Environmental Building News™
The Leading Source for Environmentally Responsible Design & Construction
A Publication of BuildingGreen, Inc. www.BuildingGreen.com Volume 25, Number 7 · July 2016

Celebrating Our 25th Year

Protect Your Spec: 14 Strategies

You've selected the ideal materials for your project: now get them into the building.

By Katharine Logan

Well, you've done it. You've sifted through countless product declarations on multiple transparency platforms. You've compared apples to oranges, and maybe a few pineapples.

Where no declaration exists, you've written to manufacturers encouraging them to share their secrets and confess their sins. The 50% or so who are going to respond have done so, and the 10% or so who actually have what you need have provided it. You've created color-coded matrices comparing products across multiple imperatives, and your clients, eyes glazing, have revisited recalcitrant product categories with you for the last time.

Decisions documented, you've bundled up the winning entrants' data and sent them over to your spec writer to be issued as a truly impressive compendium of some of the least toxic, most environmentally responsible materials out there. You've assured the firm's billing administrator that all, some, none (pick one) of this astonishing effort is billable, and now you're leaning back in your chair (note to self: a likely source of halogenated flame retardants; maybe put in for a new one), and giving yourself a pat on the back.

Ahem.

Would it surprise you to know that getting the right materials into the spec is only half the battle? You still have to get them into the building, and the difficulty of doing that is emerging as a common theme for project teams that are making human health a priority in material selection. Trades inevitably propose cheaper, more familiar, faster-drying substitutes. Pre-manufactured components arrive onsite full of surprises. And who would have thought the world had so much vinyl in it?

If you're going to truly avoid those toxic chemicals, and not just let them in the back door, you'll need to build a strong project culture, smarten up your spec, and watch as well as hope. Here we share insights and lessons learned from project teams who've done that.

Rallying Your Team

For its first attempt at the Living Building Challenge (LBC), Lake | Flato Architects tackled its materials priorities from first principles, asking first what could be eliminated before seeking less toxic versions of what remained. The Betty and Clint Josey Pavilion, a 5,000 ft² educational facility for the Dixon Water Foundation now certified under LBC, distills some key material strategies to the essence.

Photo: Casey Dunn

The Betty and Clint Josey Pavilion, an educational facility for the Dixon Water Foundation now certified under LBC, distills some key materials strategies to the essence.

1. Simplify the palette

The team focused not on the stringency of LBC's materials requirements but rather on how these requirements might improve the design, according to Lake | Flato's Corey Squire, sustainability coordinator at the firm. A major strategy was to ask, "How simple can we make this? What can we get away without?"

The AIA COTE Top Ten Award-winning answer is a naturally ventilated, wood-clad wood structure with low concrete perimeter walls, a metal roof, and site-built doors and lighting. With no mechanical system or curtainwall, whole sections of the spec—with associated sealants and adhesives—fell away. ("Who needs walls?" the COTE jury commented.) The site-built assemblies let the project team control exactly what was in them: no leaded brass in the hardware, no toxic preservatives in the wood, no PVC gaskets. Lighting fixtures consist of bulbs and wires in vinegar-rusted pipes. Sounds funky, looks great.

For the topping slab, concrete straight up may be fine, but the chemical and plastic admixtures to prevent fine cracking are harder to figure out, says Squire. "Instead of just finding healthier versions of concrete retarders, we made an aesthetic decision informed by the materials." In other words, cracks add character.

While Josey Pavilion is a small, low-occupancy project, the simplified material palette is a strategy with multiple benefits that larger projects can adopt and have adopted (including the Bullitt Center; see Take Control of Your Materials: Four Empowering Lessons from Teams That Beat the Red List).

2. Add breathing room to the schedule

In all, the Josey Pavilion comprises only 186 materials and products. Even with simplifying to this extent, however, the design team found it impossible to identify every material before construction began. To accommodate the ongoing research effort, they advised the contractor, Lincoln Builders of Texas, to factor into the construction schedule two-week turnarounds for submittals.

Lincoln took the project's material-related goals to heart, maintaining a synchronized copy of the architects' material matrix, marking it off as materials were used, and policing what came onto the site.

"The contractor knew how important it was for us to receive the certification, so we didn't have any difficulties," says Squire. "It was great having a partner on the site."

