

# 10 Strategies That Can Make or Break Your Green Building Project

Tarrant County's new LEED Silver Certified  
Subcourthouse in Arlington, Texas







**Tarrant County is leading the way in Texas with the design and construction of a new LEED® Silver Certified Subcourthouse in Arlington. This North Central Texas public entity is at the forefront of the green building movement currently sweeping the nation. With a solid commitment to sustainable design, Tarrant County is seeking to be a good steward to the community by reducing its environmental impact one building at a time.**

*Written by Sharon McKone*

**W**hile green building is generating a lot of buzz, achieving a successful sustainable building takes more than just a simple desire to “build green”. . . it takes commitment, planning, and effort. The tips found below can help building owners follow Tarrant County’s example and achieve a building that is at once environmentally friendly, usable, and aesthetically pleasing.

### **A better way of building**

According to the U.S. Green Building Council, a non-profit organization formed to advance sustainable building practices, buildings in the U.S. account for 72% of electricity consumption, 39% of energy usage, 38% of all carbon dioxide emissions, 40% of raw materials usage, 30% of waste output (136 million tons annually), and 14% of potable water consumption.

The major objective of green building is to develop sites and construct buildings that are minimally invasive from an environmental standpoint, both during and after construction; that are economical to build; that are efficient to operate; and that are easily serviceable over a long term.

High energy costs and increased materials prices have prompted building owners and facility managers of both large and small buildings to search for alternative ways of reducing long-term operating costs while contributing to an overall goal of reducing environmental impact. Green building can accomplish both these goals while providing environmental, economic, community, and health benefits overall.

### **A commitment to sustainable design**

Tarrant County’s commitment to sustainability is notable. Given the down economy and ensuing budget constraints on public coffers, it takes a very forward-thinking building owner to realize that the increase in upfront costs will be reaped tenfold down the road.

“The County has been talking about doing sustainable efforts, and this building came along at the right time,” says Tracy Pelle, Project Manager with Tarrant County. “We just decided to go forward with it as the first step. The County wants to be a good steward because they realize the impact on the community and how it affects the environment. Arlington is just the beginning. Tarrant County has stated that from this project

## 10 strategies for green building success

- Strategy 1:** Assemble an experienced collaborative team early on

---

- Strategy 2:** Incorporate a sustainable design expert consultant into the team

---

- Strategy 3:** Evaluate the LEED scorecard during the design process rather than after

---

- Strategy 4:** Run an energy model early in the project to optimize systems and improve energy performance

---

- Strategy 5:** Plan ahead for reduced water consumption methods

---

- Strategy 6:** Use local and recycled/renewable materials where possible to reduce your project’s carbon footprint

---

- Strategy 7:** Consider selection of the site carefully

---

- Strategy 8:** Consider indoor air quality issues

---

- Strategy 9:** Think about the long-term operation and maintenance of the building and landscape

---

- Strategy 10:** Establish a sufficient budget

forward, all our buildings will be LEED certified.”

“The Subcourthouse in Arlington is the third major Tarrant County facility built in my precinct since 1991,” says Tarrant County Commissioner Marti VanRavenswaay. “While I requested environmentally friendly features for each facility, it was not until we built the Subcourthouse in Arlington that

I had both the knowledge and opportunity to request that the county construct to LEED silver certification standards. When the proposal was presented to the Commissioners Court, with good information and justification regarding the additional costs necessary to design and construct the subcourthouse in a more environmentally conscious manner, the



### Tarrant County Subcourthouse in Arlington Green Quick Facts

- 1st** LEED county courthouse in Texas
- 1st** LEED building for Tarrant County
- 1st** LEED building in Arlington

Commissioners unanimously embraced the concept and established policy that all county construction projects after the subcourthouse would be designed and built using LEED guidelines as well."

"Not only do I believe it was the right decision from a personal perspective," she continues, "building to LEED certification standards provided the County with an excellent opportunity to lead by example. We urge the private sector to become more environmentally conscious in their construction methods – but how can government expect compliance if we, ourselves, don't do what we want others to do?"

