



*Is "Green Building"
Becoming Mainstream
in Central Arizona?*

**2006 Central Arizona
"Green Building"
Survey**



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I. Introduction

In our pursuit to help accelerate the adoption of Green Building materials and practices in our region, it became clear that we needed to ask the people directly involved -- the architects and builders – to learn what’s working, what isn’t and what is needed in the future. We were hoping through a survey to be able to gain information about where Green Building currently “is” in the region and discover what companies need in order to become successful “Green Builders”.

This survey was developed in November 2005 with input from faculty from Yavapai College, the Ecosa Institute and members of the Scottsdale Green Building Program. The survey targeted architects and residential builders in the Phoenix, Prescott and Flagstaff regions and concluded in May 2006.

The purposes of the survey were to:

- Obtain feedback on the current use of Green Building methods, systems and materials within the region
- Determine if companies believe that providing Green Building expertise is required to be competitive in the future
- Determine what architects and builders need to incorporate more Green Building features and materials in their projects
- Obtain feedback on the Scottsdale Green Building Program

This document summarizes the survey method and results, and includes respondents’ observations about Green Building in general. It is being distributed to the survey respondents and selected local and regional Green Building organizations and retailers.

We hope the information in this document can be used to gain understanding about where the regional architects and builders “are” in regard to Green Building, and help local government and other organizations better focus their future Green Building infrastructure, activities and support. We also plan to use this survey as a baseline for future surveys to monitor adoption of Green Building within central Arizona.

A list of local, regional and National organizations and resources is included in Appendix A of this document to provide valuable Green Building references for individuals and companies.

The document is copyrighted but can be copied and/or distributed freely by notifying us at GBSurvey@solarterra.com. We also welcome your comments and suggestions for future surveys.

We sincerely thank all of the companies that participated in the survey for giving their valuable time and thoughtful insight to help us all accelerate the adoption of Green Building in our region.

Respectfully,

Thad Johnson
President
SolarTerra LLC

Table of Contents

<i>I. Introduction</i>	<i>2</i>
<i>II. Executive Summary</i>	<i>4</i>
<i>III. Survey Process</i>	<i>10</i>
<i>IV. Survey Results</i>	<i>11</i>
<i>V. Conclusions and Going Forward.....</i>	<i>19</i>
<i>Appendix A – List of “Green Building” Organizations and Resources</i>	<i>20</i>
<i>Appendix B – Green Building Survey Questionnaire.....</i>	<i>22</i>

II. Executive Summary

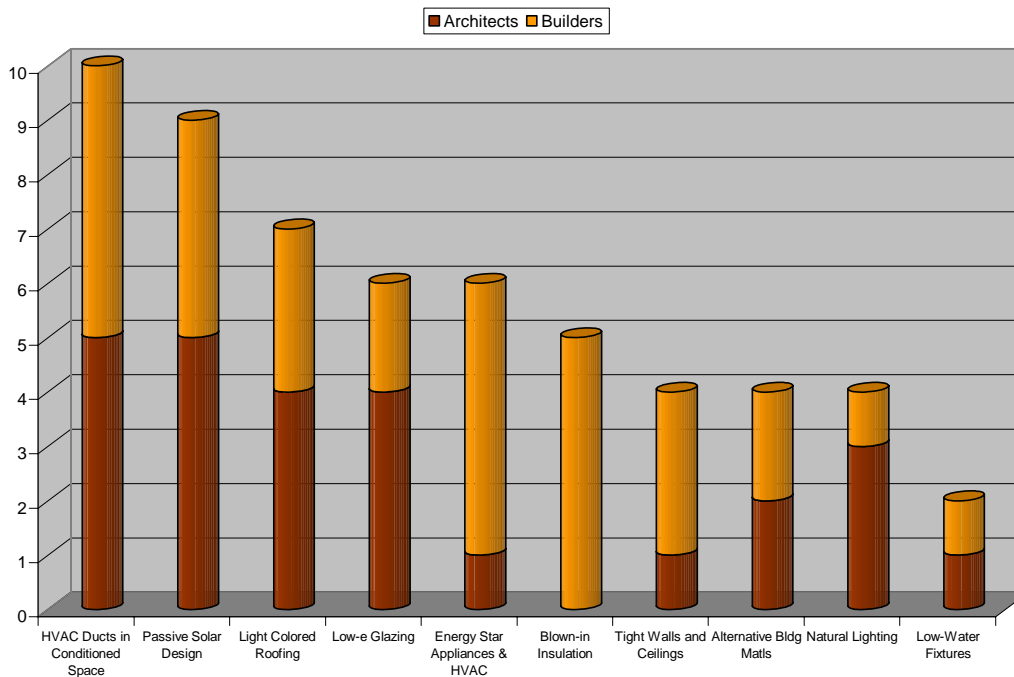
The purposes of this survey were to get a sense of how many companies are incorporating “Green Building” in some way currently in central Arizona, find out if companies believe that providing Green Building features and expertise is a competitive edge, and try to understand what companies need to expand their Green Building expertise in the future. A secondary purpose was to obtain feedback on the Scottsdale Green Building Program specifically so that it can continue to evolve to meet the needs of the changing building industry.

The companies that participated in this survey include sixteen architectural firms and builders from Phoenix and Prescott out of 133 companies contacted in central Arizona. Five of the companies indicated they were members of the Scottsdale Green Building Program. Though the survey was targeted at custom single-family homes, the companies surveyed also constructed buildings in the government, commercial and multi-family residence sectors.

While we questioned respondents on a variety of topics, all detailed in the next section of the document, this executive summary will focus on the four topics that relate directly to the purposes of the survey.

How many companies are currently incorporating Green Building features and/or practices?

What Current Green Building Features are You Doing?



Every company surveyed incorporated more than one “green” feature and/or product in their current projects. Many initially did not consider some of their practices to be “green”, such as putting the HVAC ductwork into conditioned space, or building a tight home, they just believed that it makes sense to build that way. It was heartening to see that many companies incorporate passive solar design which is so critical to maximize winter heating and minimize summer air conditioning in Arizona. It was also encouraging that blown-in insulation, though not identified by the architects, is used by the majority of builders surveyed and ensures solid

contact between insulation and air barrier, helping to maximize a wall's R-Value. Based on these results, it appears that “green building” and energy efficiency marketing, education and training are having an impact in the region’s building industry.

How many companies believe offering Green Building features and products make them more competitive?