3. Commit

The project team's commitment to material-related priorities is the sine qua non of the whole effort. "If there's a weak link on the team, be it the architect, owner, or contractor, it won't hurt the project; it will stop the project," says Tyler Park, an assistant project manager at Hourigan Construction. The company is construction manager at risk (CMAR) for the Chesapeake Bay Foundation's Living Building Challenge-certified Brock Environmental Center. "There's really no way to do it without 100% buy-in from everybody."

And that's not just for projects targeting the Living Building Challenge. Dell Seton Medical Center at the University of Texas, a 517,000 ft^2 healthcare facility currently under construction, is targeting a certification of Silver or better under LEED for Healthcare. Targeted credits include all of the Materials and Resources credits (other than those associated with building reuse) and the credit for low-emitting materials, which for LEED Healthcare projects includes exterior-applied products. Seton has also directed the project team to avoid products manufactured with PVC when cost-competitive and equally- or better-performing alternatives are available.

"Without every member of the team saying, 'I'm going to do this, do it right, learn how this system works, change the format of my submittals to this new format,' it can't happen," says Doug Strange, senior project manager at Ascension Health.

4. Appoint a champion

More than one project team cites a specific member whose presence from start to finish helped safeguard the project's material priorities.

"It's important to have a champion," says Paul Mellblom, AIA, principal at MSR Design. But who?

Based on his own experience with the Rose, an MSR-designed pilot project in the Living Building

Defend Your Spec from Start to Finish

This article uses insights from several projects to demonstrate 14 specific strategies for protecting the spec. Here's what it boils down to.

- **Know what you want**—Whether it's about energy use, products, or the program itself, nothing confuses the design and construction process more than unclear goals and mixed messages. In projects where material selections are a critical factor, many teams dedicate an entire goal-setting workshop to this priority alone.
- **State it clearly**—Great workshop! Now you need to document the results and share them far and wide. The ultimate expression of those goals is the spec itself: if goals enjoy owner buy-in and are clear to everyone, the spec ought to speak for itself. Make sure it's as specific as it should be.
- **Follow through**—Sure, you put it in writing, but the construction manager, contractors, and subs are used to having significant leeway. That makes sense: they are the ones held accountable for delivering the project on time and on budget. It takes a strong, determined negotiator to slow things down and insist on sticking with the original material priorities. That means you.

Want to hear more stories about how this works? Besides the strategies detailed here, check out related articles on integrated project delivery, taking control of your materials, and the top eight highest-impact product choices for green buildings.

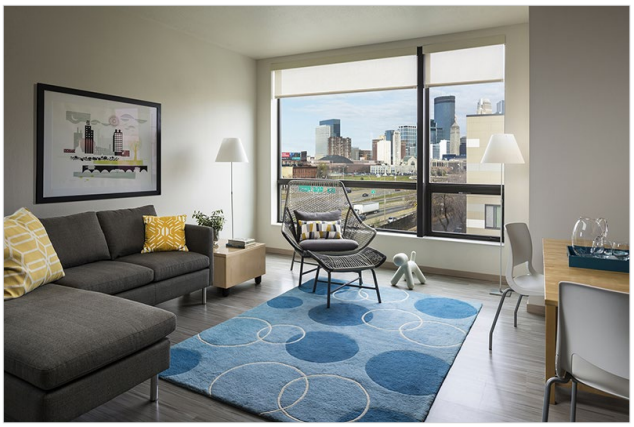

Photo: Don Wong Photo

The Rose, designed by MSR, broke new ground on material vetting for affordable housing projects.

Challenge Affordable Housing Framework, Mellblom describes "someone intimately involved in this process, who cares and is persnickety, thorough, and willing to be the bad guy—with a generous spirit." He continues, "They have to have access to the full site and to feel entitled to speak on behalf of higher goals." The architect is an obvious choice, but an owner's rep or contractor can also be a good materials champion, he explains. "For any aspiration that goes beyond the norm, you're going to need someone in that role."

5. Build a culture

Continuity of project staffing may also be ideal, but where it's not possible, building a strong project culture around materials can achieve the same effect.

On the University of California–San Francisco (UCSF) Medical Center at Mission Bay, for example, an 878,000 ft² LEED Gold-certified facility completed in 2015, the integrated project delivery method co-located the entire project team—architects, contractors, subcontractors, and owners—centrally onsite during construction.

