is produced, and only 40% of that waste is recycled (Franklin and Associates 1998). Significant increases in home efficiency and the creation of closed-loop systems would lessen environmental impacts, reduce waste and inputs, and soften the economic costs of the built environment.

Green building is an approach to construction that strongly considers both human health and environmental impacts because it has the ability to improve indoor air quality, curb fossil fuel use, and promote resource conservation by improving home efficiency. Because it reduces energy costs and fostering human health, sustainable architecture is the future of development (Summers 2010). Green building also promotes job creation all along the supply chain, including architects, engineers, construction workers, electricians, plumbers, and countless other employment opportunities for a growing economy. From 2010 to 2015, the total US green building market is projected to increase from \$71.1 billion to \$173.5 billion and commercial expansion is expected to increase by 18.1% annually (Summers 2010). With this expansion, green building has the ability to create 2.5 million US jobs, a 30% increase in jobs for the construction industry (Summers 2010). In 2004 alone, more than 14,000 homes were constructed nationwide according to local green building guidelines (NAHB 2010). A recent survey by the NAHB (National Association of Home Builders) Research Center found nearly

half (46%) of people buying a new home or making major renovations are considering green products (NAHB 2010). Homeowners and homebuilders alike are realizing that greener homes can cost less to build and operate, last longer, are healthier to live in, use less water and energy and often have a higher re-sale value (USGBC 2010).

Green building can be implemented to support sustainable economic development and expansion globally and within Saratoga County. Sustainable building practices incorporate many principles, but generally touch upon energy efficiency, indoor air quality, local materials, green building systems, and smart building design (Bauer 2010). Builders use a variety of techniques to reduce the energy needs of a structure and increase the ability to capture or generate their own energy. Passive solar design, efficient heating and cooling systems, local and recycled building materials, water conservation and other techniques make green building an appealing option. The typical U.S. family spends close to \$1,500 each year on energy bills, almost half of which covers heating and cooling costs, and energy efficient upgrades have the capacity to significantly reduce a buildings' operating costs (NAHB 2010). While reducing the energy and maintenance costs, home and business owners not only reduce their carbon footprints, but often promote renewable energy alternatives such as solar and wind power. With cost-effective changes, the built environment can have less impact on the natural environment.

Saratoga County, specifically Saratoga Springs, has historic buildings and structures that are highly inefficient in their present state. Homes and buildings could benefit greatly from green renovations that stress ecological design for a more environmentally conscious approach while still retaining their historic charm. In addition to possible renovations for the pre-existing historic homes, Saratoga County is currently growing more than any other region in New York State. Saratoga has seen rapid growth in population, adding over 13,000 new residents between 2000 and 2006. In that time, the population has expanded by 7% annually. In 2009 alone, 31 new homes were built in Saratoga Springs and further industrial development, such as the AMD Chip Plant in Malta, will

amplify ecological and human health consequences in the surrounding areas (SCPB 2010). As a result, Saratoga County would benefit greatly from increased green home designs. There are already several successful local examples: Phinney Architecture is a LEED certified, green driven architecture firm in the Saratoga region. LEED, or Leadership in Energy and Environmental Design, is a rating system created to provide guidelines to what qualifies a building as green (Egge 2010). Expanding on Phinney Architecture's green efforts could improve the local economy, human and environmental health, and promote further development.

Previous Work And Expansion

A previous capstone study interviewed several local contractors, architects, and builders to determine the level of green home building implemented in Saratoga County in 2010. Their goal was to better understand why some builders and architects avoided green design principles when designing homes. They also asked detailed questions about the building process, what design techniques were preferred and why to better understand current building practices in Saratoga. In their study, they did not find a clear separation between green and non-green builders. Instead, Gallagher and Ornvold targeted dominantly green companies but found varying levels of green in each company, as well as different ideas as to what green design means. Some of their builders defined themselves as green but did very little when compared to other green builders. In addition to the variety of companies interviewed, Gallagher and Ornvold discovered that these green builders had an opportunity to educate their environmentally conscious clients on green building. Their clients were coming to the green building firms because of their green label, expecting the builders to explain to them what types of green design they could afford with their budget.

Through their analysis, Gallagher and Ornvold found that the majority of the companies interviewed did not apply some green designs in their construction or designs due to real or perceived higher costs as well as lack of accessible information. Builders are forced to weed through websites to obtain information on green building initiatives – this is a tremendous waste of the builder's time.

