NEW YORK STATE OF OPPORTUNITY. | NYSERDA

2017 MULTIFAMILY SUMMIT

Where the best energy efficiency experts get even better.

WELCOME

TO THE 2017 MULTIFAMILY SUMMIT

Get the tools and information you need to be a resource to your clients in every aspect of energy efficiency.

AGENDA

SUNDAY, OCTOBER 22

4:00 pm - 6:00 pm | *Grand Hall*
Registration

6:00 pm - 7:00 pm | *Grand Hall*
Cocktail Reception

MONDAY, OCTOBER 23

8:00 am - 9:00 am | *Grand Hall*
Continental Breakfast and Registration

9:00 am - 9:15 am | *Grand Ballroom*
Opening Remarks & Welcome

9:15 am - 10:15 am | *Grand Ballroom*
Keynote Address

10:15 am - 10:30 am | *Grand Hall*
Break

10:30 am - 11:30 am | *Hudson AB*
Conquering the Challenges of Affordable Multifamily Passive House*

10:30 am - 11:30 am | *Salon 1*
Your Super Hero for Energy Savings: How Superintendents and Other Building Operators Play a Key Role in Reducing Energy Use*

10:30 am - 11:30 am | *Salon 2*
Multifamily New Construction Program at Scale: Lessons from the Field*

11:30 am - 11:45 am | *Grand Hall*
Break

11:45 am - 1:15 pm | *Grand Ballroom*
Lunch: Plenary Session

1:15 pm - 1:30 pm | *Grand Ballroom*
Break

1:30 pm - 2:30 pm | *Hudson AB*
Cogen in the City: Benefits, Impediments, and Helpful Hints for a CHP System in NYC*

1:30 pm - 2:30 pm | *Salon 1*
Multifamily Building Resiliency: Applications and Case Studies*

1:30 pm - 2:30 pm | *Salon 2*
Envelope Sealing Breakthrough: Changing the Way*

2:30 pm - 2:45 pm | *Grand Hall*
Break

2:45 pm - 3:45 pm | *Salon 1*
The Lockport Housing Authority Geothermal Conversion*

2:45 pm - 3:45 pm | *Salon 2*
Technology's Role in Getting to Net Zero*

2:45 pm - 3:45 pm | *Hudson AB*
Fostering a Culture of Cooperation within High Performance Building Teams*

3:45 pm - 4:00 pm | *Grand Hall*
Break

4:00 pm - 5:00 pm | *Salon 1*
The IPNA: A New Business Opportunity for Multifamily Service Providers

4:00 pm - 5:00 pm | *Salon 2*
Panelized Construction: ICF and Timber*

4:00 pm - 5:00 pm | *Hudson AB*
Where do Con Edison's Gas Efficiency Programs fit in the age of REV?

5:00 pm - 6:00 pm | *Grand Hall*
Cocktail Hour

6:00 pm - 8:00 pm | *Grand Ballroom*
Dinner

TUESDAY, OCTOBER 24

7:30 am - 8:30 am | *Grand Hall*
Continental Breakfast and Registration

8:30 am - 9:30 am | *Hudson AB*
Multifamily Passive House and the Importance of Controlling Internal Loads*

8:30 am - 9:30 am | *Salon 1*
Multifamily Performance Program Data Deep Dive

8:30 am - 9:30 am | *Salon 2*
Wireless Systems & Sensors – A Game Changer for Multifamily Buildings*

9:30 am - 9:45 am | *Grand Hall*
Break

9:45 am - 10:45 am | *Grand Ballroom*
New Developments in Converting to Air-Source Heat Pumps*

10:45 am - 11:00 am | *Grand Hall*
Break

11:00 am - 12:00 pm | *Salon 1*
Multifamily New Construction: Beyond Modeling - Real Data & Results*

11:00 am - 12:00 pm | *Salon 2*
Repairing and Eliminating Crossover and Controlling Recirculation in Multifamily Central DHW Distribution Systems*

12:00 pm - 1:00 pm | *Grand Ballroom*
Lunch: Summit Wrap-Up and Closing Remarks

1:00 pm - 3:00 pm | *Salon 1*
Air Tightness Requirements of the Passive House Standard*

1:00 pm - 3:00 pm | *Salon 2*
Energize NY PACE, Clean Energy Improvements, and Multifamily Buildings—An Overview and Breakout Discussion Sessions

***BPI and AIA Continuing Education Credits:**
The Summit has been approved for BPI and AIA continuing education credits. Each approved session will have a sign-in sheet located at the front of the room. If you wish to receive BPI CEUs or AIA LUs, you must sign-in on the appropriate sheet prior to the start of the session. Approved sessions are indicated with an asterisk.