Staff came and went over the seven-year span of the project, but "because we were all centrally located, it wasn't as big a challenge as it could have been," says Mary Lee, IIDA. She is senior interior designer at Stantec, the architect for the project in association with William McDonough+Partners. Each time new team members joined, an orientation session educated them on the project's material goals. When questions arose about a material, co-location made it easier to get answers. And when visitors passed through, the whole team heard the project's goals reiterated. "It comes up so often," says Lee, "it just becomes ingrained."

6. Communicate early and often

The project team for the Ventura County Medical Center Hospital Replacement Wing (VCMC)—a 226,000 ft² facility scheduled for completion in late 2016 and targeting Silver under LEED for Healthcare—experienced similar advantages from integration within a design-build project delivery method. The LEED coordinator for the architect (HOK) and her counterpart with the general contractor (Clark Construction Group) jointly facilitated meetings at the start of the project and as each new subcontractor came on board. These meetings helped open lines of communication, introduce the project's material goals, and highlight the ways in which LEED for Healthcare's material requirements differ from what subcontractors might have seen before.

They also dovetailed with another important goal, forming part of LEED for Healthcare's Integrative Project Planning and Design (IPPD) credit and prerequisite. These convene an integrated team at intervals over the course of the project to build a strong culture around the project's goals. "IPPD is a good concept for all projects," says Mara Baum, AIA, vice president and healthcare sustainable design leader at HOK. "But in healthcare, it addresses a particular challenge: healthcare projects can be very big and very long."

As at Mission Bay, the VCMC project team is co-located onsite, a strategy Clark's project engineer, Katie Palmer, credits with enabling contractors and architects to work closely to ensure that the spec upholds the material requirements and that the products arriving onsite uphold the spec. Clark is partnering with a number of design-build subcontractors in the venture, and "they've all been aware of the requirements since day one," says Palmer. "Communicating early and often has really been the key to our success here."

7. Let the program lead

Human embryos are very, very sensitive to VOCs.

At Stanford Children's Health's newly opened Specialty Services Center, which includes an in-vitro fertilization (IVF) lab, the owners required a zero-tolerance approach to material health issues.

To ensure continuity, the owner retained a consultant, Alpha Environmental, to chaperone the priority to completion. The consultant developed a conceptual design manual as the basis of design and conducted orientation and expectation meetings in person with the design team, contractor, and subcontractor field supervisors.

The same consultant reviewed submittals involving HVAC, medical gas supply systems, and finish materials; conducted surprise inspections during construction to make sure things were being installed as expected; and participated in the commissioning process, including air quality testing and fine tuning.

Even projects with a less sensitive user group might learn from this how-to list. It sets out four stages for material optimization—define, communicate, monitor, and verify—that could be applied universally.

However a team structures its commitment to material selection, it relies on the spec to communicate that priority in black and white. Not uncommonly, however, a spec serves out its time onsite as a paper weight or doorstop, its instructions going largely unread.

8. Buy a highlighter pen

The specifications for the Rose set out the project's goals and the materials with which to achieve them, but "not a lot of people were necessarily reading them," says Rhys MacPherson, AIA, project manager with MSR Design. In pre-installation meetings, when MacPherson walked contractors through the project's goals and facilitated conversations about them, it emerged that, for example, although the spec called for a low-VOC drywall compound, the drywall contractor's bid hadn't factored extended drying time into the schedule. A change order was required.

MacPherson also found that the contractors' orientation didn't necessarily reach their employees, and individual workers on the site weren't reliably familiar with the project's goals. During closeout procedures especially, he'd find workers about to use whatever prohibited product they usually used—and they were surprised by his objection. "I'd go through and explain it," he says, "and they'd go, 'Oh! Okay, I get it.'" With hindsight, MacPherson says he'd have saved himself some trouble by making the spec language stronger, even highlighting particular provisions—especially those pertaining to drying times—in color, and requiring an orientation for everyone coming onsite.

"To be successful," he says, "you have to be a little bit bolder about it."