However, Gallagher and Ornvold discovered that the builders with the most knowledge about green building were able to implement different elements of design for a lower cost (Gallagher and Ornvold 2010).

Gallagher and Ornvold also mention how homeowners are often put off by the perceived high prices of alternative energies and building designs. However, if these homeowners had more knowledge about the rebates and tax incentives that the State and Federal Governments could provide for them, they might find the prices to be more reasonable (Gallagher and Ornvold 2010). Along with these monetary incentives, green building's price tag has been coming in line with more standard construction techniques and prices. Recent studies have shown that green construction costs only 2% more to build than a conventional style building. This additional cost comes from the increased time it takes to create a green design and implement it in an environmentally responsible way (High 2008). Another study concluded that it can cost \$4 per square foot more to build a LEED certified home, however in 20 years savings will amount to \$50-\$70 per square foot depending on the level of LEED certification (Stang et al. 2005). The green builders in Saratoga County have proven that there are effective methods of implementing green aspects in home design, however unless they have expertise in the area, there is no way to make these green options clear to their clients.

Gallagher and Ornvold conclude their paper with a concept to potentially expand green building in Saratoga County. They state that a resource of consolidated green building information is necessary to educate local builders, architects, and homeowners. This solution is derived from the lack of education and the lack of consolidated green building information they found in their interviews.

Therefore, our project begins where their project left off. We intend to learn what information is needed to make green building more appealing and accessible through interviews with local non-green builders as compared to the green builders from Gallagher and Ornvold's interviews. From these interviews, we will determine what group requires an educational resource most: non-green builders, contractors, architects, or the homeowners. In our interviews, we will ask several specific questions

about green buildings strategies in an effort to understand what techniques will be most effective in Saratoga County. From this information, we will to create a supply of knowledge in an accessible, informative sourcebook for green building in Saratoga County to address the lack of knowledge Gallagher and Ornvold found. We hope this sourcebook will promote green building in the region.

Methods

Gallagher and Ornvold conducted the project that has laid the foundation for our interviews with local homebuilders regarding green building design in the Saratoga County (Gallagher and Ornvold 2010). As previously stated, Gallagher and Ornvold found a general lack of knowledge for green building practices within the building community. The framework for their project could be easily adapted to our project by interviewing local builders. We chose to focus on builders because they interact with the clients as well as the architects, and could give us insight on all three groups of people. First, we compiled a list of local builders, categorizing them as small business, large business, or green business. From there, we interviewed three small builders, three large builders, and one green builder. We interviewed only one green builder because Gallagher and Ornvold's previous interviews focused almost exclusively on green builders. We are also more concerned with why builders are not green, as opposed to sampling different types of builders.

After creating a list of local builders we attempted to contact as many as possible to set up interviews. In the interviews, we asked each builder a series of questions regarding what green building practices they implement, what practices they find most successful/cost-effective/energy-efficient, what information could persuade a person to “go green,” and what green elements of design their clients generally ask for, if any (Appendix A). After learning about design preferences we also examined who the decision makers were in the process, as well as what prevents builders from going green. From these interviews, we learned what information would be most useful and appealing for local homeowners.

After analyzing our interviews, we determined whether a green building resource would be most useful to local homeowners, builders, or architects. This resource consolidates and lays out information regarding what green building techniques work best in the region as well as what information homeowners ask for most.

This sourcebook will ultimately educate builders, architects, or homeowners interested in building or renovating green. It is available to the public and broken down by subject of interest and by home feature. The sourcebook contains refined information we have collected from reputable sources for green product listings and suppliers, as well as local vendors that can assist with these green builds and renovations.

Results

After conducting interviews, we obtained a sample of three smaller builders, three larger builders, and one green builder. In Table 1, the size of the company was determined by the size and number of projects they conduct every year. For example, a “large” builder might build an entire estate in a year or construct over a dozen homes. A “small” builder might focus on a couple of houses and assist with smaller renovations such as bathrooms and kitchens. In addition, builders were labeled as a “green” based on how they advertise themselves online. It should be noted that several non-green builders were more educated than the “green” builder we spoke to. Table 1 also illustrates the variety of companies we spoke to as well as the variety of individuals we spoke to.