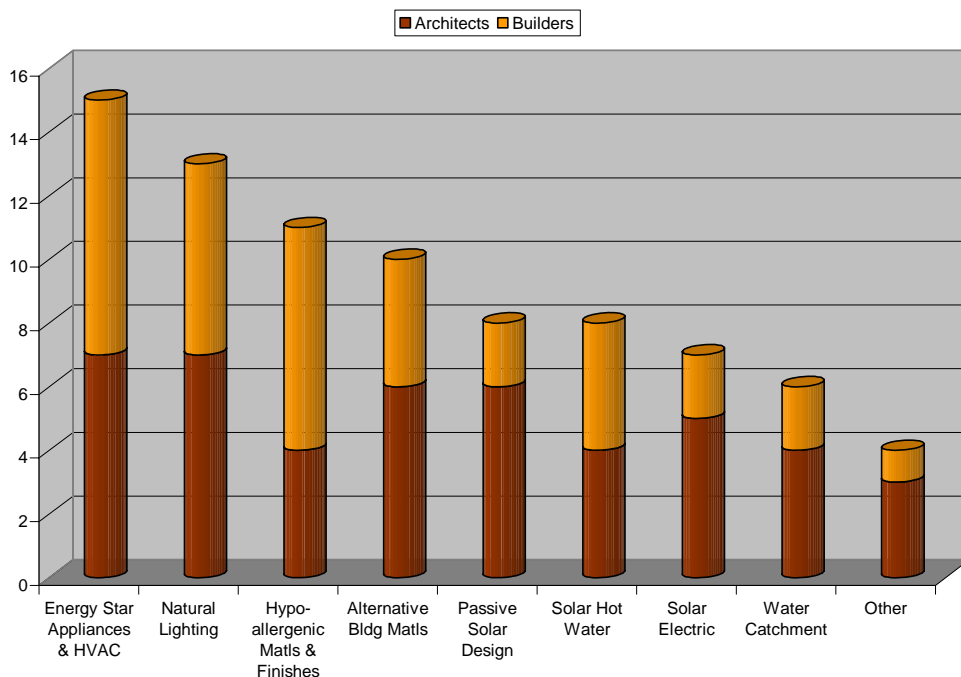
Most companies (75%) responded with a resounding “yes” when asked if offering green features and expertise adds to their competitiveness though for some it was difficult to quantify how or why. A few companies realized that they had to gain Green Building expertise just to **stay** competitive as they were seeing more and more of their competitors offering “green” services or doing projects that were going to achieve some kind of green certification. They also realized that future government regulations and codes were going to be more green oriented. Only two respondents were currently using their green expertise in their marketing and felt that it set them apart from their competition based on comments from their clients.

An additional dimension of the challenge to determine whether incorporating green building features increases competitiveness is that real estate agents have difficulty quantifying the value of green building features in real terms for prospective buyers. If the value cannot be clearly communicated, either because real estate agents themselves don’t understand the value, or if they do, they can’t articulate it well, then competitiveness isn’t enhanced.

What do companies need to be able to offer Green Building features and expertise going forward?

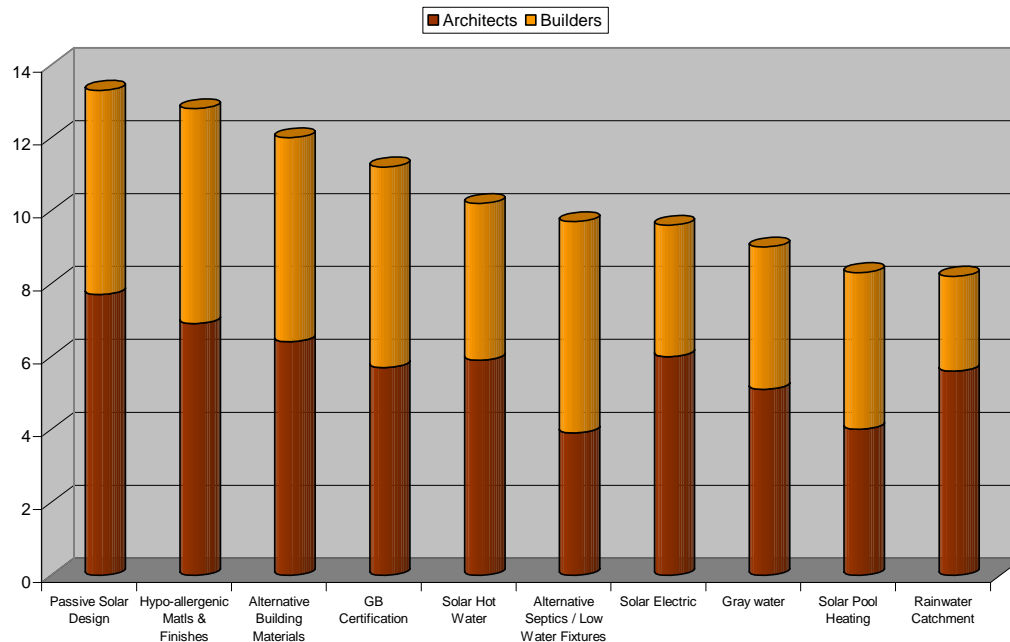
This question is addressed from four perspectives; 1) what green features are their clients requesting of them currently, 2) what value-added features do they need to be able to offer their clients in the future, 3) will they need to develop expertise in-house or sub-contract out for the features, and 4) what will they need if they want in-house expertise.

What Green Building Features Are Clients Asking For?



- Overall it seems that the public is becoming aware that energy efficient and healthier products and features are available and are asking for them. Some clients are even specifically requesting alternative building materials such as ICFs, straw bale and rammed earth. It's not surprising that Energy Star appliances and natural lighting were the top two as both have a direct impact on energy bills. As the demand from their clients increase, companies will need to develop the capability to respond.

Please Rate the "Value Add" of the Following Green Building Features to You and Your Client



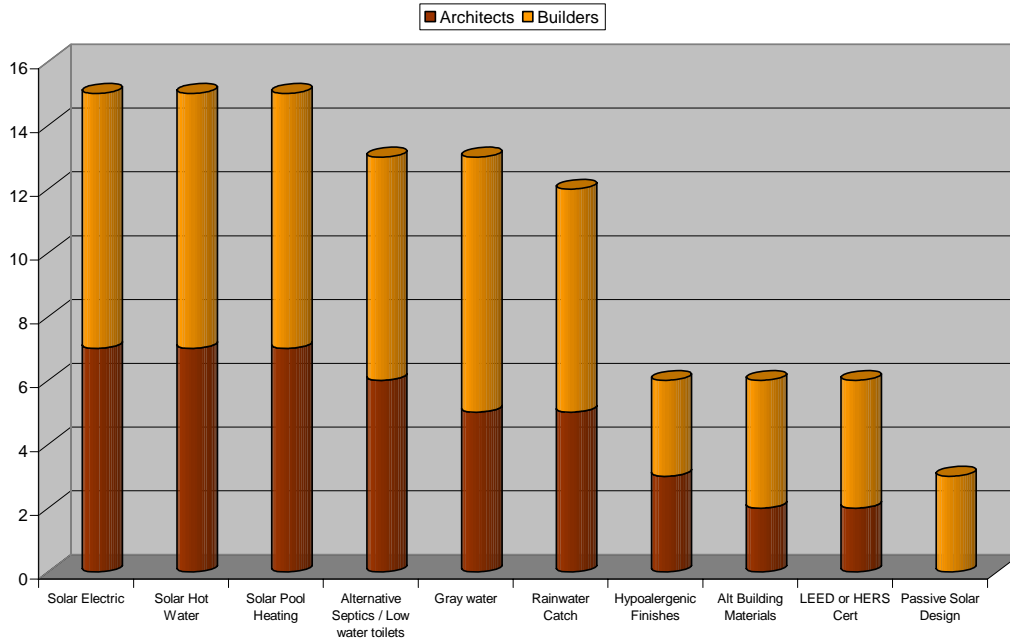
- This prioritized list of "value-add" features is not in sync with what clients are asking for in the previous chart (other than hypo-allergenic materials and finishes) and it may be because many of the companies surveyed were already at least familiar with these features and products, and/or had some experience with them.

It is noteworthy that certification was considered "value-add", and a few respondents noted that, like it or not, government regulations area required in the early stages of adoption to stimulate the use of "green" materials, systems and methodologies. "Without regulations" one company stated, "it's hard to justify the increased cost".

