

CAREERS IN ENERGY

Sustainable Architecture & Engineering

Tammy Schickler is the Principal of *Sustainable Performance Consulting* in Rochester. She and her firm provide consulting services for the design and construction industry, including 'green building' project management, assistance, coordination, commissioning, and energy modeling. Trained as an architect, Tammy now focuses all her efforts on owner representation, design management, and managing the design team to an end product. Todd Rogers interviewed her recently.

Todd: Tell us a little bit about the energy- related projects you do in your work.

Tammy: I administer a contract for NYSERDA, which provides outreach services for the *New Construction Program*, the *Smart Equipment Choices Program*, and the *New York State Energy Smart Loan Program*. When an applicant applies to the program, we work with them to help influence their energy choices for their building. NYSERDA provides incentives for increasing energy efficiency, so we try to communicate how a building could be more energy efficient and the subsidies that may be associated with premium efficiency.

Todd: Give us an example of how you've worked clients helped them with smart equipment choices.

Tammy: *The Smart Equipment Choice Program* serves people who are replacing light fixtures in their building. It encourages participants to choose one of the energy-efficient fixtures listed on the NYSERDA worksheet by offering a \$5-to-\$10 incentive per fixture. That program positively influences clients, since they are going to choose light fixtures which are more efficient than something you would buy off the shelf. The New Construction Program, however, is a bigger deal, because it's more about brand-new buildings or major renovations to existing buildings.

Todd: Let's talk about that. Can you give an example of a client that you've helped on a new construction project?

Tammy: I think a good example and an easy one to understand would be daylighting, where we try to utilize the natural resources of the sun to help light buildings, versus using all electrical energy to light a

building. A client comes in, intending to put a lot of windows in an office space, and light it with fluorescent lights in the ceiling. There are design standards of so many foot-candles for critical visual tasks in particular places, like at a workstation. Our engineer may design a lighting system to meet 50 foot-candles – that's for when it's dark outside, with basically no light coming inside. So that equation doesn't capture any of the benefits of the daylight that's coming in all through the workday.

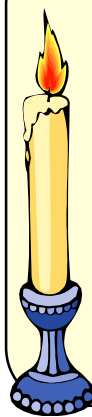
The technologies have improved today, to where you can put photo sensors on your lighting ballasts that actually dim the lights down to an appropriate level to maintain the 50 foot-candles at a desk level, but utilize whatever daylight is coming in to offset the energy consumption of a fluorescent light fixture.

foot-candle *noun* (abbr. **fc** or **ft-c**)

A unit of measure of the intensity of light falling on a surface, equal to one lumen per square foot and originally defined with reference to a standardized candle burning at one foot from a given surface.

lumen *noun*

A unit of measurement of the amount of brightness that comes from a light source. Technically, lumens measure "luminous flux." A wax candle generates 13 lumens, while a 100 watt bulb generates 1,200.



Todd: How did you get interested in energy as a career? You started out as an architect, so how did you make that switch to energy?

Tammy: I chose architecture because I thought that that field would combine design and math, and give me a freedom of expression. There is the ability to use

drawing skills in addition to just basic design creativity, being able to design space that flows and is useful, and looks good. I started studying architecture in the 70's, and I became very interested in renewable energy and solar design.

Once I graduated, I started as a drafter in a major corporation, and was busy moving up the corporate line. At that point, I wasn't as conscious about the values of conserving energy...it was all about "how much can I afford to build", and that's not necessarily the most energy-efficient strategy. Typically, developers and building owners may choose a least-cost alternative just to get the building built.



Tammy Schickler at a charette, an intensive session where architects work out design issues with their clients.

I kind of circled back to conserving energy later, because as energy costs kept rising, reducing energy consumption was a higher focus. That's when I started getting to know the NYSERDA programs. So now we're working together to change the building industry's long-term strategy. We have to get people to focus more on a *life-cycle* cost of a building, versus the *first cost* of a building.

Todd: Tell us how your architecture skills help you in your current work.

Tammy: My training enabled me to be a lead of a design team. I'm able to communicate the owner's needs and requirements to the rest of the design team, and incorporate it into a vision. The ability to orient a building on a site is important and would affect the natural ventilation flows to a building, the amount of solar gain, or daylighting that a building would have.

Todd: What do you love most about your work? What do you find most fulfilling about it?

I guess it's just a sense of completion, by meeting your goal, and making your client happy. I like bringing people together. I like energizing a team. That does something for me. I feel that I can bring together different firms and different personalities, all to achieve a common goal.

Todd: Where do you see things headed in the future for a person who is interested in architecture and design with a green, energy-efficient bend to it?

Tammy: The green building movement seems like it's giving the whole A&E (architecture and engineering) professions a new breath of life. This is invoking creativity not only on the architectural side, but also on the mechanical side. For instance, perhaps instead of putting in a mechanical ventilation system, we can put in a natural ventilation system. On days when the wind is right, the windows open up and the air conditioning system shuts down, and maybe that's done mechanically though the building's energy management system, which senses variables like outside air temperature and wind velocity.

Todd: What courses of study and life experiences would you recommend to a student who is interested in this field?

Tammy: There are a lot of calculations, a lot of safety factors for building structures that you need to be able to calculate and design to, so I think you do need to be very strong in math and sciences.

In addition, by doing an internship with a local firm during high school, you can get a sample of your future, and apply that to your studies. Even over winter break, for two or three weeks... you might not be designing, but you may be able to do blueprints, or sit down next to an engineer who's calculating how many gallons of water a building uses. When you help calculate how many gallons are saved if you put in low-flow toilet tanks and water-free urinals, all the sudden you'll will say "Hey, this is why I need to know all that math!"