

2/21/00 - BE2000 Plenary Talk – Building Effectiveness

IT IS A **GREAT HONOR TO BE HERE TODAY**. It's a coming of age for me, in a sense – my path first crossed NESEA's twenty-one years ago, at the greenhouse conference in Plymouth. NESEA friends and colleagues have nurtured me throughout my entire career working in this field. I'm profoundly grateful for that.

THE TITLE OF MY TALK TODAY IS **BUILDING EFFECTIVENESS**. I like the word effective. Often our goal is to be efficient. Bill McDonough likes to say that we should aim to emulate nature, and that nature, for example a tree, is effective rather than efficient. Effective can be used in another way – we can consciously acknowledge that we have an effect on what we build, and what we build has an effect on us.

I'M AN ENGINEER, A TECHIE, AND A LONG-TIME STUDENT OF SUSTAINABILITY. The best definition of sustainability is Carol Venolia's – it's when, if you keep on doing what you're doing, you can keep on doing what you're doing. I've focused in my work on the technical aspects of sustainability. However, I believe that the conversion of our culture to a sustainable basis involves a fundamental transformation of the human spirit. We must rediscover our interconnectedness and interdependence with something much larger than ourselves: the natural world and the spiritual realm which transcends it. And once, discovered, we need to act! This is what's up for me as I seek to deepen my own understanding and effectiveness as a practitioner.

My aim is to first speak about **EFFECTIVE BUILDINGS**, and how we might extend our understanding of them. Then I'd like to cover what an **EFFECTIVE PROCESS** might contain. Then I intend to finish up sharing some thoughts about **PERSONAL EFFECTIVENESS**.

## **EFFECTIVE BUILDINGS**

What is an **EFFECTIVE BUILDING**? I have a short list that encompasses the technical aspects. They are ones NESEA members have a good grasp on: buildings that **ARE SAFE AND HEALTHY; COMFORTABLE; DURABLE; RESOURCE EFFICIENT; AND ADAPTABLE TO THE FUTURE**. I think we know a lot about how to make buildings that don't make users ill, are draft-free and of even temperature, don't have ice dams, frozen pipes, or peeling paint. We've learned a lot about how to design projects that use energy, water, and materials conservatively. We've begun to strive for buildings that have beneficial effect instead of merely minimizing negative impact. That would be sustainable design! One example of this is Oakes Hall, the new classroom building at VT Law School, which added 23,500 ft<sup>2</sup> to the campus and, through the usage of waterless composting toilets, *reduced* campus water consumption by almost 50,000 gallons the first year. Another is Steven Strong's work with BIPV, which shows his persistent vision of buildings that generate more power than they consume. Stewart Brand's book, *How Buildings Learn*, has helped us see clearly how buildings need to be adaptable, since you can never predict future uses and technologies and resource availability.

I'D LIKE TO EXPAND OUR VISION OF EFFECTIVE BUILDINGS TO THOSE BUILDINGS THAT NURTURE US, WHICH WE GROW TO LOVE. Buildings that have a positive effect on their users. I think we all can image places that we feel good in – more rested, relaxed, centered, balanced, happy, protected, enfolded, at home. When John Abrams, Bruce Coldham and I first met with the Wampanoag Tribal Council, with the intent of learning from them how they envisioned the Tribal Headquarters we were designing for them, they told us clearly that they wanted it to feel homey to all who came there. A couple of years later, at the building dedication, a tribal member came up to me, shook my hand, and said, you can never know what it's like to be in my skin, as a native American, never feeling like I belong anywhere. When I come here, I feel as though this is my home, I'm welcome here, and I want to thank you for your part in making this place.

When we speak about that project, we speak about the daylighting and materials choices and zero discharge waste treatment system. But all that stuff doesn't matter if the building as a whole doesn't help people feel good about who they are and their place in the world. Places that do that are what we need to create, places that sing to us, and invite us to sing back.