It was somewhat surprising that some of the features considered medium value-add (such as solar hot water, low-water fixtures, solar electric and gray water) have been around awhile but are not on the list of green features that architects and builders are currently doing. The "high" cost of solar electric and solar hot water may explain why they are not being incorporated in current projects, but incorporating low-water fixtures and gray water plumbing has almost no impact on total project cost but provide benefit to both the buyer and environment by reducing water requirements.

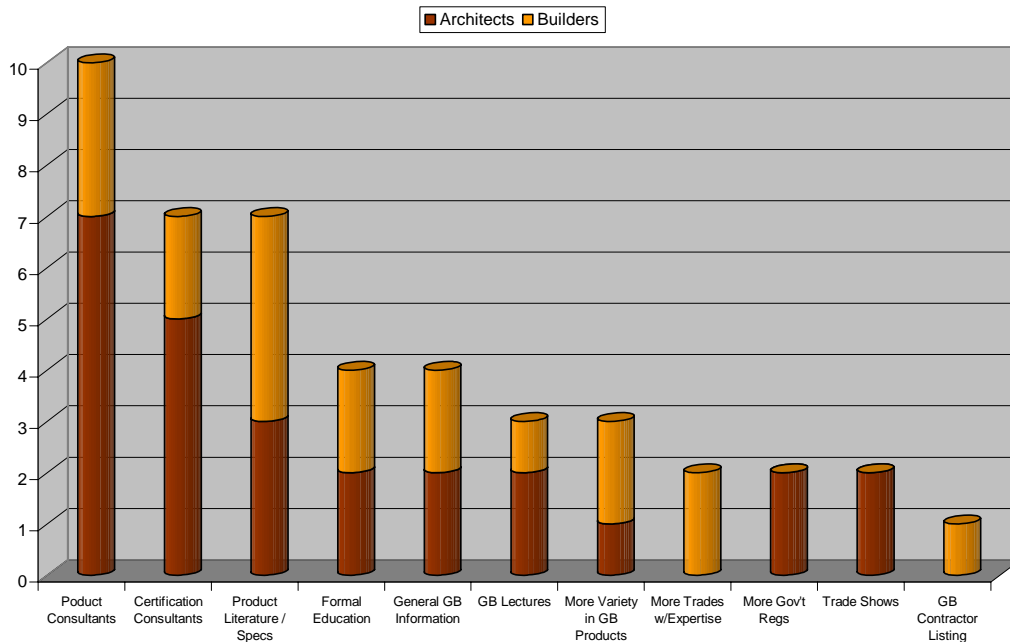
- In the next question, we wanted to understand where companies want or need education and training to be able to support the features internally, and where they would rather hire third-party expertise and not develop the expertise in-house. In general, architects wanted to develop and keep the expertise in-house, whereas builders were more willing to sub-contract for it.

What Green Building Features Will You Need External Expertise to Implement?



It makes sense that the higher prioritized features for externally contracted expertise require specialized knowledge of technology, codes and installation methods and considerations. Expertise for the lower prioritized features, such as hypo-allergenic finishes, alternative building materials and certifications can more easily be obtained and in shorter time through research and education than the higher prioritized features.

What Resources Do You Need To Be Successful as You Implement More Green Building Features?

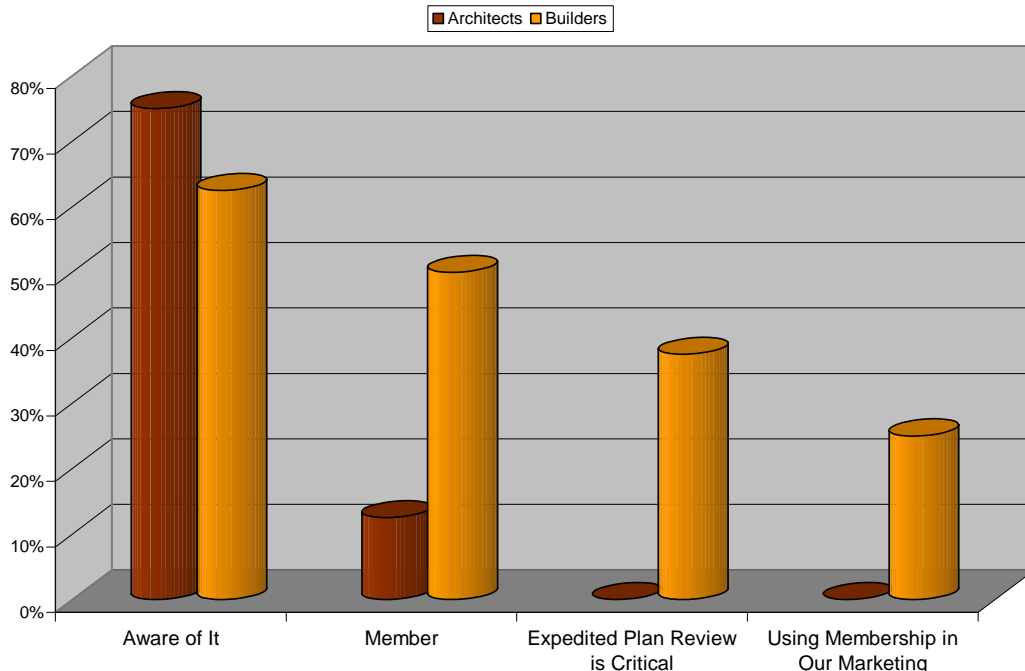


- The most significant stumbling block for most architects and builders in being able to design and install Green Building features based on the survey, is not having access to product knowledge and installation techniques, and not being able to find sub-contractors with “green” experience. Companies stated that they need manufacturing representatives and retailers to provide better product specifications for consideration and design, but also want independent consultants that can ferret through the multitude of available products and technologies and make unbiased, yet knowledgeable, recommendations. Companies also felt that incorporating Green Building concepts into formal education and sharing knowledge and expertise through trade shows and open lectures is also very important to get Green Building more into the mainstream.

How do member companies feel about the Scottsdale Green Building Program?

Five of the sixteen respondents indicated they were members of the Scottsdale Green Building Program, although only three were on the membership listing. Three of the five companies (builders) felt that the expedited permit process was critical for the program to be successful and continue to draw participation into the program. Two companies were highlighting their membership in the Scottsdale Green Building Program in their marketing literature. There was unanimous positive feedback that the Scottsdale Green Building Program is very useful and necessary to promote better home building practices in the region. A majority of the members felt that the Scottsdale Green Building Program certification and inspection process was somewhat cumbersome and rigid and needed to be streamlined and made more flexible going forward. Reducing and/or streamlining the additional inspections required to participate in the program is key.

How Valuable is the Scottsdale Green Building Program to You?



Even with the desire for improvements in the program, the members stated that they will continue to participate in the program “as-is” and realize value from it. In general the program is well-known and respected by architects and builders throughout the region.

Conclusions

The survey data also indicates that “Green Building” is a well recognized phrase in Phoenix and Prescott, even though there may not be lucid understanding of its specific concepts or practices. It was evident in discussions with the respondents that the phrase is so recognizable that it would be detrimental and cause confusion if other terms or phrases are coined to describe the Green Building “space” (initiatives, concepts, methodologies and organizations), or even subsets of it at this point. It seems that the marketing of Green Building has been and is continuing to be effective. According to a recent study by the NAHB and McGraw-Hill Construction, by 2007 almost two-thirds of builders will be involved in green building.