SESSION DETAILS

SUNDAY, OCTOBER 22

Registration
4:00 pm - 6:00 pm | *Grand Hall*

Cocktail Reception
6:00 pm - 7:00 pm | *Grand Hall*

Greet old friends and meet new colleagues while enjoying lite fare and a cash bar

MONDAY, OCTOBER 23

Continental Breakfast and Registration
8:00 am - 9:00 am | *Grand Hall*

Opening Remarks & Welcome
9:00 am - 9:15 am | *Grand Ballroom*
Loic Chappoz, NYSERDA

Welcome and Summit Overview

Keynote Address
9:15 am - 10:15 am | *Grand Ballroom*
Alicia Barton, President and CEO, NYSERDA

Break 10:15 am - 10:30 am

Conquering the Challenges of Affordable Multifamily Passive House*

10:30 am - 11:30 am | *Hudson AB*

Gina Buffone, The Association for Energy Affordability, Inc.
Adam Romano, The Association for Energy Affordability, Inc.
Gahl Spanier, The Association for Energy Affordability, Inc.

Awareness and adoption of passive house principles have significantly increased within the development community, especially in the multifamily affordable housing sector. However, scaling up passive house design and construction comes with a unique set of requirements and challenges. This session will provide an in-depth overview of enclosure and mechanical system design considerations, quality control testing methodology, and lessons learned from the construction of the Hellenic American Neighborhood Action Committee's (HANAC) Corona Senior Housing development. Located in Corona, Queens, this new construction, 68-unit, 8-story affordable housing project addresses the affordability and comfort needs of low-income seniors. A healthy indoor environment is also a necessity for the children attending the daycare center located on the ground floor.

Your Super Hero for Energy Savings: How Superintendents and Other Building Operators Play a Key Role in Reducing Energy Use*

10:30 am - 11:30 am | *Salon 1*

Todd Rodgers, Energy Training Solutions

Building operators can make a significant difference in energy and water usage. But, how do these superheroes actually accomplish such conservation feats? Meet a few of the building operators who are making a difference and learn about the strategies that inspire management, operators, and residents to work together. This session will present examples from the field and discuss how building owners and contractors can utilize training opportunities to go beyond traditional ECM installation.

Multifamily New Construction Program at Scale: Lessons from the Field*
10:30 am - 11:30 am | *Salon 2*

Brian Jaffee, TF Cornerstone
Ryan Pastor, Cosentini Associates
Helen Rubinstein, Cosentini Associates

With great building size comes great advantages—both in terms of building energy savings and incentives under the Multifamily New Construction Program. Large projects also offer an opportunity to reduce up-front costs, address schedule concerns, create synergies, and incorporate sustainability principles. Taking lessons from 33 Bond Street, a 714-unit market-rate residential building in Brooklyn, this session will present the means and methods in design, construction, and project management that large buildings can implement to make this program more cost-effective and time-efficient.

Break 11:30 am - 11:45 am

Lunch: Plenary Session
11:45 am - 1:15 pm | *Grand Ballroom*

Break 1:15 pm - 1:30 pm

Cogen in the City: Benefits, Impediments, and Helpful Hints for a CHP System in NYC*
1:30 pm - 2:30 pm | *Hudson AB*

Adam Faber, GEA Consulting Engineers
Davetta Thacher, NYSERDA

Local zoning and utility regulations along with the Department of Buildings can make CHP a complicated process. This session presents the arcane regulation in NYC, including the R-34 relay, black start capability, gas load issues, and more. Issues relevant to high-rise construction will also be addressed, such as spacing, weight loads, and exhaust flue requirements. The session will wrap up by discussing the unique issues presented by NYC's abundance of prewar buildings such as outdated boiler and hot water plants, archaic water distribution zones and setup, nonexistent site drawings, opaque metering setup, and recalcitrant tenants.

Additionally, the NYSERDA Power Generation team will be on hand to provide information regarding incentives and support for CHP installations.

Multifamily Building Resiliency: Applications and Case Studies*
1:30 pm - 2:30 pm | *Salon 1*

Michael Scorrano, EN-POWER GROUP

Many people are still affected by the devastation caused by Superstorm Sandy. Unfortunately, extreme weather events are expected to occur more often due to climate change, and multifamily buildings in coastal states are increasingly vulnerable due to aging building systems. This session will begin with actual examples of Superstorm Sandy's impacts on multifamily buildings and then will shift the focus to current resilient technologies and how to apply them in specific multifamily buildings. In addition, Mr. Scorrano will highlight applications of various resilient technologies by sharing three examples: the installations of an emergency power system at two multifamily residential buildings in Greenwich Village, a cogeneration system at the Luna Park Housing Cooperative in Coney Island and the installation of solar photovoltaic panels at The Fairview, a large-scale multifamily building in Forest Hills.

Envelope Sealing Breakthrough: Changing the Way*
1:30 pm - 2:30 pm | *Salon 2*

Neal Walsh, Aeroseal LLC

The U.S. Department of Energy and the EPA have long identified the building envelope as the single largest factor in determining building performance. Today, ensuring a tight envelope is a labor-intensive, multistage process fraught with opportunities for error and ineffective results. Given these critical implications, researchers at the University of California's Western Cooling Efficiency Center have been working on the development of a game-changing approach to envelope sealing to simplify the process and guarantee effective outcomes. The result is a single-step process that can effectively seal an entire building structure in minutes. This session will provide attendees with one of the first public disclosures of the technology, an in-depth look at the process, and an examination of several NYC-based projects.