The new Subcourthouse is a 56,000-square-foot, three-story facility situated in the heart of revitalized downtown Arlington, Texas. It replaces a 30-year-old building that had outgrown both the community and the building's occupants. The new building includes the County

Commissioner's Office, Tax Office, Justice of the Peace, County Clerk, District Clerk, and Constable's Office. It also includes a large public meeting room that can be used for early voting, community meetings, and presentations. The building was designed to help alleviate long lines and provide faster service for residents who need to pay property taxes, renew license plates, or take advantage of other county services.

The building's patrons enter through a prominent, centrally located rotunda – a three-story, glass-enclosed atrium. The building's highly energy efficient envelope includes high-performance glass, cast stone, insulated composite metal panels, brick, and heavily insulated roof system. Sunshades at the windows block direct sunrays on much of the glass while allowing natural sunlight to penetrate many of the interior spaces. The mechanical system and selected equipment, combined

with efficient lighting design, building envelope, and building siting, have resulted in a building that is 32 percent more efficient than required by the International Energy Conservation Code. Additionally, the building features low-flow, water-saving plumbing fixtures throughout.

Outside the courthouse, a pleasing palette of native plant material landscapes the entrances and surrounding areas. A revolutionary new underground irrigation system was installed to distribute water through tubes to an underground fabric that remains moist and delivers water directly to the roots to avoid water loss through evaporation. The parking lot features specially marked spaces close to the building reserved for low-emitting and fuel-efficient vehicles.



## Pursuing LEED certification

The County made the decision to pursue LEED Silver certification, a first for a county courthouse in Texas. The LEED (Leadership in Energy and Environmental Design) Green Building Rating System is a voluntary national certification system designed by the U.S. Green Building Council that considers sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor

environmental quality when awarding a LEED rating, which includes Certified, Silver, Gold, and Platinum levels. Each level is based on a total number of points earned within different LEED categories.

Of the points pursued during the certification process, the courthouse received all 36 points it was seeking. Of note, it is the first courthouse in Texas to receive LEED certification, the first LEED building for Tarrant County, and the first LEED building in Arlington.

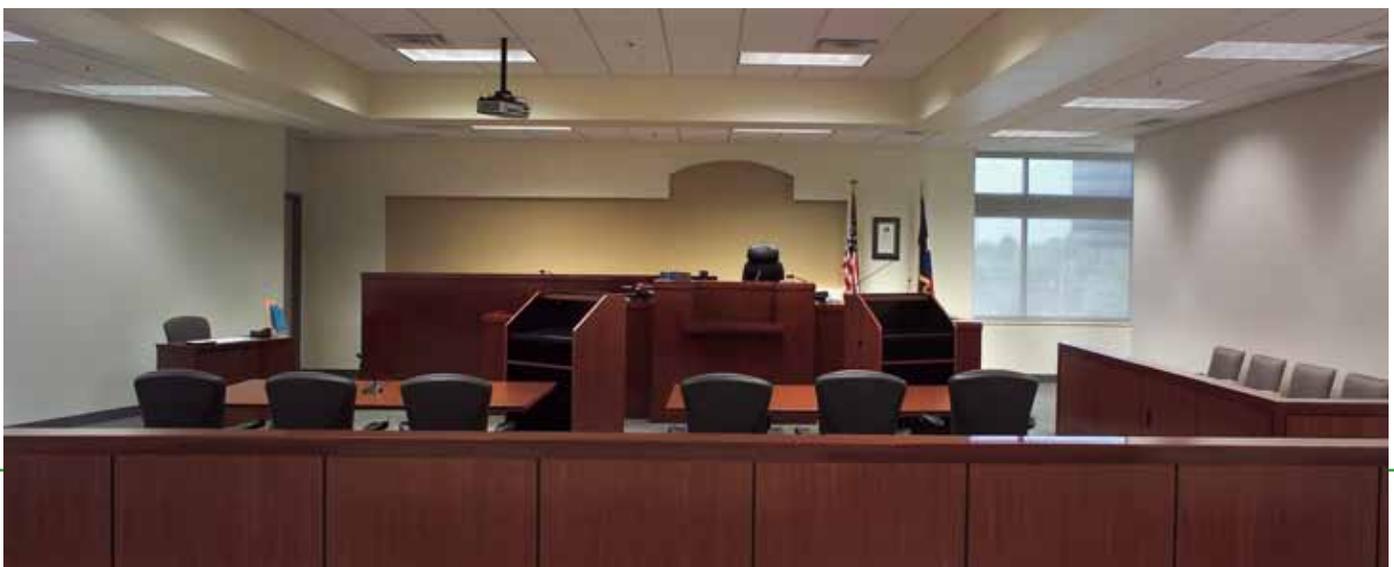
## Important strategies for green building success