Though the phrase “Green Building” is becoming mainstream, the components of it -- product selection and availability, expert services and supporting infrastructure -- are lagging behind.

Product Selection and Availability> A consistent theme between architects and builders was that limited product selection, with sometimes limited availability of those products, made it difficult to incorporate green products into a project and at the same time commit to a budget and tight schedule. For instance, if a particular manufacturer’s wall product was called for by the architect, and approved by the planning department, the project could be held hostage by that product’s cost and availability. Architects would be more willing to design in green products, and builders use them, if the product’s specifications were more standardized across manufacturers so that drawings would not have to be changed and re-approved when products were changed due to price or availability.

Expert Services> The survey respondents described problems in locating trades with “green building” experience, and those they did find were not always available when needed. In addition, many of the respondents did not know that LEED and HERS certification almost always requires consulting and/or testing services, and did not know certification support services are available. “Building science” workshops and other training programs are educating companies in durable, energy efficient design concepts and assembly methodologies which will help in this area, but there was also a general request by the respondents for more hands-on training for specific product installation.

Infrastructure> Planning departments, county inspectors, and POA architectural committees all need more education and exposure to Green Building products, systems and construction methodologies. Standardizing products across manufacturers, mentioned above, will go a long way to making product and system evaluations and certifications more efficient. Based on the respondent feedback, government initiatives (such as requiring government buildings to be LEED certified), support organizations (such as the Scottsdale Green Building Program) and financial incentives (such as rebates and tax credits) will help motivate companies to incorporate Green Building into their projects. In addition, expanding formal and informal education is required to continue to “spread the word” about Green Building -- its benefits, its systems and products, and its value -- to companies and organizations throughout the building industry and to consumers.

Based on the responses to this survey, getting the Green Building components, services and infrastructure ready to support the growing demand for durable, eco-friendly and healthy buildings is the welcome challenge facing the Green Building industry today.

III. Survey Process

The survey questionnaire (Appendix B) was designed to collect subjective and objective data, about Green Building in the region and be delivered over the phone. We felt a phone survey would be the most effective in that to obtain meaningful data, we might need to define “green building” terms as we went through the survey, and we also wanted to capture insights and comments during the interaction.

Our survey target population was 546 architects and 579 builders in Phoenix (83%), Prescott (10%) and Flagstaff (7%). Of the 1125 target survey respondents, we contacted 133 (12%) by calling every 5th company on our alphabetized target list to try to achieve a random sample. Due to resource constraints, we were unable to contact as many companies as we hoped to and ended with 16 companies (12% of those contacted) willing to participate in the survey. As it worked out, the surveyed companies represented eight architects and eight builders from the Phoenix and Prescott areas.

We used a written introduction script so every contact received the same information and could make a determination on whether or not they wanted to participate in a 15-minute phone survey. Some companies did not know anything about Green Building and were hesitant to participate, but we let them know their input was as valuable as those companies that were familiar with Green Building and we were really looking for multiple perspectives.

When a company indicated they would like to participate in the survey, we set up an appointment with the “right” person, usually an architect, project manager, partner or owner. Often it took scheduling more than one appointment for the company contact to be able to allot time for us. If a company contact was still not able to allot time after the third appointment, we no longer pursued an interview with them (which happened approximately 50% of the time). We also had two companies that requested written copies of the survey to fill out and mail back to us; however we did not receive either survey back.

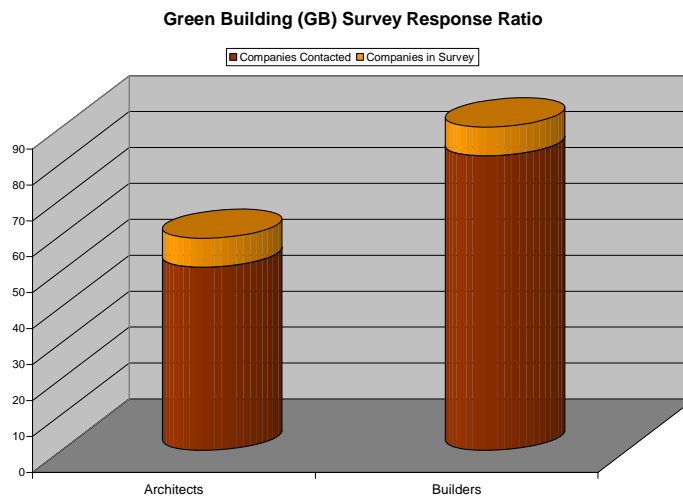
Many of the companies that did not participate in the survey because they were “too busy” indicated that they **do** support Green Building. Through brief conversation with them, we learned that some of them already incorporate Green Building features and/or construction practices into their projects.

The actual surveys averaged 20-30 minutes, were documented electronically, and the data tabulated and analyzed using a spreadsheet.

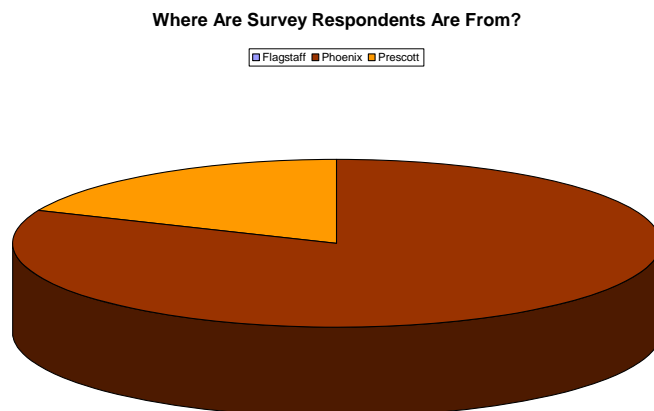
IV. Survey Results

This section will summarize the survey results and our observations of the survey data by addressing each survey question sequentially. Some general observations and respondent comments are also included in this section.

1. Respondent Demographics – approximately 12% of the 133 contacted companies in participated in the survey. Most of the companies we contacted expressed interest in the survey even if they weren't aware of "green building", but making the time to participate proved difficult for them.

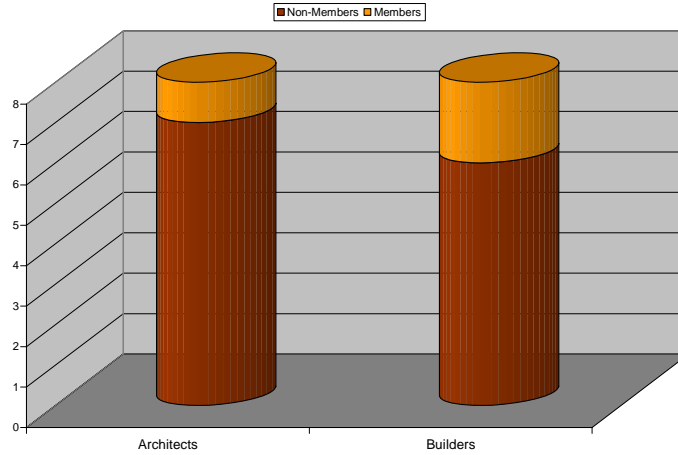


2. Respondent Demographics – Eighty-one percent of the companies that participated in the survey were from Phoenix, and 19% were from Prescott. None of the nine companies that were contacted in Flagstaff chose to participate in the survey.