Break 2:30 pm - 2:45 pm

The Lockport Housing Authority Geothermal Conversion*
2:45 pm - 3:45 pm | *Salon 1*

John Manning, New York Geothermal Energy Association
Scott Smith, NYSERDA

During 2015, the Lockport Housing Authority converted 72 low-income tenant units from electric heat to geothermal, all while the apartments remained occupied. The geothermal system was designed to cover the entire heating and cooling load, and provide all the domestic hot water without a backup system. The data shows the energy impact of converting a multifamily housing complex to geothermal technologies, and demonstrates that it can be accomplished on an extremely small footprint with minimal disturbance of tenants. This project won the 2017 Top Job Competition of the New York Geothermal Energy Association.

Additionally, the NYSERDA Renewable Heating and Cooling team will be on hand to provide information regarding incentives and support for geothermal installations.

Technology's Role in getting to Net Zero*
2:45 pm - 3:45 pm | *Salon 2*

Ben Locke, Tecogen

In an effort to achieve Net Zero in a passive house design in the commercial, industrial and multifamily residential markets, design engineers and builders are looking at a multitude of products and technologies. This session will give an overview of the approaches that allow load shifting and demand management, as well as time-of-use strategies, to reach these efficiency objectives. As the energy industry shifts from a centralized to distributed generation model, integrating multi-generation sources such as solar, battery, and cogeneration systems is crucial. These systems also have built-in microgrid functionality permitting seamless transfer of multiple units from grid-connected to island mode with no external controls, significantly reducing the cost and complexity.

Fostering a Culture of Cooperation within High Performance Building Teams*

2:45 pm - 3:45 pm | *Hudson AB*

Gwen McLaughlin, TRC Energy Services
Robert Grindrod, CLEAResult
Michelle Tinner, CLEAResult

In the field of high performance building, a lack of communication between those who design details and those who install them can lead to increased costs and performance losses. Integrated Project Delivery (IPD) develops a culture of cooperation, provides transparency, and ultimately eliminates waste and inefficiencies. According to Integrated Project Delivery for Public and Private Owners, IPD is "based on principles of mutual respect, mutual benefit and reward, collaborative decision-making, early

involvement of key project participants, early goal definition and intensified planning, and open communications." This session will explore the methods used to foster collaboration among the members of the design and construction teams.

Break 3:45 pm - 4:00 pm

The IPNA: A New Business Opportunity for Multifamily Service Providers

4:00 pm - 5:00 pm | *Salon 1*

Lindsay Robbins, Natural Resources Defense Council
Ian Shapiro, Taitem Engineering, P.C.

It's common knowledge that the time of recapitalization or acquisition is an ideal time to incorporate efficiency measures into affordable housing, but until now, it has been very challenging to shoehorn an energy audit and improvement plan into the already complicated process of retrofit and refinance. This year, New York State's and New York City's housing agencies have taken a bold step to address that challenge by adopting the Integrated Property Needs Assessment (IPNA) as a requirement for all preservation projects. The IPNA is a unique tool that wraps several disparate assessments into a single, powerful bundle. By combining a traditional property needs assessment with an energy and water efficiency audit, health assessment, and evaluation of solar potential, the IPNA provides owners and lenders alike with the information they need to make informed decisions about the best way to upgrade their properties. Come learn about the new IPNA Tool and Standard, the opportunities it offers you and your projects, and how to become a qualified provider.

Panelized Construction: ICF and Timber*

4:00 pm - 5:00 pm | *Salon 2*

Dick Struthers, Bensonwood
Steve Bluestone, ICF Panels LLC

This in-depth session will center on how to apply panelized building technology in cost-effective and energy efficient capacities. Participants will hear presentations from pioneers in the building industry who are applying panelized construction successfully. Steve Bluestone, a builder, developer and property manager of mixed used residential buildings throughout the NYC metropolitan area, has been a leader in the field of producing high performance structures for decades. Steve's section will focus on how using Insulated Concrete Form (ICF) panels and Helix Micro Rebars have allowed him to meet and exceed Net Zero Energy and Passive House standards at very affordable costs. Dick's section will focus on how a modern approach to timber and panelized construction adds higher levels of design flexibility, precision, and predictability, while significantly condensing the on-site construction schedule, reducing the carbon footprint, and adding warmth and beauty to low to mid-rise multifamily projects.

Where do Con Edison's Gas Efficiency Programs fit in the age of REV?

4:00 pm - 5:00 pm | *Hudson AB*

Philip Madnick, Con Edison

Reforming the Energy Vision (REV) has strategically changed the electricity business for all utilities in New York State. Its greatest impact can currently be seen in the increased aggressiveness of electric efficiency programs which offer incentives and services towards the latest technologies that intend to reduce peak demand on the grid. But what about gas efficiency? In this session we will discuss how Con Edison's Gas Efficiency Programs, particularly in the Multifamily sector, have undergone some dynamic changes over the last few years. This includes strides made in incorporating incentives for new gas technologies as well as in delivering better opportunities for affordable housing. Lastly, we will address Con Edison's exciting gas efficiency growth plans for 2018.

Cocktail Hour

5:00 pm - 6:00 pm | *Grand Hall*

Continue networking while enjoying lite fare.