The project's successful outcome was no accident. It took teamwork from all stakeholders, careful planning, and a committed effort to design and construct a building that meets the needs of its occupants while reducing its environmental impact. The following tips can help building owners as they navigate the sometimes confusing efforts required in green building.

### STRATEGY 1

#### ***Assemble an experienced collaborative team early on***

Of all the tips building owners contemplating constructing a green building can follow, this one tops the list. Building owners should involve all team members as early on in the process as possible – from owner to design team to contractor – to ensure that each understands the end goal and map out the steps to reach that goal.



"Collaboration is truly important in the process," notes Tarrant County's Pelle. "When we were considering building the Subcourthouse in Arlington, we looked for someone who had a lot of experience and a good track record. It's also important to note that you should begin as early as possible. I can't stress that enough. Having meetings upfront, including the owner, is paramount. You also should know whether or not you are going to try to achieve LEED certification going into the project. Backing into it is not the proper way to go about it."

The planning process can be more seamlessly advanced through a series of design charrettes and eco-charrettes or workshops. These planning meetings should include the design team and contractor as well as the owner.

"It's very important to have an integrated design process when designing sustainable projects," asserts Michael Barnard, President of LBL Architects, the lead firm on the design team for the courthouse. "On this particular project, we had a number of LEED design charrettes where we either had everyone in the room together or patched in by conference call... we wanted the synergy of everyone there together. That included the client, from the decision-makers to facilities maintenance and facilities planning personnel."

Bret Privitt, CxA LEED AP and President of Air Balancing Company, Ltd. Commissioning Division (ABC), the commissioning agent for the project, adds, "Working with the owner and architect to develop a clear Owner's Project Requirements document

