

SUNY/PPAA & NYAPPA 2019 Summer Conference

The Lessons We Are Learning

STEPHEN D. CURRO, PE
MANAGING DIRECTOR, CONSTRUCTION

Agenda

- DASNY current affairs
- ZNE and our reference projects
- SUNY Poly (Utica)
- SUNY Oneonta Ford Hall
- Process and soft skills
- Technological challenges
- Iterative learning
- Key reflections
- How DASNY can help



DASNY Current Affairs

- ✓ Thirty-four 2019 SUNY summer projects at \$61 million
- ✓ Four 2019 capital projects at Albany, Alfred, Buffalo State, and Plattsburgh
- ✓ Three 2020 capital project starts in May 2019 at Oneonta, Plattsburgh, and SUNY Poly (Utica)
- ✓ Two 2020 capital project starts in December 2019 at Cortland and Oswego
- ✓ New SUNY projects report by campus
- ✓ Project management system implementation

DASNY Current Affairs

- ✓ DASNY Staffing Adjustments
- ✓ OneDASNY – CD Initiatives
- ✓ Construction Industry Observations (market conditions, bidding environment, project estimates, public versus private, labor market)
- ✓ 2019 – 20 Legislative Impacts to Delivery
- ✓ Completed SUNY Brockport DB Eagle Hall project, delivery method usage spreading: SUNY Poly (new build), Oneonta (rehab of Ford Hall)
- ✓ SUNY Chancellor’s January 2018 Directive taking shape

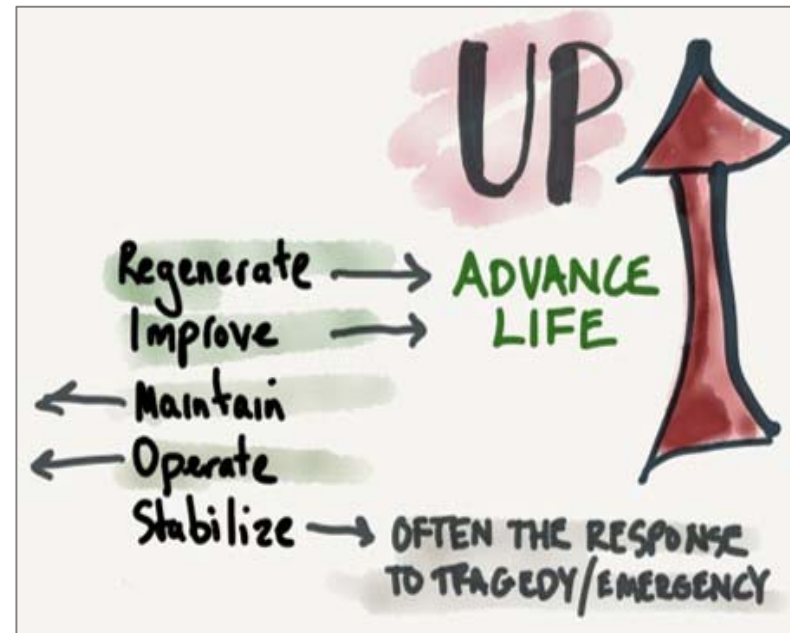
Chancellor's Message – Jan. 22, 2018

“It is my pleasure to announce today that SUNY plans to source 100 percent of its electricity from zero-net-carbon sources, including renewables and energy storage, as soon as possible.”

“Furthermore, and starting immediately, all new SUNY buildings will be designed to achieve zero-net-carbon emissions. And in our existing buildings, which are on average, 47 years old, we intend to invest in deep-energy retrofits and energy efficiency while performing critical maintenance.”

The Chancellor's message requires a transformational shift

- It is pushing us all to look past what we are currently capable of doing, to learn new skills and new ways of thinking
- It is encouraging us to focus on what we can achieve, together



What are we working toward?

Zero Net Energy (ZNE) – A highly-energy-efficient building that uses no more energy in a year than it produces on-site from renewable energy systems

Zero Net Carbon (ZNC) – A highly-energy-efficient building that eliminates the use of on-site, fossil fuel and purchases renewable energy from off-site to supply the needed electricity

What are we working toward?

What does it mean when you add “ready” to Zero Net Energy and Zero Net Carbon?