Builder	Labeled Green?	Size of Company	Company’s Specialty	Role of Interviewee
1	No	Large	Commercial/Residential	Director/Contractor
2	No	Medium/Large	Custom homes	Office Manager
3	No	Large	Estates/homes	Owner/Project Manager
4	Yes	Medium/Large	Homes	Contractor
5	No	Small	Custom Homes	Owner/Project Manager
6	No	Small	Custom Homes	VP Operations
7	No	Small	Estates/Custom Homes	Owner/Project Manager

Table 1. Table of Builders Interviewed In 2012

Defining Green Design

When asked to describe what “green design” means to them, all of our builders gave unique answers. Some builders tried to define green design in terms of different home certifications, such as LEED and Energy Star. However, these builders made a clear distinction between certifications and true green building, suggesting that a LEED certified house does not necessarily make it a green build. Four builders responded stating that a whole-house approach to constructing homes was important. A “whole-house” approach to building considers the entire home with every decision made, so that the construction process and completed home function as efficiently as possible. For example, installing effective wall and window insulation in a home means the builder must also appropriate efficient air ventilation and humidity systems in order to maintain healthy airflow throughout the house. Since the home is ideally a well-connected system, any deficiencies and leaks in the heat envelope of the home will create unnecessary costs and diminish the overall comfort of a home. Other builders were less specific in their definition, stating that the home needs to last a lifetime or the home just needs to have minimal impact on the surrounding landscape. Others stated that green building was more of a philosophy that should be applied to every part of the home building process to minimize the home’s carbon footprint, energy use, impact on the natural environment, and waste. One builder also referenced creating a durable house and six emphasized energy efficiency and livability. This livability and comfort is derived from the ease of maintenance, lowered bills, consistent temperature throughout the home and excellent indoor air quality. Several builders mentioned that the green building field is constantly changing and expanding, which could explain why no two people gave us the same definition.

Based on all the responses, we determined that energy efficiency was the most common phrase used when defining green design. Since only one out of our seven interviewees defined their company as a green builder, we must consider that these responses are not from experts.

Green Building Techniques And Resources For Green Builders

When Gallagher and Ornvold performed their interviews, they dedicated most of their time to learning about each builder's process and what techniques they implement. From their interviews, we learned that local green builders all implement a variety of green building techniques during their home building projects. Almost all green builders first considered environmental impacts in siting or in the pre-construction phases. Some builders looked to preserve the natural features of the land with minimal disturbance of natural landscapes surrounding their homes. The initial building orientation and window size for southern exposure to maximize passive solar was an important element for most builders. From there, builders considered the whole home – integrating elements of the HVAC system (heating, ventilation, and air conditioning) to work efficiently together. Only a few builders considered the use of recycled materials, where all of them ensured that they installed high quality insulation in their homes correctly and effectively (Gallagher and Ornvold 2010).

Green Building Techniques And Resources For Non-Green Builders

All non-green builders first started by saying that they work for the clients. One builder stated that “we try to educate [about green building options], but we don’t try to get moralistic with our clients. I get all different kinds of people, so I have to play things a little more evenly.” Builders cannot pressure their clients into choosing green design elements; they can only present them as an option. As a result, non-green builders focus more on the client’s wish list than incorporating green building techniques.

However, our non-green builders mentioned a range of green building techniques they do implement when their clients ask for them. Figure 1 demonstrates the variety of green building techniques local builders implement without advertising themselves as green. There are clear similarities between non-green builders techniques and green builders techniques. Both builders reference preserving the natural landscape, insulation, and using natural materials. Non-green builders all mentioned energy efficiency and indoor air quality as green building techniques their clients were concerned most with. The

majority of non-green builders we interviewed also pride themselves on their high quality housing projects, but only three of our seven participants considered durability a green building element (Figure 1).