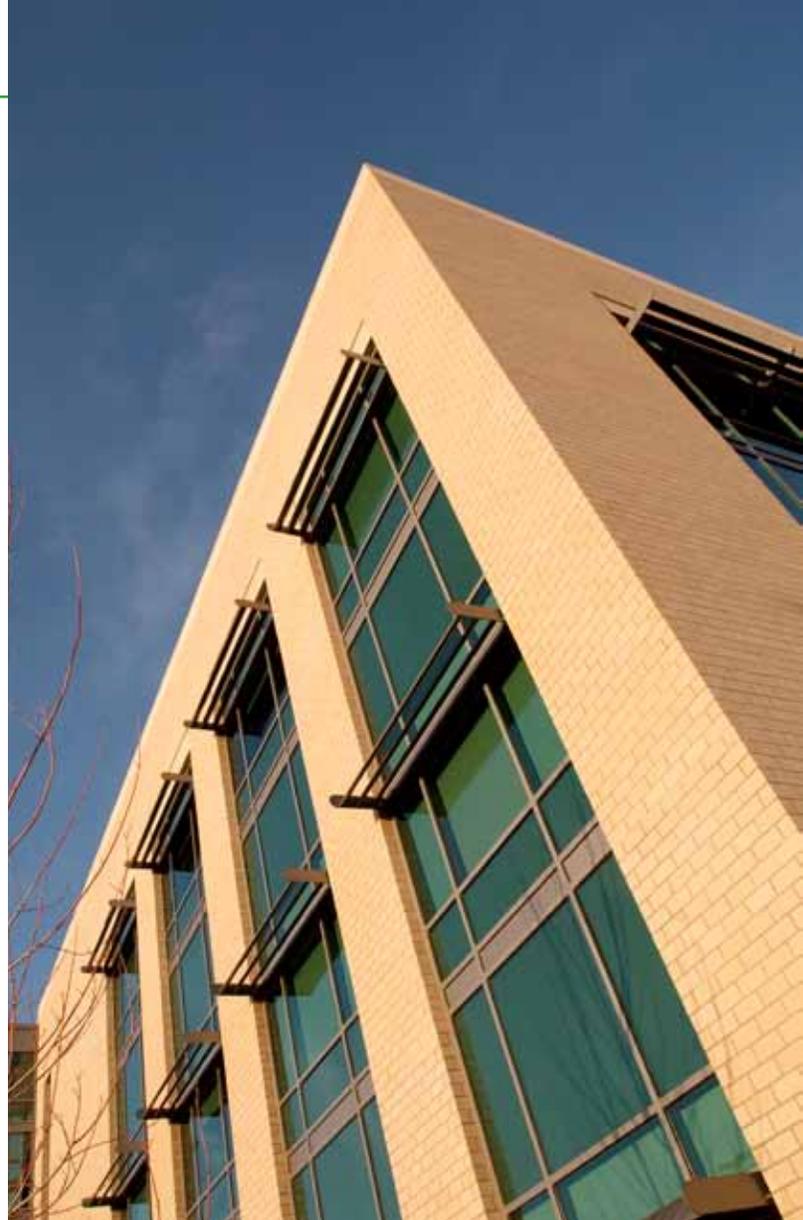
during schematic design saves time and assists with the elimination of redesign after each plan review."

Tom McCarty, Vice President of LBL Architects, agrees. "The client is part of the design team. They are totally integrated into what is going on."

"While the need for owner participation is true in all building design," continues Barnard, "it is particularly applicable in sustainable design because many of the aspects of the project are driven by the owner. For example, a non-smoking policy is a pre-requisite of LEED design to ensure good indoor air quality. If the owner is not on board with that, you can't design around it. They have to be an integral part of the team."

"From a mechanical standpoint, knowing you are going to pursue LEED certification when the charrette begins can impact the building layout and even mundane items such as louver sizes," says Mike McLraith, PE., LEED AP, Principal and Senior Mechanical Engineer with Baird, Hampton & Brown, the mechanical, electrical, and plumbing engineering consultant for the project. "For instance, if we're going to pursue LEED, we probably want to do a building flushout as one of the points, so we should design full-size louvers for the outside air intake that can be hidden on the back side of the building."

ABC's Privitt also states that "establishing the commissioning team early in the design phase allows for the commissioning agent to work



closely with the mechanical engineer and apply operation scenarios to the design that will allow the owner to operate and maintain the building efficiently."

Besides a traditional design charrette, incorporating eco-charrettes into the process helps keep team members focused on the ultimate goal of thinking "green." Amanda Tullos, AIA, LEED AP, and senior consultant with Green Building Services, a consulting firm dedicated to helping building owners navigate green building procedures and the LEED certification process,

advocates using eco-charrettes wherever possible.

"We recommend eco-charrettes on all our projects and like to get the team together as early as possible," she says. "It's important to go through a visioning exercise where you talk about the goals of the project on a practical level as well as on a sustainable level. That way, you can begin honing in on the tasks the team needs to do to make the big picture happen with regard to sustainability as well as practical, everyday things the owner will be dealing with."



## STRATEGY 2

### ***Incorporate a sustainable design expert consultant into the team***

A sustainable design expert consultant can act as the owner's advocate and help keep the team educated on the process as well as new LEED strategies and criteria. In addition, an expert consultant can help the team fill out the LEED scorecard and keep all team members informed of the project's LEED status.