Dinner

6:00 pm - 8:00 pm | *Grand Ballroom*

TUESDAY, OCTOBER 24

Continental Breakfast and Registration

7:30 am - 8:30 am | *Grand Hall*

Multifamily Passive House and the Importance of Controlling Internal Loads*

8:30 am - 9:30 am | *Hudson AB*

Jordan Dentz, The Levy Partnership
Zoe Kaufman, The Levy Partnership

This presentation will overview the challenges that a multifamily Passive House project faces in New York City, presenting case study information and takeaway knowledge from two existing multifamily projects. The careful management of internal loads to control the space conditioning cooling requirements will be discussed; outlining the critical impact of appliance selection, elevator function, interior bi-level lighting, DHW pipe runs, and natural nighttime ventilation. Selection of enclosure type, window performance, and equipment such as ERV, DHW, and domestic appliances will be overviewed to present a successful 'formula' for the New York City context. Drawings, site photography, a WUFI Passive Energy model, a PHPP energy model, and anecdotal discussions with project stakeholders will be used as the basis of the presentation material.

Multifamily Performance Program Data Deep Dive
8:30 am - 9:30 am | *Salon 1*

Tim Allen, Taitem Engineering, P.C.
Betsy Parrington, Taitem Engineering, P.C.

Learn how the Multifamily Performance Program is performing overall. This session will discuss the quality control and quality assurance processes that watch over the program to ensure savings are achieved. Review common problems found during the QC/QA process and the methods in place to help avoid those issues. The bright spots will be highlighted as well to glean lessons for projects considering the MPP High-Performance Component. Program-wide results will be covered; specifically, the results of years of post-construction utility data to show how savings do or do not persist after construction.

Wireless Systems & Sensors – A Game Changer for Multifamily Buildings*
8:30 am - 9:30 am | *Salon 2*

David Gordon, Green Building Partners, LLC

While wireless controls for systems have been around for quite some time, other energy savings applications have recently become more developed and cost effective. This is a game changer for the multifamily housing segment where conventional building automation systems have not been practical or affordable. Prime applications for wireless energy management include HVAC controls and energy data collection (e.g., submetering). Along with security, robustness, network compatibility, maintenance, and reliability, learn about the factors that contribute to wireless controls being the next big thing.

Break 9:30 am - 9:45 am

Air-Source Heat Pumps: New Findings*
9:45 am - 10:45 am | *Grand Ballroom*

Ian Shapiro, Taitem Engineering, P.C.

There has been recent discussion surrounding air-source heat pumps (ASHPs), from small mini-splits to multi-splits and larger VRF systems as replacements for inefficient heating systems. What are some early findings in real-life experience with these conversions? What are actual costs? What is the savings potential, and are these savings being delivered? What are pros and cons? Participate in the discussion about this emerging energy-saving strategy, which will cover the following topics:

- Converting steam to ASHP
- Converting electric resistance to ASHP
- Latest findings in steam to ASHP conversion
- Latest findings in electric to ASHP conversion
- Differences between VRF and smaller ASHPs
- Results of a survey of actual ASHP efficiency (literature survey, and field results)
- Results of the survey about how much steam is used in multifamily buildings in NYS
- How ASHPs are being used for multifamily deep energy retrofits in the Netherlands.

Break 10:45 am - 11:00 am

Resilience in Building Materials, Assemblies and Systems for Multifamily Projects*
11:00 am - 12:00 pm | *Salon 1*

Ryan Merkin, Steven Winter Associates, Inc.

Steven Winter Associates, Inc. recently completed a study comparing energy usage data in newly constructed multifamily buildings. This study takes an in-depth look at a subset of completed and occupied multifamily buildings. The results of costs to run the different subset types of buildings provided interesting insights. Do ENERGY STAR® buildings perform better than conventional new construction? What can we expect with the strengthening of building and energy codes? How much further can a standard such as passive house take us?

On a more granular level we will compare and contrast the design characteristics (envelope, HVAC, renewables) in an attempt to answer such questions as what are the most important factors driving electricity and fuel consumption in newly constructed multifamily buildings as well as what design decisions are perhaps of less importance.

The data presented will serve as an invaluable resource to the development community and program administrators alike.

Repairing and Eliminating Crossover and Controlling Recirculation in Multifamily Central DHW Distribution System*
11:00 am - 12:00 pm | *Salon 2*

Gabriel Ayala, Enovative Group, Inc.
Jordan Dentz, The Levy Partnership, Inc.

Crossover between hot and cold lines in a DHW distribution system can result from a faulty fixture mixing valve, or an uncontrolled open circuit where cold water and hot water pipes join to mix, and a pressure imbalance between the hot and cold water subsystems. Buildings with crossover may experience compromised hot water service with tenants complaining of fluctuating or inconsistent water temperature at the tap. However, in many cases the effects may not be readily felt by the user, and therefore it will not receive proper attention or repair, and thus persist over a long period of time. We will present the results of a CEC-funded study of over 100 multifamily buildings throughout California where over 50% tested positive for crossover. Analysis on a sample of these buildings showed that repairing the crossover reduced water heating energy consumption by an average of 16%. We will discuss the frequency, causes, energy impact and solutions for crossover in multifamily buildings.