WHEN CREATING A PLACE, ASK YOURSELF, WHO IS IT WHO WILL BE AT HOME IN THIS PLACE? What do they need? What will support them in their highest, unspoken aspirations? We connect with the natural world when we can see the outdoors from inside the building, can see the weather, can see the path of the sun across the sky as sunlight sweeps across our space in diurnal and seasonal patterns. Daylit spaces re-integrate us into hard-wired natural rhythms. An indoor fountain that only comes to life during a rainstorm may surprise and delight us, like a bell that calls us to mindfulness. When windows can open, we can feel a breeze and hear a bird sing or squirrels squabbling. Edible plants growing in indoor planters tempt us to nibble as we pass and remind us our basic sustenance indeed comes from the Earth. We are also reminded of our place in the world when our buildings are made of materials that the ancient part of our brain recognizes. Wood, stone, grasses, natural fabrics – it's comforting to be surrounded by materials we co-evolved with. All of these things connect us with what David Abram calls the more-than-human world, in his book *The Spell of the Sensuous*.

WE CAN ALSO MAKE PLACES THAT MAKE IT POSSIBLE TO CONNECT WITH THE WORLD OF SPIRIT. We can make what architect Tom Bender calls buildings with a soul, and gardens of the spirit, places we make in our surroundings solely for our spirits. Places that allow us to expand into the infinite contained within us. Think of how our workplaces and our schools would be different if they contained consciously designed gardens of the spirit! Places free from intrusive mechanical noise and unnecessary clutter. No clocks! A beautiful object here, a comfortable place to sit there. Flowers. Places of peace, that evoke the feeling of sanctuary and refuge. Bender speaks of places of generosity, that allow us to trust that we belong here, we have our rightful place. Places of giving, of that impulse of love which underlies all life and creation. He speaks about the desirability of making buildings that last a long time, and says, "Durability thus grants a generosity to the places we make that can be obtained in few other ways." If a building is made with that intention, it will be immediately apprehendable walking in the door. That loving energy has been embodied in the building – we should all seek high-embodied energy!

WE NEED TO EVOKE THE SACRED IN EVERYDAY LIFE, IN THE PLACES WE MAKE FOR OURSELVES. Sacred is about honoring, ourselves, and others, and that which gives us sustenance and life. Holding things sacred gives meaning in our lives. We protect what we hold sacred. A couple of years ago I spent six days wandering around deep in the Olympic Mountains rainforest. I allowed myself to slow down enough to just sit down and rest against trees over 200 feet tall. Could there be any doubt that these trees were sacred? I can't imagine using old growth timber in a building ever again.

IN BENDER'S WORDS, FROM HIS NEW BOOK SILENCE, SONGS, AND SHADOWS: "MAKE OUR COMMUNITIES PLACES TO LOVE. That is the sustaining force of life. When we have communities we are passionate about and which nurture our souls, we will want them to endure. With that love, we will seek and assure the changes in infrastructure, land use, building practices and patterns of living essential to that survival." We will not achieve sustainability without a profound process of healing, and that process begins with ourselves. We have, whether we realize it or not, an ongoing conversation with our surroundings. Most of the time, we're not listening. We can design those surroundings so that conversation will feel sullen, terse, and grudging, or rich, intimate, and generous, a two way street of abundance. We can be ground down or nurtured. It is our choice.

## EFFECTIVE PROCESS

IF WE CHOOSE TO CREATE OUR BUILDINGS WITH THESE INTENTIONS, WE NEED TO DESIGN A PROCESS TO MAKE IT HAPPEN. Some of the components of an effective process include adequate time; commonly shared, clear intention; systems thinking; clear communication; and collaborative process, and I'd like to say a little about each of them.

I may be stating the obvious, or perhaps not, when I say **THAT WE DON'T GIVE OURSELVES ENOUGH TIME TO DO A GOOD JOB, TO HAVE AN EFFECTIVE PROCESS. OUR POVERTY OF SPIRIT MANIFESTS IN OUR POVERTY OF TIME.** If we aim for a project that will serve its users for a century, why is it so out of line to want to take an extra month or two to design it, and to build it? A good process takes some extra time. Bill Rock Smith used to tell the builders in the Energy Crafted Homes workshops that everyone wants three things – fast, cheap, and good, but you can never get all three. My observation is that you're lucky to get two, and it's eminently possible to go 0 for 3. The first year a new building is occupied; people forget the schedule issues and focus on the quality issues. Let's put good at the top of our wish list, and fast at the bottom.