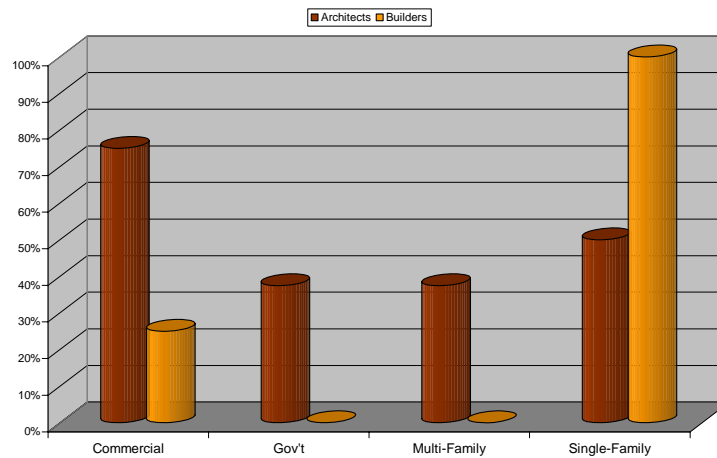
3. Scottsdale Green Building Members – Three out of the 16 companies were Scottsdale Green Building Program members, per the organization's member listing. Another two companies stated during the survey that they were members, even though they were not listed.

Scottsdale Green Building Program Membership



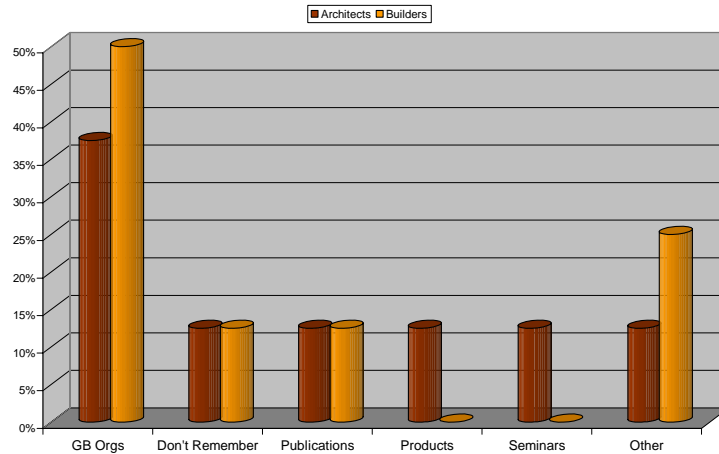
4. **Company Project Experience** – The survey captured what building sectors the respondent companies had experience in. Most had experience in more than one sector, especially the architects.

Respondents Project Experience



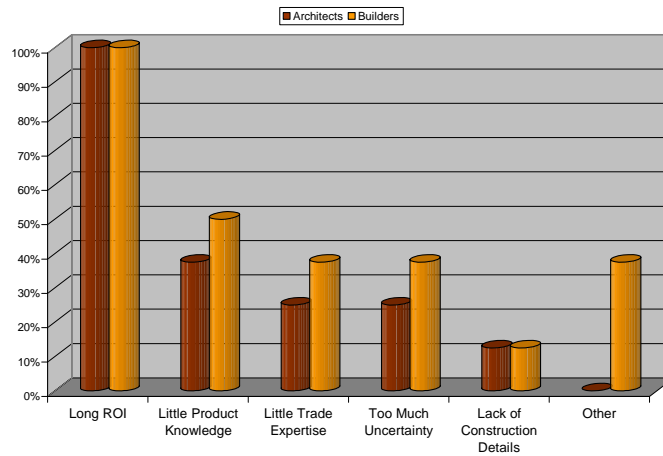
5. **How did your company first hear about Green Building?** – By far, most companies heard about Green Building through local and regional organizations, such as the AIA, USBGC chapters, Scottsdale Green Building Program and National Home Builders Association. Product materials and Green Building events had much more effect on builders than architects. Some respondents had been familiar with Green Building so long, they couldn't remember where they had first heard about it. A few had heard about the concepts and movement from peers, but did not really have a grasp of what Green Building was all about.

Where Did Companies First Hear About Green Building?



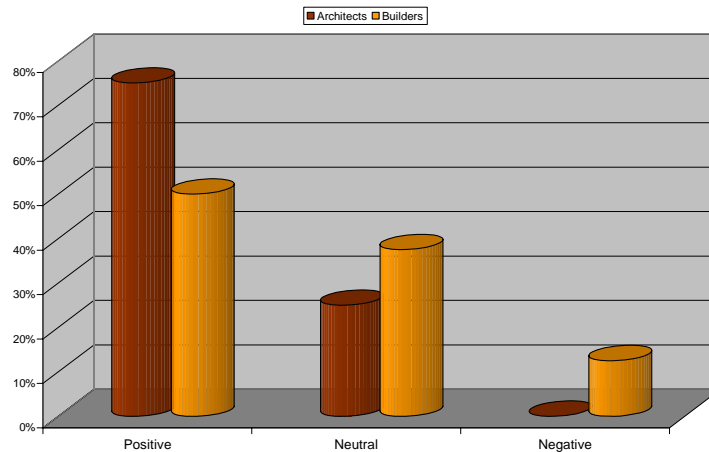
6. What factors have prevented Green Building from going “mainstream”? – Almost unanimous was the perception that higher cost and/or long return-on-investment was the prevalent factor that has prevented customers and companies from incorporating “green” products and systems into their projects. After cost, both architects and builders felt that the lack of industry “green” product knowledge and construction expertise were the next gating factors. One architect did not want to include products in their projects that were proprietary or “sole-source” as they didn’t want to have schedules impacted by lack of product availability.

What's Preventing Green Building From Going Mainstream?



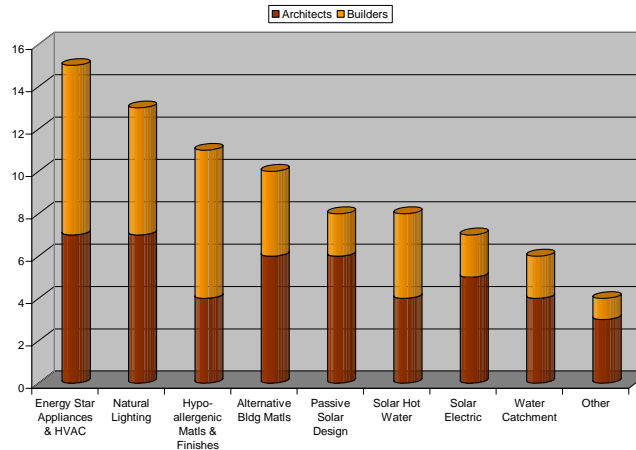
7. What is the reaction to the phrase “Green Building”? – Most people felt that Green Building was becoming an industry recognizable, positive and understood phase and didn’t think it should be replaced by other terms such as “sustainable”, “environmental”, etc. There were many comments about why the companies thought the phrase was positive, such as “implies sensitivity to the environment”, “pride”, “means quality over cost”, “positive image for the firm”, and “we’re stewards of the environment”.

What's Your Reaction to the Phrase "Green Building"?