"One of the advantages of having an outside party involved that's not on the architect's team or the engineer's payroll is that you have someone who is really focusing on the big-picture project goals and helping the team focus in a bigger way," notes Tullos. "The sustainable consultant can come in and start to review the project's progress and provide feedback to the team. Typically, the

design team is busy with the design and is trying to complete a good set of documents to start construction, so having someone who is a consultant can help streamline the process and paperwork and make certain there's no gap. That can help minimize trouble later on. It's also helpful to have someone who can provide feedback to the team on technical issues as well as the health and safety issues of the materials."

LBL Architects' Barnard agrees. "The important point is to have someone on the team whose primary role is to be the "green champion," someone who isn't just worried if the mechanical design has the right BTUs," he says. "Their main reason for looking at the project is to look at it from a sustainability perspective. If they are also the structural engineer, the mechanical engineer, the civil engineer, or the architect, their objectives are so diverse that it could dilute their focus on the green building aspect of the

design. By having someone who is dedicated to that, it improves your chances of success."

"We like to think of ourselves as a support and safety net to the team," says Tullos, "because if a design team wants to do something new but is a bit uncomfortable with it, we can provide feedback and practical experience that makes the team feel more comfortable in accepting something that is new to them."

"It's important to have a consultant who is very familiar with the process," says Tullos. "The best way to look at the scorecard, ideally, is to do it early on as a byproduct of the eco-charrette and visioning process. It's easy for teams to get confused about that and delve straight into the points rather than thinking about the big picture intent of what these strategies are after. There's a two-pronged approach: make sure the intents are met and considered and then design the details to meet the goal of LEED certification at a certain level."

## STRATEGY 3

### ***Evaluate the LEED scorecard during the design process rather than after***

The project team, along with the owner, should evaluate the LEED scorecard early in the process to help determine the most cost-effective strategies for achieving the certification desired.

"We evaluate the scorecard with the team and like to have as many team members involved as possible," she continues. "We go through it credit by credit, discuss the goals, and determine the practical realities of the project, the owner's expectations, etc. Then we decide which points to go for and which are not a practical reality."







Baird, Hampton & Brown's McIlraith agrees. "For example, the process could impact the number of windows you need if you are choosing daylighting as part of your strategy. The earlier you know you want to achieve a LEED rating, the better it is for the entire project, the owner, and the design team," he says.

### STRATEGY 4

#### **Run an energy model early in the project to optimize systems and improve energy performance**

Energy modeling can help the team evaluate techniques for optimizing systems and improving energy performance.

"Buildings consume a large percentage of our energy here in the U.S.," says LBL Architects' Barnard, "so designing those to be energy efficient is an important role of architects, designers, and owners. The payback on energy consumption is for the life of the building rather than on just the upfront costs. If you have a building with a 30 to 50-year lifespan and it's an energy hog, it's an energy hog for 30 to 50 years. Doing things to your building to make it more energy efficient is something that will be good for the environment for many years to come, not just initially."

"The important thing about energy modeling," notes Tullos, "is that it is not a tool you use to validate how much energy you save at the end of a project. To get the maximum benefit, energy modeling should be started as early in the process as possible. The best way to do it is to run a model, get the results, and provide the team with some options to increase energy savings. We call these

energy efficiency measures, or EEMs. When we do a model, we suggest an EEM... for example, ways to reduce your lighting power density. If you reduce your lighting power density by so much, you can save this much energy. That way, the team can begin making some decisions about whether to spend a certain amount of money to get X amount of energy savings every year."

"Green Building Services ran the model as an independent technical review," says Barnard. "If the mechanical engineer, who is primarily the one controlling energy decisions, is also the person babysitting the performance, it's not quite as independent as if you have someone else doing it. We liked it that way, and it turned out well. There's a little bit of art to it... it's not just physics."

### STRATEGY 5

#### **Plan ahead for reduced water consumption methods**

Using low-flow plumbing fixtures along with native landscaping materials and total drip irrigation systems can help ensure a reduction in overall water consumption.