9. Define "equal"

Bolder, and clearer: "Being clear about what 'or equal' means is very important," says Megan Koehler, AIA, Perkins+Will's project architect on the Lucile Packard Children's Hospital Stanford (Packard Children's), a LEED Gold-targeted 521,000 ft^2 addition to an existing facility, scheduled for completion in 2017. If, for example, a product has been specified because it's PVC-free, then that criterion needs to be included in the specification, along with the ASTM performance standards and other must-haves. That way, when a proposed substitution seeks to demonstrate equal quality and performance, PVC-free becomes part of the comparison.

Image: Perkins+Will/HGA

On the Lucile Packard Children's Hospital Stanford, the design team ensured the spec was clear about what qualified as an equivalent product for substitutions.

A policy on Packard Children's of enforcing use of the first-named spec has also helped get optimal products into the building, according to Nick Lo, project engineer at DPR Construction, general contractor for the project. Although the spec might cite three or four products to facilitate competitive pricing, the onus of risk in using a product other than the first-named one is placed on the subcontractor. Suggesting that a sub use the first-named spec ensures that the design intent is realized in the project, says Lo.

"The first-named product in the spec is the basis of design that the architect has implemented into the project," Lo explained. It should ideally meet all the design requirements identified in the specifications. Listing multiple options as acceptable helps to get the best price, but, says Lo, "it is ultimately the subcontractor's responsibility to ensure the submitted product also meets the standards outlined in the specs." These expectations, which include putting the cost of changes on the subcontractor, are communicated during bidding, says Lo.

UCSF Mission Bay's commitment to healthier materials made use of an independent materials consultant, McDonough Braungart Design Chemistry (MBDC), to screen some 130 finish materials for carcinogens, endocrine disruptors, and a variety of reproductive toxicants. When it came to substitutions, the team couldn't adequately assess a substitution unless it, too, underwent the materials screen. So the spec required contractors proposing a substitution to cover MBDC's fee for screening their proposed alternate.

"They took it seriously," says Tyler Krehlik, AIA, senior project manager for UCSF Mission Bay (formerly with Stantec, now with SmithGroupJJR). "Usually you get haphazard substitution forms and contractors trying to sneak stuff through in the submittal without actually asking for substitutions," says Krehlik, "but we got very well documented substitution requests—for materials that weren't even in the materials screen" because they weren't interior finishes. Of some half dozen re-screenings for interior finishes, none were initiated by contractors.

The enhanced level of documentation even turned up an adhesive not legal in California, which would otherwise have gone unnoticed in the assembly it came with.

Expanding Your Scope

One way in which specifications can do better, according to Steve Sheahan, a senior project manager with DPR, is in the assemblies that are typically bid out as design-build: curtain wall, fire suppression systems, smoke detection alarms, and steel stairs, for example.

10. Manage what you can't spec

Sheahan sees aligning these self-contained components with project health goals as a frontier for the materials selection, and he suggests that their basis of design spec should comprise not just functionality but also the health goal that the rest of the team is working to achieve. "Design-build contractors aren't around during pre-construction and programming, so their companies are not aligned with the project's healthy building initiative," says Sheahan. "We need architects to start working on these companies" to exert influence in addition to "researching the materials that are in their products."

"We spec a lot, but there's a lot we don't spec," says Greg Mella, FAIA, director of sustainable design at SmithGroupJJR. An example from Mella's experience with the Brock Environmental Center is underground pipe, an item outside the scope of an architectural spec. Early involvement of the Brock Center's mechanical, electrical, and plumbing subcontractor, however, alerted the team to the local authority's requirement for PVC piping in time to source an acceptable alternative—high-density polyethylene (HDPE).

"We often focus on bringing the contractor in early," says Mella, "but really it's the subcontractors who are the least connected to the reasons for selecting a product, and they need to play a role."

11. Use the force … of LEED and LBC

Widening the circle, strengthening and clarifying the specifications, and walking everyone through them can prevent inferior substitutions happening by mistake or misunderstanding. But too often they happen accidentally-on-purpose: an architect specifies a green material. It's a little more expensive, maybe, and installers may be less familiar with it. The contractor prices it knowing that the subs don't want to use it (that is to say, high).

As the project goes along, the contractor begins to talk to the owner about alternatives to get this "expensive" product off the project. No one contacts the manufacturer, certainly not in time. And when the manufacturer can't supply tons of the specified product at the last minute, the status quo kicks in. The owner might get back some of the contractor's mark-up on the original material.