Another way to reduce waste in multifamily DHW systems is by implementing demand controls on the DHW recirculation pump. Typical recirculation systems operate the majority of the time, even if they use temperature or timer controls. By doing so, hot water return lines radiate heat continuously, requiring the boiler to run more frequently to replace that heat as water moves throughout the building. Demand controls reduce much of this waste by limiting recirculation time by 90% or more. We will discuss the results of a NYSERDA emerging technologies program that is installing demand controls in 40 New York buildings. Energy savings, and tenant and super feedback will be presented for approximately 25 buildings. We will also cover the control algorithm, when buildings are suitable for demand controls and important installation tips.

Lunch: Summit Wrap-Up and Closing Remarks

12:00 pm - 1:00 pm | *Grand Ballroom*

Loic Chappoz, NYSERDA

Air Tightness Requirements of the Passive House Standard*

1:00 pm - 3:00 pm | *Salon 1*

Lois Arena, Steven Winter Associates, Inc.
Michael O'Donnell, Steven Winter Associates, Inc.

The Passive House (PH) building standard is the most stringent energy efficiency standard in the world. It is quickly being identified as one path to achieving the carbon reduction goals set forth by New York's governor and NYC's mayor. Several affordable housing authorities in the U.S., including New York State Homes and Community Renewal, are currently including it or are preparing to include it as one of the sustainability options in their applications for funding. Achieving the stringent air tightness requirements of the PH standard requires careful coordination through all phases of design development and construction. In this training, the team will take you through the steps and tools necessary to meet these strict requirements. They will share successes and failures and make recommendations to help the audience reach these targets. The training will describe the necessity for integrated design, air barrier documents, and inspections and testing tools and protocols.

Energize NY PACE, Clean Energy Improvements, and Multifamily Buildings—An Overview and Breakout Discussion Sessions

1:00 pm - 3:00 pm | *Salon 2*

— CHP, multifamily, and PACE

— Community solar in multifamily buildings funded by PACE

— New NYSERDA commercial PACE Guidelines—How to become a PACE project approver

SESSION SPEAKERS

Tim Allen, CMVP
Taitem Engineering, PC, Senior Energy Analyst

Tim is an Association of Energy Engineers CMVP, and has over fifteen years of experience performing energy audits on commercial, institutional, and multifamily buildings. He developed and implements the Energy Use Snapshot for NYSERDA's Multifamily Performance Program, and helped to establish simulation guidelines and M&V procedures for various NYSERDA incentive programs.

Lois Arena, PE
Steven Winter Associates, Inc., Director, Passive House Services

Lois Arena possesses over 20 years of experience in the building science field and has extensive experience with new and existing buildings Lois holds both US and international Passive House (PH) consultant certifications and is currently consulting on projects ranging from single family homes to high rise apartment buildings. She has co-authored and presented training programs about energy efficient building practices to professionals in all sectors of the building industry and is regularly invited to present at national conferences and private firms on topics ranging from moisture control in buildings to road blocks to PH adoption.

Gabriel Ayala
Enovative Group, Inc., Co-founder and Chief Business Development Officer

Enovative Group, Inc., is a company dedicated to helping reduce water and energy waste in buildings and focused on improving hot water systems. EGI has spent the past decade developing and manufacturing demand controls for optimizing hot water distribution in residential and commercial plumbing, in addition to conducting hot water research for the California Energy Commission. EGI works with plumbing engineers in designing high performance plumbing in new construction, as well as with efficiency programs that retrofit existing buildings.

Alicia Barton
NYSERDA, President and Chief Executive Officer

Alicia Barton was appointed president and CEO of the New York State Energy Research and Development Authority (NYSERDA) on June 26, 2017.

Ms. Barton has held public and private sector leadership roles advancing clean energy projects and companies for over a decade. Prior to her appointment, Ms. Barton served as co-chair of the Energy and Cleantech Practice at Foley Hoag, LLP, where her practice focused on representation of clean energy companies in emerging market areas such as offshore wind and energy storage. Ms. Barton's other private sector work included serving as chief of operations of the Global Utility business unit at SunEdison where she led teams working on utility-scale wind and solar projects.

Prior to her work in the private sector, Ms. Barton served as CEO of the Massachusetts Clean Energy Center (MassCEC), a publicly supported agency that funds and accelerates the development of the clean energy sector. As CEO, Ms. Barton led all of MassCEC's investments, project finance, partnerships, and commercial operations across a range of clean energy technologies, and helped make the state a national leader in energy efficiency, renewable energy, and deployment of clean technologies.

Previously, Ms. Barton was the deputy commissioner for Policy and Planning for the Massachusetts Department of Environmental Protection (MassDEP); assistant secretary for Environmental Review and director of the Massachusetts Environmental Policy Act (MEPA) office; and deputy general counsel at the Executive Office of Energy and Environmental Affairs (EEA).

Ms. Barton currently serves on boards of several organizations, including Greentown Labs, the Environmental League of Massachusetts, Efficiency Forward, and the Advisory Board for the New England Women in Energy and Environment (NEWIEE).