The Tarrant County Sub-Courthouse in Arlington used lower-flow lavatory faucets and low-flow flush valves, allowing the building to achieve a 42.5 percent savings in water usage over normal standards.

"Reducing water usage through low-flow plumbing fixtures and valves was one of many green strategies we used for this project," says Baird, Hampton & Brown's McIlraith. "The fixtures are readily available in the marketplace, so it is not a complicated process."

More challenging was the building's landscaping. Achieving reduced water consumption on landscaping can be difficult if the building owner is not willing to consider alternative plant materials and irrigation systems.

"People, especially in Texas, want lush gardens and landscapes," notes LBL Architects' Barnard, "and that consumes much more water than drinking, washing, industrial, or other water uses. We do a lot of coaching with building owners, user groups, and occupants and try to illustrate through photographs how plant materials that are native to our area can look. Then we design suitable landscaping that is appealing to building occupants but does not consume as much water."

"Even though the landscaping at the courthouse is native and drought-resistant, it's very lush... people think it's pleasant," says Cliff Mycoskie, Owner and Landscape Architect for Mycoskie McInnis & Associates, the consulting firm that provided landscape design and civil engineering for the project. "This project looked good from the start and grew in very well. If you looked at the building, you wouldn't notice any difference from any other well-done building in an urban setting."

The irrigation system used on the courthouse landscaping is a revolutionary new underground irrigation system designed to use the least amount of water possible.

"Traditional irrigation systems basically spray water into the atmosphere, where it lands on top of the lawn," says Barnard. "During spraying, it evaporates, then sits on top of each leaf and evaporates again before the

water descends into the root system. Nearly 50 percent of the water in a traditional irrigation system is lost to evaporation. This underground lawn irrigation system was unique. Tarrant County really took a risk to buy the system because it's the first time it has been used in the county for commercial usage. It is very cutting-edge technology."

"The idea of introducing water to the root system is not really new," adds LBL Architects' McCarty, "but the method of the systems installed was new."

"Most people typically use this type of system on the flower beds," says Mycoskie, "but we also used it in the turf areas. Our goal was to achieve 55 percent savings on water consumption, and we did that. The system is all underground... no water is lost to evaporation. This system, while popular in other parts of the world such as Australia where water is a scarce resource, has been used here on a more limited basis, but that is changing. It is becoming more popular as water becomes scarcer."

"There are more upfront costs for this system," he continues, "but the payback is in the water savings, which will remain for the life of the building. It's also fairly rapid payback, probably a couple of years."

### STRATEGY 6

#### **Use recycled/renewable materials and local sources where possible to reduce your project's carbon footprint**

According to the Structural Engineers Association of Northern California, 30 to 50 percent of carbon dioxide emissions are produced by

the construction industry and building operations, and cement production produces eight percent of total emissions of that amount. Because of this adverse environmental impact, it is important to use recycled and/or renewable materials where possible.

"In our specifications, we try to include fly ash as an additive to the concrete," says Kevin Goodman, Principal Engineer at Frank W. Neal & Associates, which provided structural design for the courthouse project. "Derived from burning coal, fly ash is a valuable additive that makes concrete stronger, more durable, and easier to work with. Fly ash can be substituted for around 20 percent of cement, which is a generally accepted amount in our area. This reduces the cement in the mix by 20 percent, which reduces 20 percent of the carbon footprint that is generated by producing the cement that goes into making the concrete. That's significant because producing a pound of cement produces a pound of carbon dioxide."

"Structural steel for rebar, metal decks, etc. now contains recycled content," he continues. "For the steel beams and plates and rolled-section columns that are generally used in buildings, 97.5 percent is recycled material. Rebar is 65 percent recycled content, and metal decks are about 66 percent."

"Structural materials have more recycled steel in them now," agrees Jared Jones, LEED AP and Project Manager with Steele & Freeman, which provided construction management for the project. "We were able to receive more points because of the fact that the materials are recycled."

Buying materials locally (within

around 500 miles of the project site) is recommended as it reduces the number of trucks on the road and the amount of oil consumed.