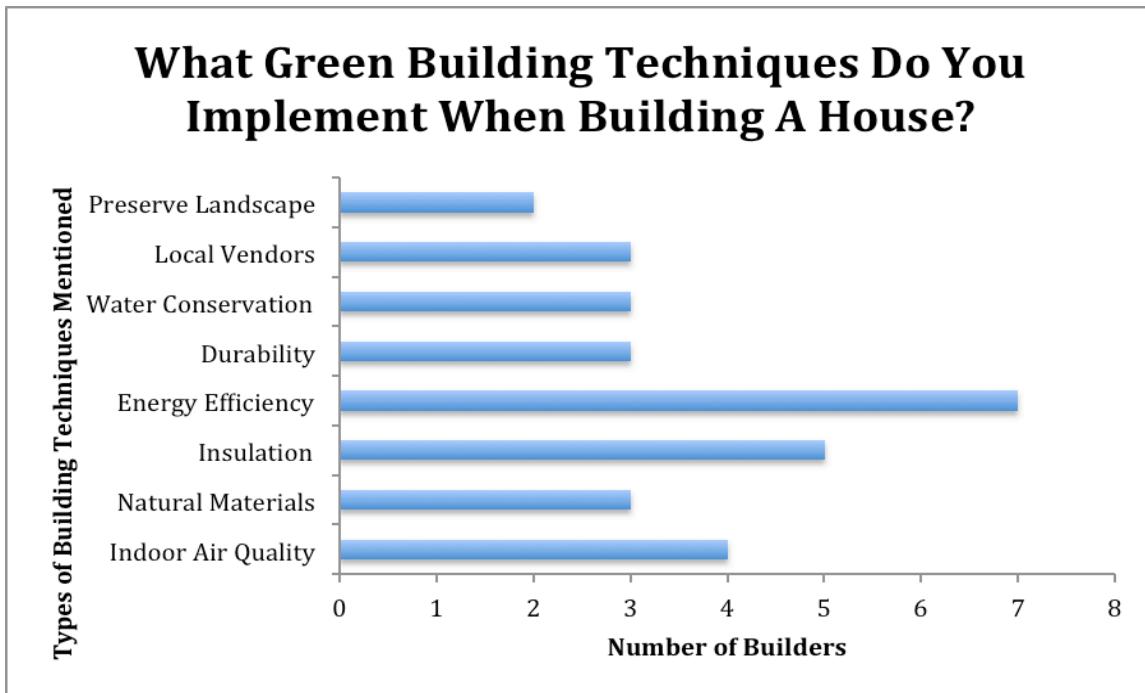


Figure 1. Responses to the Question “What Green Building Techniques Do You Implement When Building A House?”

The most commonly integrated elements of green design stated by these builders include passive solar heating and cooling, energy efficient HVAC systems, efficient water heaters and appliances, and insulation. Majority of builders we spoke to also referenced supporting local vendors in an effort to support the Saratoga County economy. Non-green builders obtained their green building information from sub-contractors, the NAHB, and the United States Green Building Council (USGBC) website.

Although these non-green builders seem to know and utilize just as many green building techniques as Gallagher and Ornvold’s green builders, there is one large difference: the influence of the client.

Presenting Green Building Options to the Clients

While environmentally conscious individuals do inquire about green design in their homes, the majority of homeowners must be able to see and conceptualize the benefits of sustainable building

practices, and “understand what’s in it for them.” Most builders found homeowners that come to them looking to implement green design, especially a specific certification, are unaware of what that involves. The dominant belief is that green building is often associated with higher costs, but majority of builders said that within the past five years, costs have become much more competitive. These changes in cost are apparent looking at Gallagher and Ornvold’s interviews from 2010 and comparing them to our interviews from 2012. The cost of spray foam insulation, based on their interviews and ours, has dropped to a competitive price in recent years. There are also government incentives and rebates available to homeowners that were not available in 2010.

Gallagher and Ornvold had already concluded that associated costs and education were the leading factors that prevented builders from implementing green building in the Saratoga Lake Watershed several years ago (Gallagher and Ornvold 2010). Our recent findings stated the same, and that homeowners were still hesitant to invest in certain features that will not pay for themselves for years. Interviews conducted several years ago mentioned how necessary educating the homeowner is in persuading them to build green. It is the builders’ responsibility to educate the homeowners on options and alternatives to create an efficient, low impact, livable home (Gallagher and Ornvold 2010). As a result, one builder we interviewed suggested highlighting green design aspects that provide improvements in efficiency and comfort that homeowners can track and visualize, since many green building aspects occur “behind-the-walls.”

Several of our non-green builders walked us through the process of building a custom home for a client. The main priorities are generally size and square footage of the home. From there, the builder asks the homeowner if they are interested in green initiatives. If they express interest, the builder might educate them on various options. Otherwise, certain green features might be presented side by side with not green options. Our builders also mentioned that most of the time their clients prefer the “bling” and high end finishes to their ecofriendly alternatives. For example, a builder might present a dozen varie-

ties of countertops to their clients, but they almost always choose the expensive granite over the countertop made from recycled bottles and mirrors.