The project has set and achieved an ultra-low energy use intensity (EUI) target, but has not yet:

1. Installed the renewable-energy-production system(s) on-site (ZNE-ready); or
2. Contracted for the purchase of the necessary off-site renewable energy production (ZNC-ready)



Reference project

SUNY Polytechnic Institute
New residence hall

- \$33.2 million
- 77,000 sf; 257 beds
- EUI goal of 27 kBtu/SF/year
- Design-build



Reference project

SUNY Oneonta

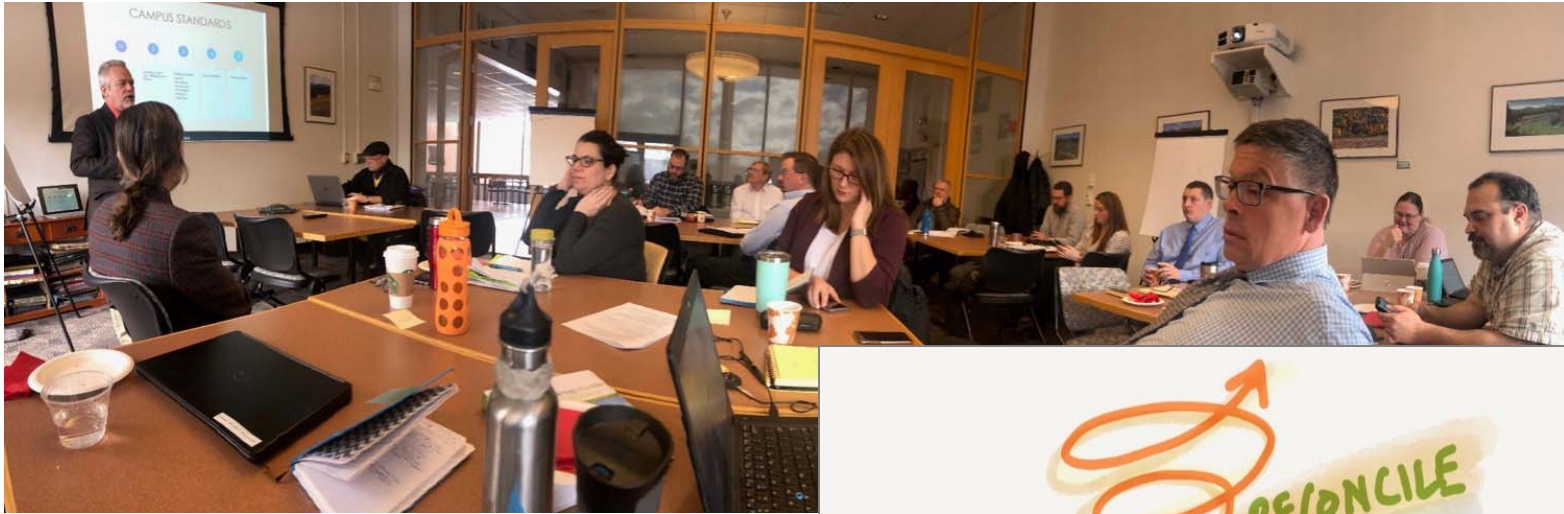
Ford Hall renovation and ZNC-retrofit

- \$27 million
- 55,000 existing + 6,000 sf; 300 beds
- EUI goal of 32 kBTU/SF/year
- Design-build

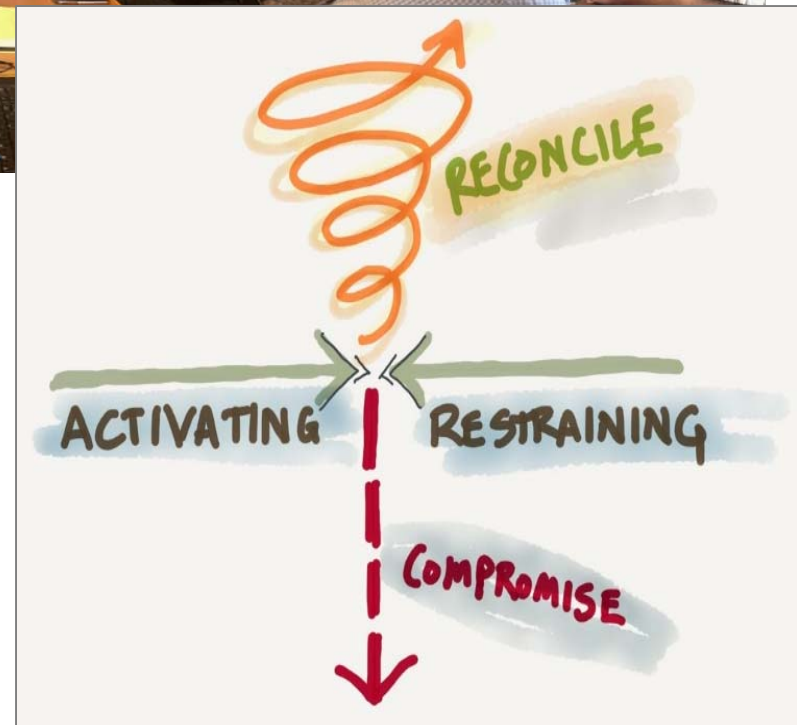
What's really different here?