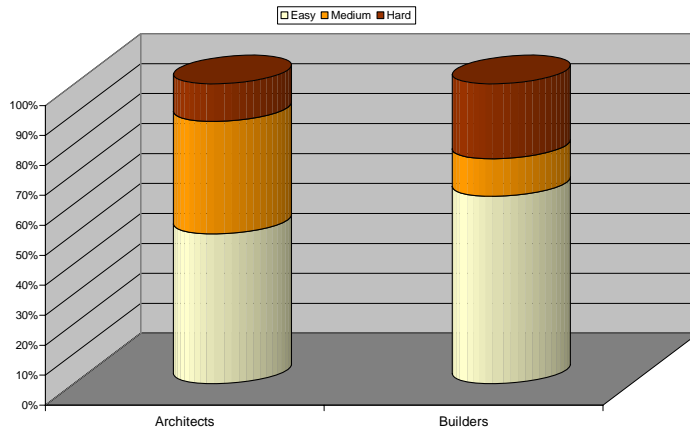
8. What Green Building Features have your company's clients actually asked for in the last two years? – Due to high energy costs and ongoing "Energy Star" marketing, it was not surprising that the most commonly asked for feature was for energy efficient appliances and HVAC. Following that, a number of features are being requested that indicated clients are becoming more aware of what Green Building features / products are available. Builders are more often asked to provide hypo-allergenic materials and finishes by their clients than architects. On the other hand, and not too surprising, architects are more often asked to include alternative building materials and passive solar design in their projects. Both architects and builders were asked to incorporate natural daylighting into projects.

What Green Building Features Are Clients Asking For?



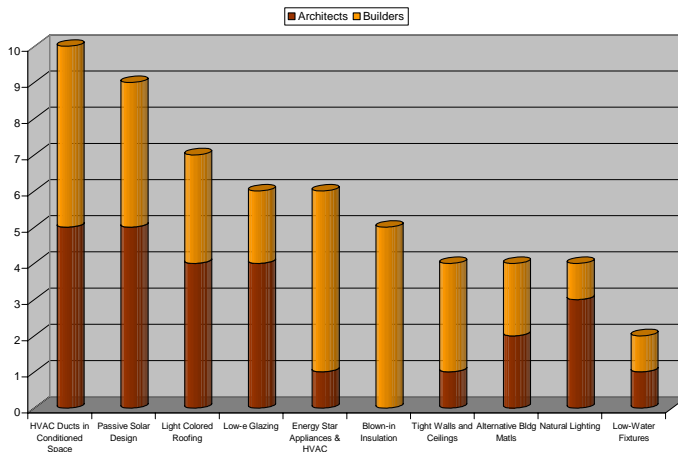
9. How difficult is it to combine Green Building with traditional features and products on a single project? – Most architects and builders felt it was reasonably easy or moderately difficult to combine traditional and Green Building features on a single project. Other than those that thought it would be difficult, the general consensus was that the first time you incorporate a new product or technique it takes a little more effort, but after that, it becomes a normal construction detail.

How Difficult is it to Combine Traditional and Green Building Materials on a Single Project?



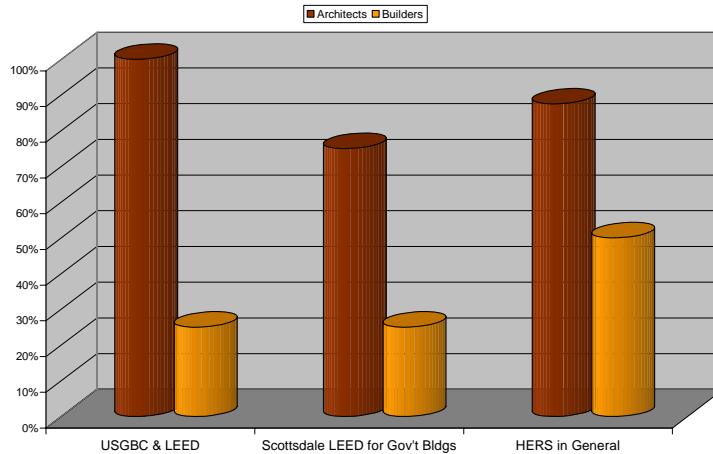
10. What Green Building features does the company incorporate on current projects? – At first most survey respondents said they weren't doing any "green building" features or construction details on their projects. As we poked a little at what they were doing to make their projects more energy efficient we started getting some feedback. As it turns out, 63% of both the architects and builders now install the HVAC ducting inside the conditioned space. About 56% pay attention to site orientation, and incorporate large overhangs and other passive solar design features into their projects. A little over 44% install light colored roofing on purpose to reduce heat, and 38% install both Low-e windows and Energy Star appliances and HVAC units. Thirty-one percent use blown-in insulation and 25% pay attention to tight walls and ceilings and also use some alternative building materials when appropriate.

What Current Green Building Features are You Doing?



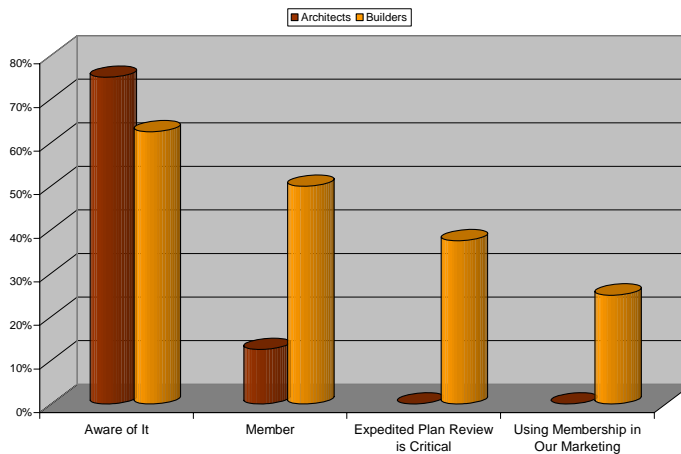
11. Is your company aware of Green Building certifications? – More architects (100%) than builders (25%) were aware of USGBC/LEED certification, and the trend held true with HERS certification and the Scottsdale requirement that new government buildings need to meet the LEED Gold standard. Some who had heard about the certifications had no idea of the comprehensive requirements.

Are You Aware of Green Building Certifications?



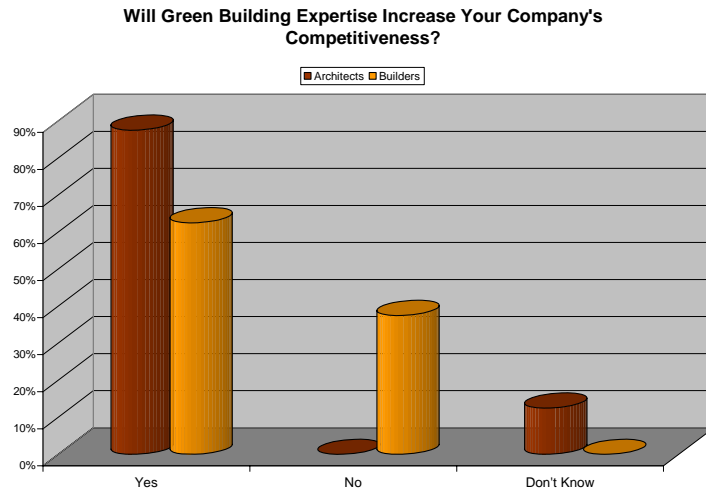
12. If you are a member of the Scottsdale Green Building Program, what is most valuable to you? – Three of the sixteen respondents were on the Scottsdale Green Building Program listing, although five of the sixteen respondents indicated they were members. Another six companies had heard about the program but were not members. Three of the five companies (builders) felt that the expedited permit process was critical for the program to be successful and continue to draw in participation. Two companies were using their membership in the Scottsdale Green Building Program in their marketing literature. There was unanimous positive feedback that the Scottsdale Green Building Program is very useful and necessary to promote better home building practices in the region. A majority of the members felt that the Scottsdale Green Building Program certification and inspection process was somewhat cumbersome and rigid and needed to be streamlined and made more flexible. One builder stated that even though the expedited permit process saved time up-front, the additional inspections throughout construction actually increased the overall project cycle time. Overall though, all of the members stated that they would continue to participate in the program. Anthony Floyd received multiple kudos for being a positive force in the local Green Building efforts and very easy to work within the Scottsdale Green Building Program.