A GOOD EXAMPLE OF **COMMONLY SHARED, CLEAR INTENTION** WAS THE OAKES HALL PROJECT. Vermont Law School wanted a superb teaching facility that would serve the institution far into the future, and they wanted a building that would be consistent with its position as the country's leading school of environmental law. And really, at the beginning of the process, they had only a dim view of what that would actually mean. Working together, we developed these goals for the project:

It should be

- Safe, healthy, and comfortable - a place that nurtures those who use it
- Durable
- Efficient in the use of resources - energy, water, materials, land, capital
- Adaptable to the future needs of VLS, future technologies, and future resource availability - all of which increases the useful life of the building.

Staff, administration, faculty, students, building maintenance staff, and trustees were all involved in this goal-setting process, in addition to design team members. In a series of gatherings, the meaning and the benefits of a project meeting these goals became clear to the VT Law community. As each person understood and bought into the goals, everyone's ability to work together towards a common goal was strengthened. And the most unlikely people sometimes emerged as champions of technologies and strategies that at first were hard to embrace (like the composting toilets – the Dean in charge told the architect in mid-project, I hired this hot shot environmental consultant and so far all I've got are high-tech crappers). As the budget loomed small, as it does on every project, people consistently returned to the goals and made the right choices. The result of the process has been a building embraced by the Law School community, and one that, compared to the campus library (also built in the 90s and designed by the same architectural firm), uses 1/5 as much fuel oil and less than half the electricity per ft<sup>2</sup>.

IT'S IMPORTANT TO RECOGNIZE THAT LOFTY GOALS NEED TRANSLATION INTO A SET OF CLEAR OBJECTIVES THAT HAVE MEASURABLE RESULTS. An example might be, 50% of the electric power used in this building shall come from renewable sources. Otherwise you're in danger of getting the same old wasteful building with a photovoltaic array tacked on the roof. Andy Shapiro likes to say that a PV array is a badge of honor a building is entitled to wear once all the other stuff has been done right.

SOMETIMES INTENTION SEEMS TO MAKE THE IMPOSSIBLE HAPPEN. In a visioning workshop led by Bob Berkebile for the Choi Center project at the University of British Columbia, a goal of having the building be constructed of at least 85% salvaged materials was generated. With that clear intention in hand, it was discovered that an old armory was being demolished, and the building envelope and structural concept were re-defined to incorporate the heavy timber and brick of the armory, very nearly meeting the salvage goal. I believe that clear intention moves things, it's very powerful.

**SYSTEMS THINKING IS INSEPARABLE FROM SUSTAINABLE PROCESS.** You could call it 'keeping your eye on the ball'. It means maintaining awareness of all the interrelated parts and how they relate. Our tendency is to subdivide the design process into small, almost unrelated fiefdoms, and focus on our narrowly defined task. In 1998 I was asked to sit in on a schematic mechanical design review for a new 38,000-ft<sup>2</sup>-business school dorm and executive training center. The system proposed by the team from the prominent national engineering firm seemed complicated, inefficient, and high maintenance. I suggested that the team re-calculate their design loads with a state-of-the-art glazing in the windows. The design loads were cut in half, so we proposed a completely different mechanical approach. The engineers were resistant, but the client's facility engineers were intrigued by the much lower maintenance requirements, so they asked the firm to design the two competing systems to a level where they could be priced and the energy consequences could be estimated. The result was a conservative estimate of \$20,000 annual energy saving. System capital cost was estimated to *drop* \$150,000. There were other benefits of the system – the better glass increases window durability because there won't be any condensation, and raises comfort levels, possibly resulting in lower thermostat setpoints and additional energy savings. The simpler system needs less maintenance. The enthalpic heat recovery means relative humidity levels will be higher in the winter and lower in the summer, a healthier environment for the occupants. Durability, comfort, energy savings, health – cascading benefits from considering the glass and the mechanicals as a system, not as unrelated components.