"That's where having materials credits in a green building rating system, and doing a project that's actually going to certify under a green building rating system, becomes an important counter to this rush to substitute everything," says Robin Guenther, FAIA, principal and sustainable healthcare design leader at Perkins+Will. Guenther suggests that part of the rationale behind material health credits may be a recognition that "a lot of stuff falls off between the specification and actually getting it into the project, particularly for new-entry products, which are trying to build market share, trying to transform the market, and may be slightly premium priced."

12. Rally manufacturers

One company chronically disadvantaged in accidentally-on-purpose substitutions, a manufacturer of linoleum flooring, is responding by changing its business model. In answer to three factors that regularly prevent its flooring being used to full advantage—opaque pricing, improper installation, and improper

When Goals Collide

Health is never a standalone priority; it's always part of a larger balance. For the Rose—a 90-unit mixed-income housing development in Minneapolis—participation as a pilot project in the Living Building Challenge Framework for Affordable Housing meant equally ambitious objectives for both health and energy. The decision to install a dedicated outdoor air system (DOAS) nearly brought them to a standoff.

Typically, multifamily housing relies primarily on a pressurized corridor to ventilate units by way of the gap under each unit's door. This ventilation is conditioned (heated or cooled) but not properly humidified or dehumidified, and filtration usually just protects the motor. Additional fresh air comes through windows or finds its way through walls. Heat lost through the exhaust system is not ordinarily recovered, and the typical location of exhaust vents on side walls results in pressurization issues on building façades and potential re-infiltration of exhaust air.

The DOAS system installed at the Rose is different. It provides fresh air directly to each apartment via variable refrigerant flow (VRF) units, explains Rhys MacPherson, AIA, project manager with the Rose's architect, MSR Design. The system properly mixes and tempers the air, humidifying it in winter, dehumidifying it in summer, and responding to current conditions during the shoulder seasons. A five-stage filtration process removes particulates and pollution, and ventilation is supplied at double the code-mandated rate. Energy is recovered from bathroom air before the air is exhausted. Kitchen exhaust is bundled and discharged through the roof to avoid distorting air pressure on the facades and to keep cooking smells away from open windows and the courtyard.

Energy-wise, however, the DOAS imposed a penalty. "We could have easily saved 8 to 10 EUI [energy use intensity] and been right at net zero ready," says MacPherson, "but we felt supplying fresh, filtered air was more important than just driving down the EUI of the project."

To keep the DOAS's health benefits in the design and still meet the 2030 Challenge benchmark to reduce energy consumption by at least 70%, the team decided to notch up the performance of the building envelope. A fluid-applied membrane and high-performance windows enabled the building to achieve an EUI of 31 kBtu/ft^2·yr (a 72% reduction compared to its building type baseline EUI of 111). Plus, those envelope details further improved the barrier to highway pollutants, including noise.

In the end, a commitment to a community solar energy may bring the project to net zero after all.

Photo: Prakash Patel, courtesy SmithGroupJJR

"There's really no way to do it without 100% buy-in from everybody" according to the construction manager for the Chesapeake Bay Foundation's Living Building Challenge-certified Brock Environmental Center.

maintenance—the company is rolling out an extended suite of services.

In the healthcare, education, large-scale retail, and senior care sectors, the manufacturer will no longer supply linoleum to just any installer that orders it. Instead, the company will work with installers in which it has confidence and will develop transparent pricing to show what each element of the contract should cost. In regions without reliable installers, the company will perform the installation itself. The manufacturer is also seeking to advance discussions about installation further up the construction sequence, offering input to the general contractor on concrete admixtures.

Further, to prevent the naturally antimicrobial linoleum being wrecked with harsh chemicals, the company is advancing maintenance discussions, pre-empting cleaning services for which mark-ups on chemical cleaners are a major revenue stream.

Business models in which the manufacturer is a more active participant in achieving the spec are already finding a welcome on construction sites: "We have a couple of products where the installers are also the manufacturers," says Kohler, of the Packard Children's project. "It's more straightforward, and you get what you expect."

13. Call the material police

In California, hospitals are required to retain an inspector of record (IOR) to ensure that materials installed accord with approved plans and specifications, and that every material coming onsite has an approved submittal. Nonetheless, healthcare project teams establish their own quality control programs internally: no one wants to fail an IOR inspection.