How Valuable is the Scottsdale Green Building Program to You?

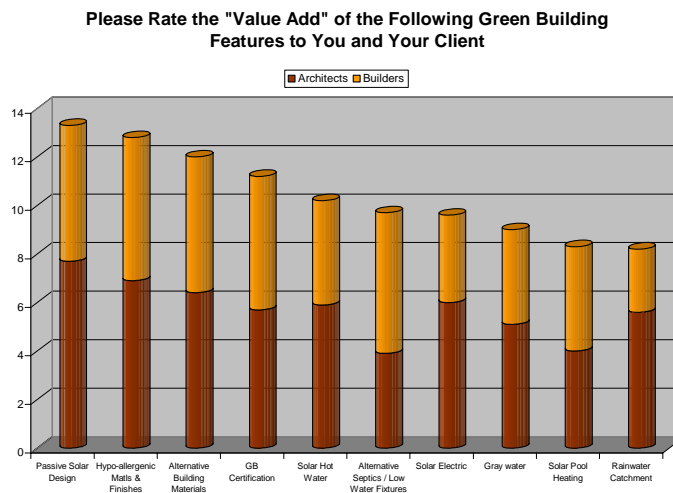


13. Do you believe offering Green Building expertise makes your company more competitive? – A resounding “yes”, though for some respondents it was difficult to quantify how or why. Most companies realized that they had to gain Green Building expertise just to **stay**

competitive as they were seeing more and more of their competitors offering “green” services or doing projects that were going to get some kind of green certification. They also realized that future government regulations and code were going to be more “green” oriented. A few were currently using their green expertise in their marketing. One company felt that being “green” was passively appreciated by their clients, but not sought after.

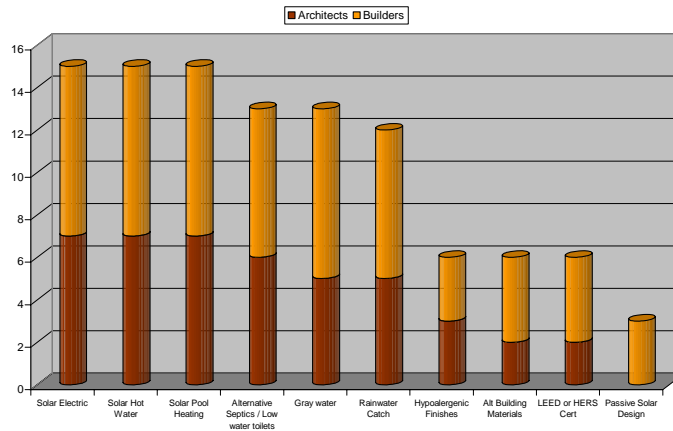


14. Based on what you think will add value to your clients and your company, how do you rate the following Green Building features? – This weighted list of features was somewhat surprising as it isn't consistent with what companies are currently doing (question 10) or what their clients were directly asking them for (question 8). Passive solar design, hypo-allergenic materials and finishes, and alternative building materials are the top three value-added features, with Green Building certifications and solar hot water heating following right behind.



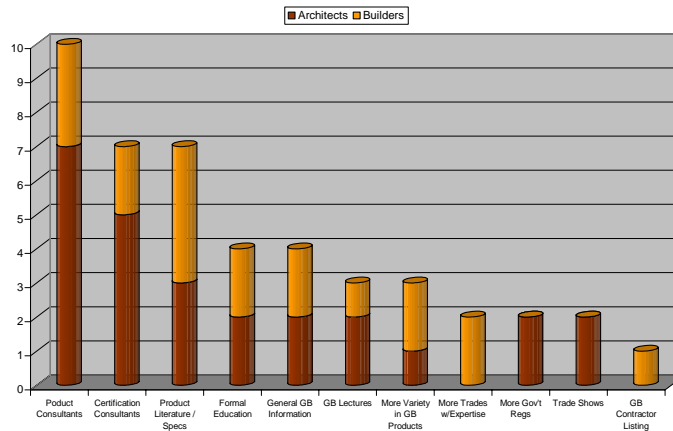
Which of these features will be done with your company's expertise, and which will you farm out to outside consultants or trades? – Many companies felt that the top four features from the previous question could be done through in-house expertise. Solar electric, solar water heating and solar pool heating were the top three features requiring contracted services, with alternative septic and gray water systems following closely behind.

What Green Building Features Will You Need External Expertise to Implement?



15. What resources does your company need to incorporate Green Building going forward? – The biggest stumbling block for most architects and builders in being able to design and install Green Building features is not having access to product knowledge and installation techniques. Companies need manufacturing reps and retailers to give them product specifications for consideration and design, but want independent consultants that could ferret through the multitude of available products and technologies and make unbiased, yet knowledgeable, recommendations. Companies also felt that incorporating Green Building concepts into formal education, and sharing knowledge and expertise through trade shows, lectures, etc was also very important to get Green Building more into the mainstream.

What Resources Do You Need To Be Successful as You Implement More Green Building Features?



V. Conclusions and Going Forward

Since the survey was initiated last year, Green Building has gained momentum throughout Arizona and the nation. This increased momentum has manifested itself through “Green Building” being the focus of TV and Radio newscasts, the terms “environmental”, “sustainable” and “organic” being used more and more in product marketing, increased attendance at Green Building workshops and lectures, increased visibility of LEED certification and other certifications, Building Science workshops, retailers carrying “green” products.....and the list goes on.

The survey data also indicates that “green building” is a well recognized phase in Phoenix and Prescott, even though there may not be lucid understanding of specific concepts or practices. It was evident in discussions with the respondents that the phrase is so recognizable that it would be detrimental and cause confusion if other terms or phases are coined to describe the “space”, or even sub-sets of it at this point. It seems that the effective marketing of “Green Building” has been, and is continuing to be effective.

Though the phrase “Green Building” is becoming mainstream, the components of it, such as passive design, solar and gray water systems, materials, products, etc, and the infrastructure to support it, such as updated codes, published construction details, trades with experience, etc, are lagging behind. Based on the survey, getting the components and infrastructure ready to support the growing demand is the welcome challenge facing the Green Building industry today.

Architects and builders in central Arizona are looking for:

- **Product Visibility**> manufacturing reps, retailers and trade shows to give them visibility to “green” products and the product specifications
- **Product Availability**> multiple manufacturers and retailers that can provide similar products and alternative sourcing
- **Services**> independent consultants to ferret through the multitude of available products and technologies and make unbiased, yet knowledgeable, recommendations, and assist with green certifications and testing
- **Government Involvement**> code modifications and green building certification requirements to embed green building into the permit process and tax incentives to help offset the higher costs initially
- **Formal Education**> universities, colleges and trade school curriculum as well as and private workshops to educate them with the technical aspects behind Green Building concepts, systems and products
- **Information Sharing**> trade shows, magazines, lectures, organizations, etc to be forums where Green Building knowledge and expertise can be shared, enhanced and expanded.