Homeowner's Green Building Preferences and Concerns

All builders we spoke with agreed that homeowners are most concerned with energy efficiency and indoor air quality in regard to green building techniques. One non-green builder interviewed said he stresses indoor air quality to all his potential clients to ensure that the homeowner understands that this is a matter of health and safety. Specific green upgrades such as spray foam insulation were cited by builders as providing a comfort that was worth the extra money to their clients. However, these are only small steps in the right direction. In order to appeal to homeowner's two builders suggested playing up cost savings as well as indoor air quality because saving money and quality of life are two things that everyone considers when constructing a home.

Despite the consensus on efficiency and air quality, only one builder highlighted the importance of creating a durable home that was easy to maintain and long lasting. "Everyone thinks buying a house is expensive, but when you look at the house you realize that operating the house is going to be the most expensive. If you don't put high quality materials in the house and you're changing them out after five or ten years, that's a much higher added cost than if you had initially spent a little bit extra to get more durable materials." Although these builders pride themselves on quality, only one of them thought to list long-lasting materials under their "green" criteria. He stated that his clients were interested in durable, long-lasting materials that might have higher initial costs with minimal maintenance fees later on. Other builders mention that they provide high quality finishes and that their clients want a home that is safe, secure and will last a long time. However, only one builder considered durability a characterization of green building.

According to local builders, their clients and coworkers had several concerns about green building initiatives. The first concern involved the unreliable product labeling of green materials and building strategies. Because green is trendy right now, certain things are being considered green when they

are not. Therefore, it is difficult to determine what aspects of design are worthwhile. For example, siding companies are producing vinyl siding made from post-consumer recycled plastics. Although this product is considered “green” for being made partially of recycled materials, it is still extremely harmful to the environment and energy intensive to make. The other major concern involved cost, and how to accurately calculate things such as return on investment so homeowners can see the difference.

Discussion

From these results, we have concluded that non-green builders can only do so much to persuade their clients to choose greener options. We also discovered that the average client is concerned with their home being efficient, healthy, and comfortable. Our interviewees also provided us with some insight as to what building techniques are most effective in upstate New York.

Gallagher and Ornvold 2010 Interviews

Although we interviewed different types of builders, there are several similarities between Gallagher and Ornvold’s results and our own. The first being that, regardless of who you ask, everyone will give you a different definition for green design. The answer is complex, and the uniqueness of each response from both sets of interviews indicates that until the field stops growing there will always be a variety of answers out there. Both interviews also presented the same problems that prevented expansion of green building in Saratoga County. Cost and lack of education seemed to be the main issues in both interviews. Gallagher and Ornvold found that people and builders alike were put off by the high prices associated with green building. They also discovered that the less educated the builder was, the less likely they were to implement green building in their design. They also made the connection that builders with a green building education were able to lower the costs associated with green construction (Gallagher and Ornvold 2010). Our results indicated the same: that the lack of education regarding building generally turned people away from the idea. This lack of education also contributed to perceived higher costs.

The main difference between these sets of interviews came about exclusively because of the difference between green builders and non-green builders. Builders that advertise themselves as green are likely to receive clients that are already environmentally conscious or interested in green building. Because of this, these builders serve as teachers for their clients. They are expected to educate their clients on different green building options that fit their budget and can have the largest impact environmentally. On the other hand, the non-green builders we interviewed do not have that luxury. Their clients come to them with a specific idea already in mind. They work with a variety of people – some are environmentally conscious but most are not. And because they must accommodate their clients' wants and needs, non-green builders can only present green design as an option. They cannot lecture their clients the way the green builders do.

The Sourcebook

Utilizing this information, we have constructed an online sourcebook made to be as useful to the local population as possible. Our goal was to create a sourcebook for local builders, architects or homeowners based on who needed the information most. We quickly discovered that builders were incapable of being pushy or moralistic with their clients. If a builder has a green reputation, then their clients are guaranteed to be interested in green building from the start. They cannot, however, force their client to choose the most efficient, sustainable housing plans. Even though Gallagher and Ornvold uncovered that builders are bombarded with excess information in their interviews, a sourcebook directed towards them would be useless because they have minimal influence over their clients' decisions. As a result, our sourcebook is now directed towards the homeowner to help educate them on the benefits of choosing green design. Builders could also use this sourcebook as a means of presenting different green products and options to the decision makers: their clients.