On non-healthcare projects, material verification may be more informal. During construction of the Rose, MacPherson walked the site almost daily: "I was nicknamed the material police," he says, "because I kept asking for materials to be removed."

Typically it's the architect or a sustainability consultant that sources and documents building products to support a project's health goals, and who may therefore feel a heightened commitment to getting them onsite. On the Brock Environmental Center, however, Hourigan Construction took on materials sourcing and documentation as part of its submittals process, approaching manufacturers in conjunction with the project's subcontractors to obtain disclosures.

That effort—ultimately comprising some 4,000 pages and 10,000 person hours, says Park—was more than Hourigan had bargained for, but it formed the basis for highly effective supervision of the spec's implementation. Park was onsite constantly as soon as the project broke ground and so was able to monitor the use of the materials he had found, vetted, and documented. "Obviously, after months and months of work, you have a vested interested in making sure that your work is actually used and [that] what you found is actually onsite," he says.

14. Test it

But how would you know if you missed something?

Before the Rose's residents moved in, the air quality in each apartment was tested to ensure that VOC levels registered below the target of 500 micrograms per cubic meter (mcg/m^3). An affordable housing budget wouldn't ordinarily stretch to air quality testing, but health and materials research being conducted at the Rose by the Parsons School of Design and the Healthy Building Network provided grant funding. The testing registered VOC levels in typical units between 20 and 30 mcg/m^3—almost nothing.

Image: HKS Inc.

The Dell Seton Medical Center at the University of Texas is pursuing the entire suite of new Building Product Disclosure and Optimization credits in LEED v4.

But these numbers weren't easy to get. On initial testing, VOCs registered much higher, and it turned out the contractor was using prohibited items for punch list closeout. "It wasn't that anyone was trying to do the wrong thing," says MacPherson, "but they had been directed to finish as quickly as possible." The conventional close-out procedures with non-compliant products were stopped, their impact on air quality goals explained, and the building flushed out before being re-tested—for which the contractor took responsibility.

Initial testing also found two units in particular with soaring formaldehyde levels. Forensic work on the contractor's part revealed that the cabinet manufacturer had supplied added-formaldehyde cabinetry to those units due to a delivery error and timing issue. "Without the testing, we would never have known," says MacPherson. Having also used thermal imaging to examine walls and set temperatures as part of the project's 72% energy use reduction, MacPherson sees verification as "a whole different process now, well beyond the visual world. Performance definitely requires multiple ways of examining and measuring, beyond what the eyes see."

Zooming Out

In the long term, regardless of their health credentials, materials have to prove themselves through use. Qualities such as low life-cycle cost, ease of service and repair, enduring aesthetic appeal, and a maintenance regime that saves time will ensure products chosen for low toxicity live out their useful lives and are re-ordered when the time comes. "We have to be careful not to lose track of the reasons we picked things," says Mary Phillips, UCSF Medical Center's project manager for interior design, "but hopefully the products are proving themselves the best choices for many reasons, not just their chemical aspects."

Because it entails so much work, getting preferable materials into a building is extraordinarily intense. But materials are ultimately a single—important—aspect of a larger health effort, says Mara Baum: "You can have the best materials in the world and be able to install them on the project," she says. "But if you don't incorporate that materials focus into a holistic approach, all of the great work you did can be lost."

As examples of equally important elements in a holistic approach, Baum points to:

- sequencing and installing materials to enable them to function as intended
- commissioning mechanical systems to ensure optimal ventilation
- duct cleaning to protect air quality
- preventing moisture intrusion
- cleaning with low-toxicity products

"There are a lot of ways you can mess up," she says, "and when teams put all of their eggs in one basket"—like looking only at hazardous ingredients in materials—"they may miss some of the opportunity. Healthy building needs to be a much bigger picture."

EDITORIAL

A Quarter Century of Changing the World

Going on 25 years, we still don't have all the answers. What gets us excited about the next 25? Working with you to ask the right questions.

by Nadav Malin and Alex Wilson

Enough with all the eco-babble! Just give us the answers!

Those words were the most memorable of the extensive and varied feedback we received from readers after introducing *Environmental Building News* in 1992.

The comment arrived on a paper reader-response card we'd inserted into the printed issue on its way to the post office.