Based on what we’ve seen in central Arizona, specifically in the Phoenix and Prescott areas, the foundation for building and expanding the Green Building infrastructure is in place. Now it’s “simply” the hard work of continuing to get products designed and manufactured, specifications documented and made available via the web, construction details worked out and documented, State and county building codes modified, consultants educated and knowledgeable on the continually evolving Green Building materials and systems, retail / wholesale outlets stocking and distributing products, certification processes streamlined, and curriculum developed and delivered through formal institutions to prepare current and up-coming architects, builders, real estate agents, and finally consumers to view “green building” as “normal” building.

Appendix A – List of “Green Building” Organizations and Resources

This list of resources is meant as a sampling of the Green Building resources, magazines and products that are available, and is not a comprehensive listing. Many of the references will provide links to other organizations and/or products that might be useful in your research. SolarTerra LLC is not affiliated with any of the product/service companies and does not specifically endorse any company or organization listed.

Arizona Resource Sites

www.azsolarcenter.com
www.cazren.org
www.ecosainstitute.org
www.environment.nau.edu
www.scottsdaleaz.gov/greenbuilding
www.sustainablecommunitybuilders.com
www.sustainablearizona.org

Government, Educational and Non-Profit and other Organizations

www.aceee.org
www.ases.org
www.awea.org
www.eeba.org/
www.eere.energy.gov
www.eflbuilder.com/
www.energyideas.org/topics
www.energystar.gov
www.oikos.com
www.planetfriendly.net
www.radiantpanelassociation.org
www.rehabadvisor.pathnet.org/index.asp
www.sbicouncil.org
www.seia.org
www.solarenergy.org
www.solenergy.org
www.smartcommunities.ncat.org/
www.sustainablebusiness.com
www.usqbc.org
www.wbdg.org

Magazines, Newsletters, Forums

www.backhomemagazine.com
www.buildinggreen.com
www.cleandedge.com
www.eco-structure.com
www.enn.com
www.freeenergyfoundation.org/solarentrepreneur.html
www.greensourcemag.com
www.homepower.com
www.novitiuemearth.com
www.renewableenergyaccess.com
www.re-focus.net
www.sun-enews.com

www.sustainablehomemag.com

Products> Wall, Roof & Floor Systems and Products

www.livinginpaper.com

www.advancedinsulationinc.com/sprayfoam/default.htm

www.performwall.com/product.sstg

www.premier-industries.com

www.e-crete.com/index.htm

www.trusjoist.com/EngSite/index.cfm?categoryID=1

www.csibuild.com

Products> Alternative Septic Systems

www.ecofloontario.com

www.eljen.com

Products> Misc

www.venmar.ca/Home.aspx

www.expanko.com

www.watercache.com

www.trex.com/default.asp

Retailer Sites

www.akagreen.com

www.builditsolar.com

energy.sourceguides.com

Appendix B – Green Building Survey Questionnaire

Firm:

Contact:

Address:

Phone:

City:

eMail:

Type: Architect / Builder / Designer

1. What percent of your projects are custom single-family homes (%), multi-family homes (%) commercial (%) government (%)? On average, how many projects do you do in a year? ()
2. Have you heard about “green building”? (Y N) Where or how did you first hear about it?
3. Though not always true, there is a perception that it costs more to build a home incorporating “green” design, systems and materials over a conventionally built home. What other factors, besides the perception of increased cost, has prevented “green building” from becoming main stream?
4. What is your first reaction when you hear the phrase “green building”? Does it have a positive, neutral or negative connotation? (Pos Neu Neg) Why?
5. Over the last 2 years, have you ever had a client ask for:
 - a. Energy efficient appliances and HVAC for reduced energy costs (Y N)
 - b. Passive solar design for shade in summer and heat in winter (Y N)
 - c. Solar electricity as a back-up to grid electricity (Y N)
 - d. Natural lighting instead of artificial lighting (Y N)
 - e. Solar hot water for reduced energy costs (Y N)
 - f. Gray water or rain water catchment to save water (Y N)
 - g. Alternative building materials such as straw bale, rammed earth, SIPs, eCrete, etc (Y N)
 - h. Hypoallergenic materials and finishes to minimize allergic reactions (Y N)
 - i. Other unique requests... (Y N)
6. How easy do you think it would be to incorporate both conventional and “green building” materials and systems into a project? (Easy Moderate Hard) Why?
7. What “green building” features do you currently incorporate in your projects?
8. Are you aware of the U.S. Green Building Council and LEED certification? (Y N) Did you know that the City of Scottsdale, AZ and other cities and states require all new government buildings to be LEED certified? (Y N) Are you aware of Home Energy Rating Systems (HERS) and ENERGY STAR qualified building? (Y N) Have any of your clients requested some type of Green Building Certification? (Y N) Approximately how many? ()

9. Do you know about the Scottsdale Green Building program that offers incentives for architects and builders to design and build “green”? (Y N) Are you participating in the program? (Y N) If you are participating, a) would you still participate without the expedited plan review (Y N NA), and b) are you including your participation in your marketing? (Y N NA)

10. If participating in the Scottsdale Green Building program, what do you:

Like?

Not like?

Suggestions for improvement?

11. Do you believe offering your clients “green building” features and expertise could increase your company’s competitiveness and allow you to charge more for your services and increase referrals? (Y N) Why?

12. On a scale of 0-10, ten being highest, please rate how important each feature below could be to increasing your company’s value to your clients. For each feature, please also indicate if you would prefer to contract for it or build the expertise internally.

Value? How?

- | | | |
|-----|-----|---|
| ___ | ___ | Passive solar design; home orientation, room layout, glazing sizing and placement, thermal mass sizing and placement, insulation recommendations, backup heating and cooling sizing |
| ___ | ___ | Solar electric system; rebates, tax credits, array sizing, tie into grid, battery bank sizing (if req’d), placement and installation requirements, contractor selection |
| ___ | ___ | Solar hot water system; rebates, tax credits, tank sizing, type selection, collector sizing, placement and installation requirements, contractor selection |
| ___ | ___ | Solar pool heating system; type selection, collector sizing, placement and installation requirements, contractor selection |
| ___ | ___ | Gray water collection system; code requirements, plumbing design, contractor selection |
| ___ | ___ | Rainwater or drainage catchment system; roof and tank sizing, design, water purification design/systems, contractor selection |
| ___ | ___ | Alternative building materials (straw bale, rammed earth, Rastra Block, eCrete, etc); selection of appropriate material for project requirement(s), installation considerations, product/supplier selection, contractor selection |
| ___ | ___ | Alternative septic or low water / compost toilets; sizing, type selection, placement and installation requirements, product selection |
| ___ | ___ | Hypo-allergenic materials, finishes and systems; OSB, insulation, floor coverings, paints, lacquers, sealers, adhesives, purification systems, air-exchange systems, sealed vacuum systems |
| ___ | ___ | LEED, ENERGY STAR or other ‘green building’ certification |

___ ___ Other "green building" systems, materials and technologies consulting

13. What resources would you need to be able to incorporate "green building" design, systems and/or materials into your company's portfolio?
14. What resources would you need to be able to incorporate LEED and/or ENERGY STAR certification into your company's portfolio?
15. Have you ever attended a "Green Building Expo", "Renewable Energy Fair" or other "green building" event, lecture, course or workshop? (Y N) Which ones?