"We were lucky as far as regional materials were concerned because many of the materials are fabricated within a 500-mile radius," says Jones. "We also used local subcontractors and benefited from locally supplied materials there as well. We try to keep our subcontractors local where possible, which helps with the carbon footprint."

### STRATEGY 7

#### **Consider selection of the site carefully**

The cardinal rule here is to start early and make LEED part of your site selection strategy.

"The site selection usually happens before the architect gets involved," says LBL Architects' Barnard. "In fact, the site is typically already selected, and then you hire the architect and begin looking at the scorecard to see if you have those points. Several of the LEED points in the site selection category are not even considered because building owners don't start early enough. So start early and make LEED a part of your site selection strategy."

In addition, consider cleaning up and revitalizing an existing site rather than building on open land where possible.

"We worked closely with Tarrant County on this aspect," says LBL Architects' McCarty. "The site they chose had other buildings on it that were old and dilapidated and contained asbestos. The County's decision to build in this location and



purchase property that had to be cleaned up is quite important. It helped revitalize the downtown area. There were some collaboration discussions between Tarrant County and the City of Arlington in selecting this site that were important as well. In addition, there is some synergy that's gained... some of the planning aspects and parking the county paid for helps the surrounding community. They paid for street parking so the neighborhood can benefit. This moved away from using traditional large parking lots to serve the one building. Instead, they have individual parking lots but also have parking to serve their neighbors."

"The owner could very easily have gone out and found a green field, bulldozed it, and put up their building," agrees Barnard. "Building in an inner city area is an important part of increasing the density and urban fabric instead of sprawling out further and further. This owner wanted to do that."

### STRATEGY 8

#### **Consider indoor air quality issues**

Air quality issues have become more important as buildings become tighter and more efficient. It is well known that many materials off-gas, releasing harmful chemicals into the air, which are then breathed in by the building's occupants. These chemicals are causing a wide range of health-related issues. An entire section of the LEED scorecard is devoted to indoor environmental quality because of this issue.

"We typically do not have operable windows in our climate," says Green Building Services' Tullos. "As the building envelope gets tighter and more efficient, using low VOC materials is very important as well as construction practices that minimize dust and particulates throughout the process."

"It is also imperative that the building fresh air flush be a part of the design and be included



in the building's completion schedule," says ABC's Privitt. "This task helps ensure that the occupants of the new building will have fresh clean air from the beginning."

"Consider this early on," says Tullos, "because you have to plan for the amount of air that can be moved through the building in a day. If air handling equipment is not sufficient, you may have to bring in supplemental air equipment to move the air through more quickly or conduct air quality testing instead."

maintenance phase," she says, "not the construction phase, so we need to be thinking about ways to position the owner so they can successfully run and maintain the facility that is being designed and constructed. When you have a wonderful and progressive owner such as Tarrant County, they are thinking in those terms all along. We are very confident they will be able to fine tune the building and run it as it was designed. It's critical to engage the owner in this type of conversation because if you design a high-tech building and don't use those features or turn them off,



## STRATEGY 9

### **Think about the long-term operation and maintenance of the building and landscape**

Tullos recommends giving consideration to how the building will be operated and maintained over the long haul. "Most of the time that people spend in the building is during the operation and

the building will not get the energy savings it was designed to get."

Privitt adds, "Involving the owner's maintenance staff during functional testing of the building's various systems causes owner training to be more effective and allows the maintenance staff to operate the building as intended."

## STRATEGY 10

### **Establish a sufficient budget**

A sufficient budget for a high-quality, high-performance building should be considered from the outset.

"A lot of people talk about how green certification doesn't cost more, but it does cost more," says LBL Architects' Barnard. "But the question is how much more. If you're building a smaller building with a smaller fee and budget, then the „green' costs will be a larger part of the budget than if you are designing a huge project where the extra costs are a blip on the radar. That being said, however, if you have a good budget for a good building, it doesn't take a lot more design time or expense to build green."