The majority of builders we spoke to emphasized that most of their clients were not willing to compromise to make their home green if it meant sacrificing their own design concerns. However, the

green building techniques homeowners were most concerned with were indoor air quality and energy efficiency. Homeowners looking to renovate, rather than build a new home from scratch, were also concerned with the same two issues. Based on this information, we have provided two different sections of our website dedicated to these concerns. In each section, there will be a list of products and building techniques that can maximize the energy efficiency or air quality of a home – regardless if that home is new or just needs a renovation (See Appendix B).

The third main issue stressed to us was not always a main concern of the homeowner going into the building process, but rather a precaution most quality local builders considered when constructing a home: durability. The builders we spoke to were highly concerned with gaining a reputation for producing high quality work that lasts for a long time. Although not every builder cited this concern as a green building technique, durability concerns consider a holistic, life-cycle approach. Materials can only be so “green” if they require additional maintenance and repairs after several years. Therefore, it is important to consider products that are not only eco-friendly, but are of durable, long lasting quality. Therefore, we have an additional section of our website dedicated to the most durable green products on the market today.

After these three specific options of categorized products and techniques are offered to homeowners visiting our website, there is an additional feature. Located off of the main page, a cross section of the home contains clickable parts that highlight different aspects of the home, whether a homeowner has durability, energy efficiency, indoor air quality, and/or quality of life in mind. If a homeowner is interested in windows, they have the ability to select windows throughout the home. If they are curious about insulation, they can click on the interior of the walls. These links lead them to windows, insulation, etc. specific pages. This is where all the green building techniques unique to the Saratoga area are highlighted, along with an entire list of green building products – including all the products already featured in the specialized sections (Appendix B).

To stress the importance of buying local and supporting the local economy, we have an entire section focusing on local green vendors from the services and products they provide to both homeowners and the building community alike.

The product information is tailored to homeowners biggest concerns when they undertake construction of their dream home, such that they can make educated decisions on everything from lighting, to flooring, insulation, HVAC systems, water heaters, rebates and/or tax incentives, and beyond. The end result creates a convenient and accessible guide for homeowners attempting to find green building products and services, local suppliers and builders, as well as a plethora of information aimed at informing the public to their varied options. The online sourcebook provides external links to green building resources, such as the USGBC, NYSERDA, and more.

Limitations

The sourcebook limits us from clarifying some of the take home messages our interviewees stressed to us during interviews. For example, it is difficult to indicate a “whole house” method of green building when our sourcebook requires us to break down information by categories. However, we have attempted to illustrate the whole house method by linking different sections to one another. For example, if a homeowner is looking at insulation for their home’s walls there are links that bring them to the windows section and the ventilation section as well. We explain that insulating your walls is important, but so is having well insulated windows. In addition, a good insulation job calls for an improved ventilation system to guarantee good indoor air quality. We recognize this is not the most effective way to inform homeowners on the “whole house” approach when building, we suggest that future work look into innovative ways to educate the homeowner on this design concept.

It is also very difficult to provide relevant information regarding product costs and savings. This is partially due to fluctuating fuel prices, but it is also the result of green technology becoming increasingly competitive and, consequently, more affordable. For these reasons, we will exclude cost

entirely since it would require constant updates and revisions.

Conclusion

Saratoga County is growing faster than any other county in New York State (SCPB 2010), with tremendous room for growth in the green building field of home construction. In addition to concerns regarding sustainable development, a sustainable economy is necessary to foster growth. Green building can help more than just the environment, however homeowners must understand the associated benefits of green home design. The previous capstone project conducted by Gallagher and Ornvold concluded in their paper that green building information “needs to be easily accessible and well organized [...] as there are hundreds upon hundreds of websites that make claims about green building information” (Gallagher and Ornvold 2010).

After conducting interviews with local builders, we discovered more of the same. Homeowners need to be able to visibly see and feel the differences green building techniques create in order to consider them as viable options. The local builders are not in a position to force their clients to choose green, therefore an educational tool is needed to help persuade and enlighten homeowners.

Our solution to this problem expands on Gallagher and Ornvold’s call for more education. Instead of educating builders, we targeted the homeowners themselves. We first interviewed local builders to see what environmental concerns, if any, their clients had. Then, we consolidated information from various online and print green building resources and tailored it to Saratoga County, customizing the information to suit local homeowner interests.

We hope this sourcebook will be a comprehensive, informative guide that will assist local homeowners in choosing green products and building techniques for their home. In future work, we would suggest finding the means to provide accurate price comparisons for the sourcebook in addition to creating a better way to educate homeowners on the “whole house” method of green building.