A PATTERN OF **CLEAR COMMUNICATION** IS A SURPRISINGLY RARE OCCURRENCE, I've come to believe. I'm often aghast at how clients are asked to make key decisions based on very fragmented information from their design professionals. I also notice how often the professionals make the decisions without any awareness on the client's part that there even was a choice to be made. I see my own role as a consultant as facilitating a process in which the client makes a series of informed decisions, leading themselves to the end result that most suits them. The decision process can be supported by written documents, in which the pertinent issues are laid out and discussed, and the pros and cons of various competing strategies are clearly delineated, with supporting data as required. In any project involving many players, keeping all informed and up to date is crucial to good decision-making and timely progress. Documenting meetings with detailed minutes, which clearly proclaim decisions reached and list action items with their deadlines, as well as decisions needed in the near future, is a key strategy that establishes a project history as well as keeps the process moving ahead. Graphic images that illustrate key design concepts work wonders in communicating both system concepts and details to lay audiences. And the immense strides in computer imaging can truly bring a project alive, so that what is in the designer's head can be seen clearly by the client. You can see some terrific examples of this capability on Bruce Coldham's web site, where clients can log on and take a tour of their building in 3-D. And these can be updated regularly as the design progresses, so both designer and owner are envisioning the same product. The design process becomes much more participatory and interactive, and therefore much richer.

**A COLLABORATIVE PROCESS THAT INVITES THE ACTIVE PARTICIPATION OF ALL PLAYERS AND RESPECTS THEIR INPUT AND POINT OF VIEW IS ESSENTIAL.**

Sustainability is not business-as-usual. All team members need to understand that something unusual is being asked of them. The client needs to be part of the team, and they may need assistance developing *their* collaborative skills in order to fully join in. When I was working actively with John Abrams and Bruce Coldham as ARC Design Group, we had a saying that “everyone is a designer.” We asked for full engagement into the project goals from all of our consultants. Their input on any aspect of the project was invited and gratefully received. At the Wampanoag Tribal Headquarters, the early engagement of landscape designer Sanford Evans kept us from making what in hindsight would have been a significant siting blunder. ARC Design also assisted clients in the early selection of their builder to take advantage of the builder’s expertise and imagination. At the Stonyfield Farm office project, Peter Bonneau of the construction management firm Macmillin Company devised a number of the key solutions that made a complex project really work. Allowing people to come forward with their own unique creativity guarantees a richer result, and is a whole lot more fun, too. Tom’s of Maine founder Tom Chappell calls this relinquishing of hierarchical control *Managing Upside Down* in his new book by the same title.

**THE REAL ART OF COLLABORATIVE PROCESS COMES WHEN YOU CAN DRAW YOUR POTENTIAL ADVERSARIES INTO THE MIX.** In fact, the whole idea of adversaries is an idea whose time has passed. We are best served by understanding the thought processes and feelings and ultimately the fears of those who may not share our every cherished ideal. People with genuine goodwill may see things very differently than we do, and appear to be obstructionist or downright contrary when they are merely operating in good faith from a very different worldview.

**IT HAS BEEN REALLY HELPFUL TO ME TO RECOGNIZE THAT MY OWN BELIEFS ARE ONLY JUST BELIEFS.** It takes the edge off of my self-righteousness. It allows for the glimmer of common ground to begin to shine through. It’s unlikely that any of us are completely correct – after all, remember the Firesign Theater, everything you know is wrong? Acknowledging that others may have a point makes it far likelier that you’ll accomplish what you are aiming for, because you’ll need to make some shifts to accommodate the new viewpoint you’ve just let in. In the best case, you may anticipate the others’ issues so well that your shifts in anticipation will eliminate opposition to your goal. When John Abrams set out to develop Island Cohousing on a piece of property in West Tisbury, he was told by some that what he wanted to do, a tricky mix of commercial and residential use, could never happen within the confines of the ordinance. By carefully understanding the intent of the ordinance and the needs of the community which were implied in the ordinance, and crafting a project that allowed him to do what he wanted while satisfying both, Abrams’ project was approved. He had done such a superb job of anticipating the Planning Board’s possible objections that each of the 15 conditions of their approval began with the words, “we accept the applicant’s offer to.”

