

2011

Technology as if the Earth Mattered

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from Ian's desk

This year's **Taitem retreat** in October proved fruitful in setting goals for the next five years, helping us to envision where and who we want to be. Meanwhile, to accommodate new staff, we renovated a few hundred square feet of office space and are planning an upgrade of our humble conference room. Amidst it all, we find ourselves with a renewed commitment to the issue of **quality** as it relates to our work; I have been studying and talking about the work of Deming, the "Father of Quality" in the manufacturing sector. We are dedicated to principles of quality, including feedback, continuous improvement, clear communication, involving all stakeholders, and realistic scheduling to deliver high-quality services. We also completed a **leadership assessment** initiative, with the help of the Grenell Consulting Group. Oh, and we're always looking for a few more **basketball** players to join us each Thursday at noon for a pickup game at Henry St. John (we have showers at our office for use afterward). Even better, bring a whole team! We'll try to go easy on you.

-Ian Shapiro, President of TAITEM Engineering



Ian presenting at TC3 in November

news

A 9.2 kW **solar photovoltaic system** is now up and running at Taitem. We started planning this project in October 2009, soon after we moved into our new building. Installation began in September 2010. **Taitem's system is unique** in that there are one or two micro-inverters per panel. This means that we can monitor the performance of each inverter system separately. Also, there are panels from three different manufacturers tiled adjacently, so we'll be able to compare the performance of different panels and manufacturers. The system was designed and installed by [Finlo renewable energy](#). [Click here](#) to view the system's performance in real time.

Taitem Engineering won its **first overseas project** for energy modeling of a 4.2 million square foot residential and commercial development in **Istanbul, Turkey**. [Varyap Meridian](#) in Istanbul, called an "urban oasis" by the [New York Times](#), will have 1,500 apartments, a luxury hotel, and three office centers. The complex will be designed and built according to green sustainability principles and will seek LEED™ certification. Lou Vogel, PE, and Umit Sirt, PE, traveled to Turkey in December to begin work on the project.



Taitem's new solar panels, as seen by commuters on Green Street

We are now proud **Business Partners of the NYSERDA Commercial Lighting Program** for our commitment to promoting effective, **energy-efficient lighting**. For more information on the Commercial Lighting Program, visit the [NYSERDA](#) website.

Taitem Engineering is this year's winner of the **Exemplary Green Purchaser Award** presented by [Tompkins County Solid Waste Management Division](#). Taitem was cited as "a partner who closes the recycling loop by consistently purchasing items made with recycled content, as well as purchasing items with minimal, recyclable, or recycled content packaging." The judges mentioned our comprehensive **Green Purchasing Policy**, authored by Willa Vogel, as a deciding factor. Willa accepted the award at this year's Chamber of Commerce Showcase Tompkins event.

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departments

Taitem's new **Training Department**, led by Beth Mielbrecht, has been crisscrossing the state delivering on-site field training. Last year, Taitem Engineering, partnering with Snug Planet, was awarded a statewide contract to provide training and technical assistance for NYS Division of Housing and Community Renewal's weatherization assistance program. The Training Department has been active locally, with classes offered at TC3 in Managing Renewable Energy and Energy Efficiency Improvement Projects, and also Green Building Design: An Integrated Approach Using the Outside-In Method. A new class in Renewables and Advanced Technologies has been well-received. Many of our classes are eligible for BPI continuing education credits. **Look for new classes and new locations in 2011!**

Our **Research Department** has been busy. Ian, Kapil, Yossi, and Jim presented a paper on energy loss in heat pumps at the ASHRAE Winter Conference in Orlando, Florida on January 27, 2010. Their presentation was well received – the report on which the presentation was based can be [viewed here](#). Ian, Kapil, and Javier will be presenting at the **RESNET conference** in Orlando, Florida in February 2011; their talk will be focused on Window U-value measurement on-site using an infrared (IR) thermometer.

The **Design Department** has had a busy summer and fall! Javier and Yossi (Structural Team) have worked on a diverse mix of residential and commercial projects, including special inspections for Maguire Automotive, Colgate University, and structural design for a new restaurant on the Ithaca Commons, as well as a large new apartment building in Ithaca. Tim, Myron, Fred, and Dom (MEP Team) have worked on several commercial projects, including many in the construction phase, and they are just putting the finishing touches on a large pre-school renovation and additions project. **Big changes within the department:** In addition to designing geothermal systems inside a building, we now also offer pipe field design. Also, we have designed three Variable Refrigerant Volume mechanical systems which have proven to be extremely energy efficient *with* low installed cost. We are consistently working on upgrading design libraries (control schematics, specs, details, schedules) and continuing the learning process with REVIT building information modeling software.

The **Energy Auditing Services Department** is committed to guiding buildings owners toward **rational, cost-effective improvements** for their buildings. From small-town government offices to multifamily high-rise apartments and industrial buildings, our team is working hard to reduce utility costs, improve indoor air quality, and reduce the environmental impacts of a building's energy use. We are actively involved in NYSERDA's small commercial Energy Audit Program and large



Lou Vogel on a commissioning site visit



Taitem's design engineers are working on a boiler replacement and fire safety system at Alfred University Tefft Hall.



Herty Betancourt and Susan Galbraith prepare for a balometer test at the Racker Center School

commercial FlexTech Program. Taitem is also providing **technical assistance** to RIT's NYS Pollution Prevention Institute. We are currently contracted through the NYS Division of Housing and Community Renewal to provide audit services and technical training for every weatherization agency throughout New York State. We have identified cost-effective energy improvements for nearly 50 buildings in 2010 alone! This year we are looking forward to new fields: farm energy audits and a **major expansion** in energy audits for small businesses and not-for-profits under Green Jobs, Green New York, with the possibility of free audits for companies with fewer than ten employees (contact Ian for information on this).