Ms. Barton earned a bachelor's degree in natural resources from Ohio State University and a juris doctor degree from Boston College Law School.

Steve Bluestone
The Bluestone Organization, ex-active partner; current and Helix Rebar LLC, current co-owner of ICF Panels LLC and Passive Dwellings LLC, Owner

Steve has built 105 Passive House dwellings within 5 buildings, with several hundred more under construction and/or in his pipeline. His firm ICF Panels is producing strong, resilient, fire/water proof Passive House level envelope walls for buildings from single story to 25 or more stories tall at record low costs.

Gina Buffone, MFBA CPHT LEED AP Homes
Association for Energy Affordability, Inc., Director of New Construction

Gina works closely with design and construction teams to promote and ensure green building practices of sustainable projects. Gina has over 20 years of experience in architectural design, project management, and construction management, for commercial, residential, and historic restoration projects. She specializes in sustainability in affordable housing.

Loic Chappoz
NYSERDA, Multifamily Team Lead

Loic Chappoz leads the Multifamily team for the New York State Energy Research and Development Authority (NYSERDA). Prior to his work with NYSERDA, Loic worked as an independent consultant on energy efficiency policies in France, as a fuel efficiency specialist in the airline industry, and as a commercial pilot for ten years. Loic received a Master of International Affairs in Energy and Environmental Policy from the Sciences Po Paris School of International Affairs, and was a visiting student at Columbia University in New York City.

Jordan Dentz
The Levy Partnership, Inc., Vice President

Jordan has more than 20 years of experience as a consultant and technical advisor to the building industry, including architects, developers, contractors, builders, and building materials manufacturers and suppliers. His work has focused in the area of building energy efficiency, passive house design, electric demand response, and residential systems building including factory built housing. In his capacity at The Levy Partnership, Jordan is senior project manager for the ARIES Collaborative, one of the research teams working for the U.S. Department of Energy's Building America program; and for the Systems Building Research Alliance, the research arm of the modular and manufactured home industry.

Adam Farber, LEED AP BD+C, CBCP
GEA, PLLC Consulting Engineers, Director of Sustainable Services

Adam is the Director of Sustainable Services at GEA, a full-service MEP firm in New York. He is responsible for all energy-related issues, including energy models, LEED certification, commissioning and site inspections, and alternative energy systems, including CHP. GEA has designed CHP in various NYC buildings, including

commercial and residential. GEA also performs feasibility studies to determine the financial viability of a CBP system. Prior to GEA, Adam had extensive experience in sustainability and renewable energy.

David W. Gordon, LEED GA

Green Building Partners, LLC, President

David has over 20 years of experience in the building industry with a focus on HVAC system improvements. Pioneering early stage technologies, he has managed over 2,500 projects, working with owners, subcontractors, utilities, and engineering firms to assure optimized HVAC performance and/or indoor air quality compliance. More recent projects have resulted in deep energy savings through the application of sensors and graphic interfaces that report measurements and verifications of real time energy consumption. David is a graduate of the school of business administration at the University of Vermont, and is a LEED Green Building Associate.

Robert Grindrod

CLEAResult, Building Science Consultant

Robert started his career insulating homes in the mid-70's and over the years evolved to be engaged with many aspects of building energy use, health and safety, and water conservation. He joined CLEAResult in 2006 as a Technical Field Rep in the NYSERDA Home Performance with Energy Star Program and helped lead CLEAResult's work in NYSERDA's Multifamily Building Performance Program (MPP). He is a HERS Rater, Certified Energy Manager (AEE), PHIUS Certified Consultant, and BPI certified Multifamily Analyst. Grindrod is currently providing technical support for NYSERDA's Low Rise New Construction Program (LR NCP).

Brian Jaffee

TF Cornerstone, Construction Manager

Brian earned his Bachelors and Master's degrees in Civil Engineering from The Cooper Union. He has over 19 years of experience working on NYC high rise residential construction projects, including 12 years working on construction management with Tishman and Bovis Lend Lease, and eight years acting as both owner and construction manager in his current role with TF Cornerstone. TF Cornerstone develops, constructs and manages multiple large scale developments across New York City. Notable projects include 33 Bond Street, QW Building 1, the MIMA, The Lucida, The Orion, and Riverside Building E.

Zoe Kaufman
The Levy Partnership, Inc., Project Manager

Zoe consults on energy-efficiency projects at The Levy Partnership, including single-family and multi-family Passive House buildings. These projects range from affordable housing developments to luxury homes throughout the Northeast. Zoe is also involved in energy-efficiency research in the manufactured-housing industry with the Systems Building Research Alliance, as well as building-technologies and envelope-efficiency research with the U.S. Department of Energy's Building America program, as part of the ARIES Collaborative.