"A lot of clients are worried about costs," notes Steele & Freeman's Jones. "From our standpoint, however, and for the construction industry as a whole – and specifically manufacturers – going green is the standard. They are not necessarily charging more for green products because they know it will soon be the standard industry-wide. There are some greater upfront costs, but it's not a substantial amount anymore... it's quickly coming down to what any normal product would cost."

### **A team approach with a satisfied owner**

Of the many lessons learned from the Tarrant County Subcourthouse in Arlington

project, having a team approach stands above the rest. "We have been extremely pleased with all the team members...no regrets at all," says Tarrant County's Pelle. "They stayed with it, they were persistent, and they went over and above. Everything was smooth and seamless."

As a testament to the project's success, on September 22, 2009, David Phillips, Tarrant County Director of Facilities Management, and Pelle presented a plaque from the U.S. Green Building Council to County Commissioner VanRavenswaay and the Commissioner's Court commemorating the project's achievement of the LEED SILVER Certification.

All the firms involved in the project have nothing but praise for Tarrant County as a client. Proactive, committed, forward-thinking, informed, flexible, excited, engaged, and interested are just a few of the complimentary adjectives used to describe Tarrant County and their effort to design and construct the county's buildings in a sustainable way.

Their example can easily be followed by other building owners contemplating green building by remembering one important guideline: a good client is an involved client. As Baird, Hampton & Brown's McClraith notes, "There are always challenges to any project, and Tarrant County acted as a partner to work through each and every one."

LBL Architects' Barnard sums it up nicely: "For a public client to be that forward-thinking is not something you see every day."

# Partners for Success



## Tarrant County Facilities Management

Tracy Pelle, Project Manager  
100 W. Weatherford St.  
Fort Worth, TX 76196  
817-884-1155  
TPelle@TarrantCounty.com  
www.tarrantcounty.com



## STEELE & FREEMAN, INC.

CONSTRUCTION MANAGERS • GENERAL CONTRACTORS

## Steele & Freeman, Inc.

Karen Benson, LEED AP,  
Business Development Director  
kbenson@steelefreeman.com  
1301 Lawson Rd.,  
Fort Worth, TX 76131  
817-232-4742  
dbenton@steelefreeman.com  
www.steelefreeman.com



## BAIRD, HAMPTON & BROWN, INC.

ENGINEERING & SURVEYING

## Baird, Hampton & Brown, Inc. Engineering & Surveying

Jennifer Yoder  
Director of Business Development  
6300 Ridglea Place, Suite 700  
Fort Worth, TX 76116  
817-338-1277 x 145  
jyoder@bhbinco.com  
www.bhbinco.com



## Frank W. Neal and Assoc., Inc.

## Frank W. Neal & Assoc., Inc. Consulting Engineers

Kevin Goodman, P.E., Principal  
1015 W. Broadway  
Fort Worth, TX 76104  
817-332-1944  
kgoodman@fwna-eng.com  
www.fwna-eng.com



## LBL Architects

Michael Barnard, AIA, President  
mbarnard@lblarchitects.com  
1106 W. Randol Mill Rd., Suite 300  
Arlington, TX 76012  
817-265-1510  
www.lblarchitects.com



## Green Building Services

Amanda Tullios, AIA, LEED AP,  
BD+C, ID+C, Senior Consultant  
5116 Bissonnet #408  
Bellaire, TX 77401  
281-253-213  
amandat@greenbuildingservices.com  
www.greenbuildingservices.com



mycoskie+mcinnis+associates  
civil engineering surveying landscape architecture planning

## mycoskie+mcinnis+associates

Clifford P. Mycoskie, RLA, President  
200 E. Abram  
Arlington, TX 76010  
817-469-1671, 201  
mycoskie@mmatexas.com  
www.mmatexas.com



## Universal Commissioning

(dba Air Balancing Company)  
Bret Privitt, CxA, LEED AP, President  
4607 Forest Hill Circle  
Fort Worth, TX 76140  
817-572-6994  
bprivitt@airbalancingco.com  
www.airbalancingco.com