ISSN #1062-3957

Environmental Building News

A Bimonthly Newsletter on Environmentally Sustainable Design and Construction

Volume 1, Number 1 July/August 1992

Welcome to *Environmental Building News*

Buildings have a tremendous impact on the environment. In North America, buildings and the building industry account for about 30% of carbon dioxide emissions, 35-40% of ozone depletion, 20-30% of municipal solid waste, vast quantities of natural resource consumption, and dramatic loss of open space each year. What can we do about it? How can you and I as builders, designers, and others involved in the building industry have an impact in turning the tide on this environmental destruction?

The challenges we face in bringing greater environmental sustainability into the building industry seem tremendous—indeed we need to be careful not to feel discouraged. Yet the opportunities, too, are tremendous. There is so much room for improvement that the strides we can make as an industry are huge.

Environmental Building News seeks to be a voice in the transition to environmentally sustainable building practices. In the pages of EBN we will expose the faults in our current practices, but more importantly, we will present the options we have for turning things around. We will provide a wide range of information on environmentally sustainable design and construction—from leading-edge case studies of sustainable design that will stimulate your creative juices, to hands-on construction details that will help you integrate these ideas into your daily work.

In each issue of EBN we will provide one or two in-depth feature articles—like the pieces on rigid foam insulation and site-work in this issue. In these articles we will try to probe deeply into an issue—getting into more detail than is found in most newsletters. Also in each issue, you will find information on new products and materials, news about environmental trends that relate to construction, reviews of pertinent publications and events, and a regular reader's forum.

Now here's where we need your help. We want *Environmental Building News* to be *your* publication. We want to direct it to your needs and interests. To do this we need to hear from you. Send us your thoughts, your opinions, your suggestions of what we should cover. If you are using construction details that you feel particularly good about, or if you come across interesting new products or materials, let us know about them. Also keep an eye out for information resources that would benefit EBN readers: conferences, seminars, books, periodicals, obscure technical publications...we'll review these materials and pass the information on to our readers.

Finally, thank you. Launching a new publication is a bit scary. When we mailed our first promotion a little over a month ago, we really had no idea what the response would be. We have found tremendous interest. While that makes us feel good about the prospects for EBN succeeding, more importantly it gives us a sense of optimism about meeting the broader challenges we face. We've heard from dozens of builders and architects that the time is right for this publication. Let's hope that the time is also right for a major shift within the building industry toward environmental sustainability.

(continued on page 11)

Rigid Foam Insulation and the Environment

Ozone depletion and global warming are two of our most serious environmental problems—and foam insulation materials containing CFCs (chlorofluorocarbons) contribute significantly to *both* of these problems. The environmentally concerned builder or designer should make it a highest priority to avoid them. Even many of the non-CFC alternatives that manufacturers are now switching to are still damaging to the environment—though less so than CFCs. This article takes a detailed look at various types of foam insulation materials—how the materials are produced, what their environmental impacts are, and what the alternatives available to you are.

Rigid foam has played an important role in the energy-efficient construction revolution we have witnessed since the mid-70s, permitting wall and roof R-values to be boosted dramatically with only minimal increases in wall thickness. The foam has such a significant effect in part because it covers the framing members, thus reducing the thermal bridging that occurs through framing members when only cavity-fill insulation is used. The increasing popularity of foam-core stress-skin panels—some of which are produced with CFC-based foams—for use in both timber frame and structural panel (frameless) buildings is further increas-

In this issue

printed on recycled paper

Image: BuildingGreen, Inc.

The first edition of EBN did not yellow with age. It's just that In 1992, recycled paper wasn't white.

As we now begin our 25th year of publishing, we still like to give our readers plenty of context so that you can understand our recommendations and make your own decisions. And, with your help, we'd like to think we're asking the right questions. Sometimes that's more important than having all the answers.

Silver anniversary

In 1992, the world was different. *Environmental Building News*—now embedded in BuildingGreen.com—was the first North American publication devoted to the nascent field of green building, and the Internet was mostly for scientists.

In 1992, the U.S. Green Building Council didn't exist. LEED, the program that eventually came to define green building in the U.S., wouldn't emerge for another eight years. The only national organization in this space was the American Institute of Architects' (AIA) Committee on the Environment.

Before we launched *EBN*, BuildingGreen (founded in 1985) was a technical writing company that split its time between freelance writing for various magazines and contracted