Benjamin M. Locke
Tecogen, Co-Chief Executive Officer

Benjamin was named Co-Chief Executive Officer in October, 2014. He joined Tecogen in June, 2013 as the Director of Corporate Strategy and was promoted to General Manager prior to his appointment as Co-CEO. Previously, he was the Director of Business Development and Government Affairs at Metabolix, responsible for developing and executing plans for partnerships, joint ventures, acquisitions, and other strategic arrangements for commercializing profitable clean energy technologies. Prior to joining Metabolix in 2001, he was Vice President of Research at Innovative Imaging Systems (IISI), a high-technology R&D company. At IISI, Benjamin drove the development and implementation of growth strategies for the funding of specialty electronic systems for the United States Government.

Philip Madnick
Con Edison, Manager, Gas DSM Programs

Phil Madnick is the manager of Consolidated Edison's Targeted Gas DSM Programs. These programs cover a portfolio of gas energy efficiency programs for both residential and commercial customers as well as several new peak demand initiatives currently under development. Phil has 10 years of experience in the energy efficiency industry. Phil joined Con Edison in 2010 and served as the manager for the Multifamily Energy Efficiency Programs before moving on to Gas TDSM.

John D. Manning, PE
NY-GEO, Founding Member

Since obtaining a Research Grant from the National Science Foundation in 1975 John has engaged in every aspect of heat pump design, marketing, application and system design. As founder of Earth Sensitive Solutions, LLC he has contributed to the successful application of geothermal

heat pump technology from Port Augusta, Australia to Auburn, NY. Currently, he supports hundreds of geothermal contractors through Phoenix Energy Supply and Earth Sensitive Solutions. John is also a trained presenter and supporter of The Climate Reality Project.

Gwen McLaughlin
TRC Energy Services, Pipeline Manager

Gwen is the Pipeline Manager for NYSERDA's Multifamily New Construction Program (MF NCP). MF NCP supports developers serving multifamily high-rise new construction and gut rehabilitation projects in New York State. The program offers technical support and guidance to project teams aiming to achieve higher levels of energy performance and health and safety from planning through construction. Gwen brings over a decade of experience in program management, field investigation, and green building consulting to her role in MF NCP. Her responsibilities include program development, quality assurance, and coordination with NYSERDA, program applicants, and technical consultants. She is a PHIUS+ Verifier.

Ryan Merkin
Steven Winter Associates, Inc., Senior Vice President and Director of Multifamily Energy Services

Ryan first became interested in high performance buildings while completing his graduate work on the urban heat island effect at MIT, where he received his Master of Science in Earth, Atmospheric and Planetary Sciences. Ryan's experience includes new construction design consulting, multifamily building retrofits, building simulation modeling, solar design, and portfolio utility analysis. He has performed energy efficiency and code trainings for audiences ranging from architects and engineers to superintendents of affordable multifamily buildings. Ryan is active in the New York metropolitan area high performance building community as board member of Association of Energy Engineers New York Chapter.

Michael O'Donnell, CEM, BPI MFBA
Steven Winter Associates, Inc., Senior Energy Consultant

Michael performs plan reviews, progress site inspections, and performance testing for new construction residential and multifamily projects in the New York City region. Project types include Passive House, ENERGY STAR Multifamily High Rise, NYSERDA Multifamily Performance Program, NYSERDA Multifamily New Construction Program, Enterprise Green Communities, and NYC Energy Code TR8 Inspections. Previously, Michael worked with the Home Performance with ENERGY STAR program for single family homes. Building science principles and performance testing methods for small residential projects have been a great foundation for the current work with multifamily buildings.

Betsy Parrington, PE, MFBA
Taitem Engineering, PC, Senior Energy Engineer

Betsy has worked in the multifamily energy efficiency field for almost 15 years, including performing energy audits and managing implementation projects. For the past seven years, she has worked for Taitem's Quality Assurance team providing data analysis, project review, and technical consulting for NYSERDA's Multifamily Performance Program.

Ryan Pastor, PE, LEED AP BD+C
Cosentini Associates, Professional Mechanical Engineer

Ryan Pastor is a Professional Mechanical Engineer with Cosentini Associates, a subsidy of Tetra Tech, Inc. Ryan holds both a B.S and an M.S. in Mechanical Engineering from Villanova University. He has been with Cosentini Associates for over four years and has worked on a number of large scale multi-unit residential, commercial and mixed-use projects in New York City. Ryan's prior experience includes design and testing of aircraft support equipment at Navair.

Lindsay Robbins
National Resources Defense Council, Senior Advocate, Urban Solutions

Lindsay focuses on the Energy Efficiency for All Project, a partnership among NRDC, the National Housing Trust, the Energy Foundation, and Elevate Energy that aims to increase energy efficiency in affordable multifamily housing communities. Prior to joining NRDC, she worked at NYSERDA, where she managed multifamily energy efficiency initiatives as well as a sustainability planning and implementation program. Lindsay has also led energy assistance programs for the state of Maryland and worked for New York University's Office of Strategic Assessment, Planning & Design.

Todd Rogers, CEM
Energy Training Solutions, Founder

For over twenty years, Todd has been designing innovative energy education programming. He led development of a nationally-recognized home performance training program and implemented behavioral programming at over 30 housing authorities, nationwide. He provides services for the Urban Green Council, Sustainable South Bronx, and 32BJ SEIU. In 2002 he founded Energy Training Solutions, a national leader in training and behavioral energy management.