## PERSONAL EFFECTIVENESS

How do we all become more effective personally? My current short list includes: **LIVE WHAT YOU BELIEVE IN; TEACH OTHERS; PERSIST IN THE DETAILS; SPEAK THE TRUTH; THINK OF WHAT YOU DO AS SERVICE; PRACTICE NOT-KNOWING; AND PRACTICE NON-SEPARATENESS.**

**TO ME, LIVING WHAT I BELIEVE** MEANS USING MYSELF FIRST AS THE LABORATORY, BEFORE I ADVOCATE A SOLUTION TO SOMEONE ELSE. When you actually *do* something you learn all of the complicating factors. Isn't it astounding how unbuilt designs always work perfectly! Who knows more about alternatives to driving, the transportation policy wonk or Michael Totten of WRI, who has logged over 90,000 miles commuting by bike? Architect John Rountree decided a few years ago to focus some of his professional efforts on helping fellow architects integrate solar electricity into their designs. He installed a photovoltaic system on his own home, and can speak with the authority that comes from actually living with the technology he advocates.

**TEACHING OTHERS AND EMPOWERING THEM IS THE BEST WAY TO MULTIPLY YOUR OWN EFFECTIVENESS.** You have all learned a lot by hard experience out there in the world – get that information out there, and please, share your failures, they're more important educationally than the successes. I know I don't want to see anyone else make the mistakes I've already made – what's the point? Admitting our imperfections does not diminish us, and we open ourselves to deeper connection whenever we show our inevitable vulnerability. It's easier to learn from someone who shares their failures as well as their successes – that way of being gives *us* permission to be imperfect, and energizes us to reach higher in our aspirations.

**PERSIST IN THE DETAILS.** There's a story, probably apocryphal, about John Sununu speaking with E. O. Wilson about species extinction, and trying to get Wilson to say that it's OK to lose a few. Apparently Wilson was firm, and Sununu shrugged, saying, well, I guess the devil is in the details. Quoting Mies van de Rohe, Wilson replied, it's God that is in the details.

**WE ALL WANT TO DO THE SEXY STUFF, PROJECTS WITH PHOTOVOLTAICS AND STRAW BALES AND LIVING MACHINES AND COGENERATORS FIRED WITH PEACH PITS.** Twenty plus years of practice tells me that the significant stuff is not very showy and unlikely to get photographed. Half of what I seem to do is help architects detail buildings so that they don't leak and are airtight and don't have disastrous thermal bridges making mincemeat of the thermal integrity of the building and causing mold on the inside and ice dams on the outside. I do it over and over again, often with the same firms. Sometimes it's tiresome, but it's the chop wood, carry water part of the practice. It makes the buildings last a long time.

**A FEW MINUTES AGO I TOLD YOU TO RECOGNIZE THAT YOU'RE LIKELY TO BE WRONG ABOUT HALF OF WHAT YOU BELIEVE.** Now I'm going to tell you that it's critical for you to say what you *do* believe, to **SPEAK YOUR TRUTH.** What a paradox! It's scary to be in a room of hard-bitten commercial types and say, I want no materials containing ozone depleting chemicals on this project. There's no direct payback for that strategy. You have to say it because you believe that protecting the ozone layer is a good thing. You may be wrong, you can't know definitively.

So you need to offer what you believe, with firmness and conviction. I believe that one person speaking their truth, especially when it contradicts the party line, has a profound ripple effect that enables others to act in accordance with their deeply held values. Often, when you say what has been the unsayable, with the conviction of your heart, you will feel the relief emanating from those others who feel the same, but in their isolation and fear felt that they were alone in that feeling. Speaking your truth reduces all of our collective fear level, and unlocks the gate of collective action.