For more information on any of the topics discussed in this newsletter, or to be removed from the TAITEM mailing list, please contact: TAITEM Engineering info@taitem.com

The **Green Building Services** department is submitting an eclectic mix of LEED™ projects to [LEED™ Online](#), including a fruit refrigeration facility, an office building, a hotel, and a grocery store. **Energy modeling** continues to be a major thrust of the department, with recent models being done of the above LEED™ projects, plus the renovation of a new theater and a planned net zero energy neighborhood development. Other projects with [NYSERDA's New Construction Program](#) include school and university buildings, the renovation of a downtown building into an art gallery, and the renovation of an abandoned warehouse into a retail and apartment building. We have prepared the documentation and energy model for a client to comply with the Federal tax deductions for commercial buildings. The **Commissioning Team** has been busy with projects across the state, from Long Island and Brooklyn to the North Country, verifying performance and proper installation of building systems. We are pleased to announce our **first overseas project**, energy modeling for a residential and commercial LEED™ development in Istanbul, Turkey.

The **Quality Assurance Department** continues to provide QA support to NYSERDA's Multifamily Performance Program (MPP). We have been reviewing **energy reduction plans** and making site visits to projects all over the state. We are analyzing utility bills from projects that have at least 12 months of post-retrofit billing data to assess actual performance. And, we have been working with NYSERDA and TRC to accommodate the redesign of MPP, which was re-launched earlier this year. The Quality Assurance department will also soon be ramping up to provide **compliance monitoring services** to the Weatherization Assistance Program for DHCR.

projects

Taitem's analysis for the [Paleontological Research Institution's Museum of the Earth](#), focused on low-cost conservation opportunities and long-term **net-zero carbon footprint** strategies.

We recently measured and confirmed the accuracy of our energy savings predictions for [Ithaca Housing Authority's](#) four apartment complexes. Taitem's recommended **energy improvements** are saving the housing authority over \$100,000 per year, exceeding their annual construction loan payments.

We are currently working with [Cayuga County](#) to find cost effective **alternative fuel** and fleet management solutions for their vehicles. The study is partially funded by [NYSERDA's FlexTech](#) program.

Taitem's Green Building department is reviewing the design of a **net zero energy building in Manhattan, Solar Two**, which will be all electric with a geothermal heat pump and solar PV panels (pictured on right).



tech tip

Crista Shopis and Ian Shapiro have been delivering trainings around the state on the topic of construction management (CM) of energy renovation projects, based on our experience doing CM for this type of project, with great input from Tim Wiese, Nate Goodell, and others. Here are a few tips distilled from this training:

- Even the simplest energy renovation projects are construction projects.
- All construction projects require CM.
- The goals of CM are: schedule control; cost control; and quality control.
- Projects take time, so realistic schedules are important. The longest part of the schedule is often not the on-site construction itself, but obtaining approvals and financing, design, bidding, ordering materials, and closeout.
- CM is not automatically provided by contractors, architects, or engineers as part of their services.
- Key CM activities include defining the scope of work, providing a day-to-day on-site presence during construction, holding meetings (including pre-bid, pre-construction, and weekly meetings during construction), inspecting work, authorizing payments, and generally looking out for the best interests of the owner.
- The effort for CM is significant, and should not be underestimated.

Ian will be teaching another full-week class on the topic at [TC3 in the spring](#). He will also give a presentation at an ASHRAE/GSA/EPA workshop in New York City on May 3, in collaboration with Jay Shapiro, President of [Jay Shapiro and Associates](#) (yes, they're brothers!), a construction management firm based in Far Hills, New Jersey, with extensive experience in managing both traditional construction projects as well as large energy projects. **[For more Tech Tips, visit our website!](#)**

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staff highlights

Congratulations to:

- **Dan Cogan**, who obtained licensure as a Professional Engineer in New York State, bringing the number of registered PE's at Taitem to five.
- **Crista Shopis**, who takes over as manager of the Energy Audit Services Department. Since her appointment, Crista and her team have increased productivity of the energy auditing process; maintaining a high level of quality, she and her department have succeeded in reducing audit time by 50 percent, using such tools as a new cost-estimating database and improved report templates.
- **Beth Mielbrecht**, who is the first manager of our new Training Department and has led the team to deliver trainings all over New York State.
- **Myron Walter**, whose photograph "Genoa Feed Mill" won an award at the [State of the Art Gallery's](#) juried photography show for being a "particularly successful exemplar of its type." Several of Myron's photographs are on display in the Taitem office.
- **Ian Shapiro**, for his article "Water and Energy Use in Steam-Heated Buildings" in the May 2010 edition of the [ASHRAE Journal](#).
- **Jan Schwartzberg**, for smoothly and successfully transitioning us to a new server and network architecture in September.

A warm welcome to:

- **Art Godin**, Business Manager
- **Willa Rose Vogel**, Project Coordinator
- **Nicole Ceci**, Project Engineer
- **Mahbud Burton**, Energy Technician
- **Umit Sirt**, PE, HBDP, CEM, Senior Energy Engineer
- **Scott Shipley**, Senior Energy Analyst
- **Herty Betancourt**, Energy Analyst
- **Courtney Royal**, LEED™ AP, Energy Analyst
- **Betsy Jenkins**, Senior Energy Engineer
- **Bill King**, Senior Energy Analyst



Take your child to work day



Team Taitem at the Cancer Resource Center 5K



My, how we've grown! Taitem Retreat 2002 (left) vs. Taitem Retreat 2010 (right)