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Appendix A

Here is our base list of questions asked in every interview conducted. Additional clarifying questions were asked based on responses to questions.

What does your company specialize in and what is your role in the company?

This project is based around green design, can you quickly tell us what the phrase “green design” means to you?

Do you integrate elements of energy conservation, recycled materials, or other green design practices in your work?

How do you present different green options to your clients?

What do you think makes people choose green design?

What, in your opinion, keeps companies and individuals from utilizing more green building techniques in their construction?

What resources do you find useful to learn more about green design?

The size of the company was determined by the size and number of projects they conduct every year. For example, a “large” builder might build an entire estate in a year or construct over a dozen homes. A “small” builder might focus on a couple of houses and assist with smaller renovations such as bathrooms and kitchens.

Appendix B

Link to Website: <http://academics.skidmore.edu/blogs/saratogacountygreenbuildingsourcebook/>

Screenshot of HomePage:

The screenshot shows the homepage of the Saratoga County Green Building Sourcebook. The title "Saratoga County Green Building Sourcebook" is at the top in a green header bar. Below it, a large green banner says "Welcome Homeowners!". The main content area has a light beige background. It starts with two questions: "Looking to renovate or build a home?" and "Interested in green initiatives?". A paragraph explains the purpose: "We have consolidated information from the most reliable resources and tailored them to Saratoga County for you. This isn't just about saving the environment, this is ensuring that all Saratoga County residents are provided with a comfortable, healthy home that will last a lifetime." Below this, another paragraph says: "Below find multiple resources to answer all your questions about how to build green in Saratoga County." It then lists several categories: ENERGY EFFICIENCY, INDOOR AIR QUALITY, DURABILITY, and FINDING LOCAL VENDORS. At the bottom, it says: "Or search by parts of the house using our [interactive cross section](#) of a home or the [links below!](#)" followed by a list of categories: Appliances; Counter Tops; Flooring; Heating; Insulation; Landscaping; Lighting; Painting; Plumbing/Water Heating; Roofing; Siding; Ventilation; Windows.

Appendix B Continued

Screenshot of Home Cross-Section

Saratoga County Green Building Sourcebook



Appendix B Continued

Screenshot of Local Vendors Page:

Saratoga County Green Building Sourcebook

Local Vendors

Green Conscious Home and Garden (<http://www.green-conscience.com/>)

Tel: 518-306-5196 Mon-Sat: 10am-5pm

33 Church Street, Saratoga Springs, NY 12866

Flooring, Kitchen Cabinets, Counter Tops, Paints Stains & Sealers, Wall Coverings, Architectural Panels, Window Treatments, Bedding, Gardening, and Eco-Gifts

The Radiant Store Inc. (<http://www.theradiantstoreinc.com/>) *HVAC Systems, Solar Systems, and Large Green Product Listing*

405 Jordan Rd, Rensselaer Technology Park, Troy, NY 12180 Ph. 888-767-5309

E-mail: tmoag@theradiantstoreinc.com

Specializes in low temperature radiant heating, solar hydronic and high efficiency HVAC systems

Product Listing: ESP Low-E Reflective Insulation, Tarm Biomass (Wood/Pellet-fired heating systems), Caleffi Hydronic Solutions, Laing Thermotech Inc. (water heaters), Buderus Boilers and water heaters, Velux Solar Systems, Tekmar Control Systems, Viessmann Solar Systems, Runtal Radiators (Radiant heating systems), TriangleTube Hot Water Specialists

North East Spray Foam (<http://www.northeastsprayfoam.com/>)

Three Locations: 7 Rocky Ridge, PO Box 471, Warrensburg, NY 12885 Office:

518-623-7010 Fax: 518-623-7015

Toll Free: 888-472-2774

Appendix B Continued

Screenshot demonstrating what each product page looks like:

Saratoga County Green Building Sourcebook

Flooring

Ecotimber

- Wood and Bamboo
- Only flooring company devoted to forest protection and healthy homes
- Always meeting environmental standards
- FSC certified: birch maple walnut hand-scraped hickory poplar and bamboo
- Can be found at Green Conscious (see [Local Vendors](#))

The Foundations Pre finished Solid Strip Bamboo

- Durable
- Low emitting binders are used to laminate the bamboo strips
- Low VOC finish coating applied.
- hardest, highest quality commercial bamboo specials
- Not a food source for pandas!
- Only harvest after 5-6 years