I'VE DISCOVERED THAT ONE WAY I HAVE BEEN ABLE TO INCREASE MY OWN EFFECTIVENESS IN DIFFICULT SITUATIONS IS TO VIEW WHAT I AM DOING AS **SERVICE**. One of my current projects is working on the building program of a new school district, an ambitious mix of renovation, addition, and new construction. The commitment and enthusiasm of the client has made this one of my most rewarding projects. The working relationship I have had with the design firm has been the most challenging of my career. I don't believe that the architect and I see anything the same way. A few months ago he just exploded at me in a meeting. I'm sad to say I rose to the bait, it wasn't my finest hour. In the aftermath I realized that the only way things were going to change was for *me* to change. My attempts to control others always seem to fail! And my way into that change has been to ask myself in each interaction, what can I do here that will be of most service to the client? I use it almost like one uses one's breath in meditation, something to bring my attention back to when I find myself straying. I still feel the anger, the frustration, and the aggression inside me – that hasn't really gone away. But asking myself the service question helps me keep my negative emotions out of the daily interactions and keep my projections to myself. It's not an easy or smooth process, but it's better than it was. Viewing what we do as service, and making the connection between our actions and what we want to manifest in the world, is a powerful practice.

THE LAST TWO PIECES OF MY OWN WORK TO BECOME MORE EFFECTIVE ARE THE HARDEST FOR ME – I SPEAK WITH NO AUTHORITY HERE. They are practicing **NOT-KNOWING** and practicing **NON-SEPARATENESS**. Paul Rezendes, author and master tracker, says that, in the woods, what you see is who you are. You can't separate how you see things from what you already know, so you miss information if you hang out in the place of knowing. He urges his students to not-know. Not-knowing is one of the three tenets of the Peacemaker Order founded by Zen Roshi Bernard Glassman. As soon as I "know" something, or someone, I freeze it in my mind. It becomes static and incapable of change. By doing this to another person, I take from them all of the infinite potential they have to be other than they were just a second ago. How can that person grow if I know who they are? How much better it is for both if I can stay in that not-knowing place, open in each moment to what is unfolding just then. I allow both of us space to become who we are becoming.

PRACTICING NON-SEPARATENESS IS AT THE CORE OF WHAT WE NEED TO DO TO BEGIN TO HEAL OURSELVES AND HEAL THIS PLANET. In his book *Bearing Witness*, Glassman describes how, if I cut my arm, I know immediately that something must be done, I know what I *have* to do. I don't perceive my arm as being separate from me. As I move out in wider circles, I separate from what I perceive. Suddenly when something happens I don't know what I have to do, I get confused, my fears take over; I have to do a cost/benefit analysis. The degree to which we are not separate determines what we can really love. Einstein said our task was to widen our circle of compassion. Instead of doing what we've been trained to do, which is to look for the differences, let us try to seek commonality.

This is not easy stuff. For most of us, **NO ONE TEACHES US THIS WHEN WE ARE GROWING UP, OR IN SCHOOL, OR ON THE JOB.**



Thich Nhat Hanh, in *Peace Is Every Step*, speaks about what he calls **INTERBEING**, and he describes how the sheet of paper on which these words are written contains the whole universe – clouds, sun, the log, wheat, our mind. All of these things inter-are – they can't exist without each other. It's time to recognize this, to own it at the deepest level. What are we waiting for? Zen Roshi Joan Halifax, author of the book *Being With Dying*, referring to the sad fact that it often takes a terminal illness to make a person wake up to what is really important, asked a group of her students, what are you waiting for, your diagnosis? You've already got your diagnosis.

And that's the truth. **WE'VE ALL GOT OUR DIAGNOSIS.** We're all in this together. We all belong here. Non-separate. Interbeing. We can choose generosity instead of stinginess, we can choose connection instead of separation, and we can choose love instead of fear. And we can make those choices apparent in our communities, in our buildings, in our relationships, in our selves. It's time to wake up, to know what we all *have* to do, to heal our selves, our communities, and our planet.