Adam Romano C.E.M. CPHC CPHT
Association for Energy Affordability, Inc. (AEA), Director of Training Operations

Adam is responsible for AEA's full training operations and is the instructor for multiple energy efficiency courses, including PHI CPHT, BPI MFBA, ASHRAE 62.2 ventilation etc. Adam supported the HANAC Corona project with technical advice and industry outreach, as well as project tailored contractor training.

Helen Rubinstein, LEED AP BD+C
Cosentini Associates, Senior Project Manager of Sustainable Services

Helen is currently a Senior Project Manager of Sustainable Services at Cosentini Associates, an MEP Engineering Firm, which is a subsidy of Tetra Tech, Inc. Helen has more than 12 years of experience in architecture and sustainability consulting and holds a B.S. in Design and Environmental Analysis from Cornell University and a M.S. in Environmental Management Systems from Pratt Institute. In her current role, Helen facilitates green building certifications, incentive programs and general sustainability objectives. Helen has overseen and consulted on a wide range of projects, including residential, commercial, institutional and industrial, and both interior fit outs and new construction.

Michael Scorrano, PE, CEM, CBCP
EN-POWER GROUP, Managing Director

Michael has over 25 years of experience developing and installing mechanical systems for residential, commercial, and industrial clients. Prior to founding EN-POWER GROUP, he worked as an application engineer and a business development director. Michael holds a M.B.A. in Finance from Pace University and a B.S. in Mechanical Engineering from UCF.

Ian Shapiro, PE
Taitem Engineering, PC, Senior Engineer

Ian started Taitem Engineering (Ithaca, NY) in 1989 and he is the co-author of the book Green Building Illustrated (Wiley, 2014) and author of the recent book Energy Audits and Improvements in Commercial Buildings (Wiley, 2016). He holds an undergraduate degree from McGill University, and an M.S. from Columbia University, both in mechanical engineering. Ian is a licensed engineer in three states. He writes the blog Building Evidence at *buildingevidence.wordpress.com*.

Scott Smith
NYSERDA, Program Manager

Scott Smith is a member of NYSERDA's Renewable Heating and Cooling team. With his colleague, Andre Davis, Scott launched NYSERDA's ground source heat pump rebate program. Scott is currently designing the Clean Heating and Cooling Communities initiative to accelerate the adoption of clean heating and cooling technology through local, grass-roots campaigns. He has a Bachelor's degree in Chemical Engineering from Worcester Polytechnic Institute and a Master's Degree in Chemical Engineering from the University of Oklahoma.

Gahl Sorkin Spanier, CPHC CPHT LEED AP BD+C
Association for Energy Affordability, Inc., Business and Market Analyst

Gahl is the project manager for the HANAC Corona Passive House Project. He works with the design team and owner to assure the project achieves its Passive House and other sustainability goals. Gahl is a Certified Passive House consultant and tradesperson a LEED AP and holds degrees in architecture and business.

Dick Struthers
Bensonwood, Senior Project Development Lead

Dick Struthers is Senior Project Development Lead for Bensonwood, a premier design|engineering|build firm specializing in wood based high performance homes, and institutional and commercial buildings. Bensonwood has been developing and implementing off-site fabricated/on-site assembled construction solutions since 1974 across North America, and internationally.

Davetta Thacher
NYSERDA, Senior Project Manager, On-Site Power Production

Davetta helped develop, design, and manage a wide variety of energy-related initiatives, including the Combined Heat and Power (CHP) Program which provides technical and financial support for the installation of CHP systems. Prior to joining NYSERDA, Davetta held various engineering positions within the R&D and manufacturing divisions at General Electric, Teradyne and United Technologies. Davetta has BS and MS degrees in Mechanical Engineering and an MBA, all from Rensselaer Polytechnic Institute.

Michelle Tinner
CLEAResult, Operations Manager, NYSERDA Low-Rice Residential New Construction Program

Michelle is the Operations Manager for the NYSERDA Low-Rise Residential New Construction Program implementation team at CLEAResult. Prior to CLEAResult, Michelle founded the BPI accredited company MBT Design in 2009, embracing a building science whole systems approach toward work as a home performance contractor. Michelle joined CLEAResult in 2015 after completing her MS in Sustainable Construction Management at SUNY ESF. She is a HERS Rater, Certified Passive House Consultant, BPI Building Analyst; Envelope; Heating; and A/C Heat Pump Professional. Michelle and her team provide program development and technical support to NYSERDA as well as education, outreach and coordination with and for program partners and industry professionals.

Neal Walsh
Aeroseal LLC, Senior Vice President of Strategy for Commercial Applications

Neal has more than fifteen years of experience within the building performance industry, extensive knowledge of HVAC systems, air distribution, building ventilation, indoor air quality and energy efficiency as they apply to both the commercial and residential space. He has been a key speaker at numerous industry events, both domestically and abroad on various topics related to building performance and technological innovations that are transforming the industry. Neal holds a B.S. in Mechanical Engineering from Oregon State University and a MBA from Yale School of Management. He has also held executive-level positions at Airefco Inc. and Carrier Corporation.

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