- Owner team – Campus, DASNY, NYSERDA, SUNY
- ZNE and specific energy goals
- New terms – EUI, ZNE, ZNC, POE, M+V, BECx, energy modeling cycles
- New systems – VRFs (SP), geothermal (SP), separation from central steam, window operation connection to BMS (SP), potential panelized approach, non-traditional building materials (Ford Hall – waiting on proposals...)
- Design-build for renovation work
- Stretch of capabilities (both design and construction)
- A need to address user engagement
- Market-shift goals and replicability goals
- Project cost impact

Process and soft skills

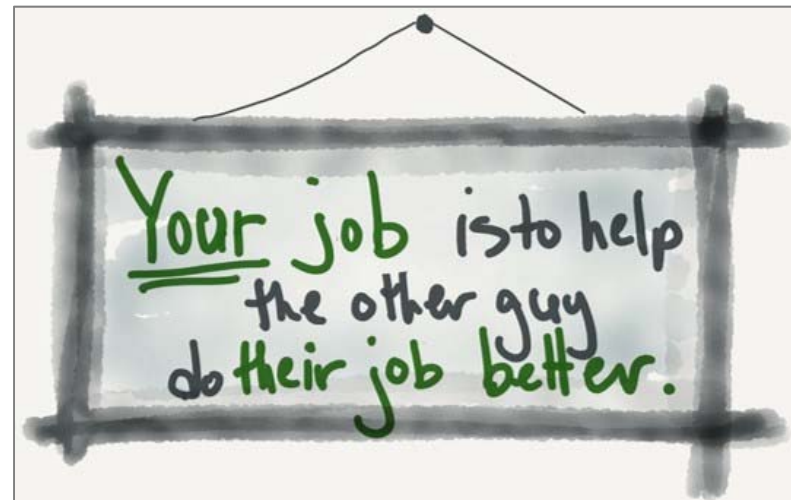


- Integrative process
- Front-loading pre-SD and SD
- The language of ultra-low energy
- Working well within public procurement framework
- Managing change and perceived and actual risk



Make “building” a verb

- We need to **build our teams** to discover more about the project, earlier
- Then we can **create solutions that work** for all constraints (cost, schedule, existing building structure, use patterns, student culture, student health and learning needs, durability, zero fossil fuel use, etc.)
- “What we are learning” becomes a constant, iterative, open, informed, and **improving effort**

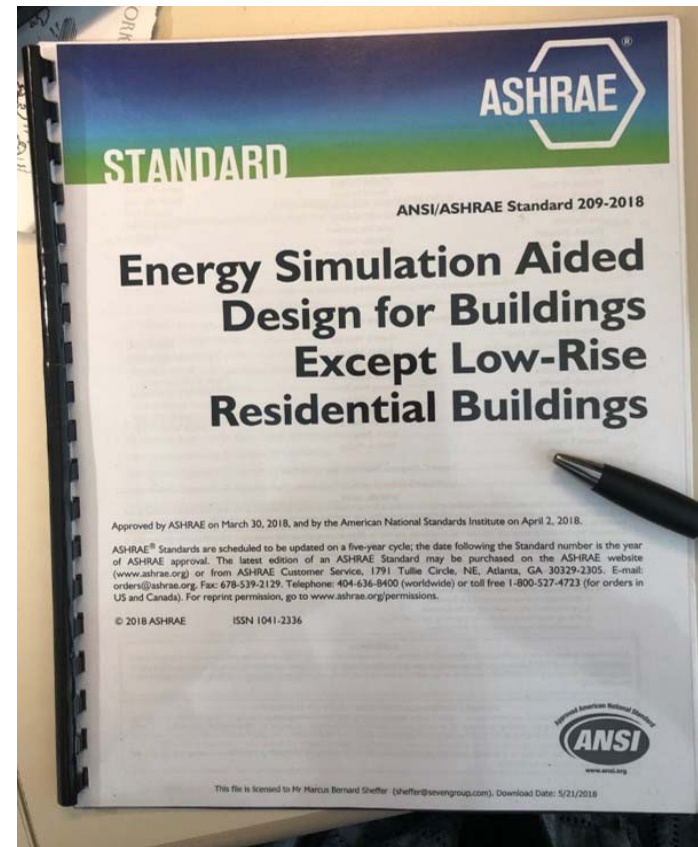


Design-build supports the requisite innovations

- Contractor knowledge / market information feeds design
- **Clear performance goals**, along with a process to assess the achievement and to capture lessons to inform future work
- Manage risk through a more rigorous bridging document process
 - Define the must-haves and the absolute no-go items
 - Develop the baseline energy model (plug load definitions, etc.) for all proposing teams to use in their submission

Technological challenges

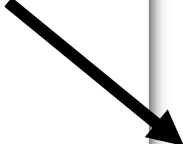
- Setting the EUI / plug loads (users of our projects)
- What is the right energy system?
- How energy modeling must change
- Focus on the envelope
- Campus plans for energy / central plants
- Beware of what you think you already know



Iterative learning and our future work

- Post-occupancy evaluations (POE)
- Commissioning (Cx) and building envelope (BECx)
- Measurement and verification (M+V)
- White papers, webinars, and lessons learned and other's experiences

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Transform the Way Buildings Are Renovated

Retrofit projects yielding 50%-70% energy use reduction.

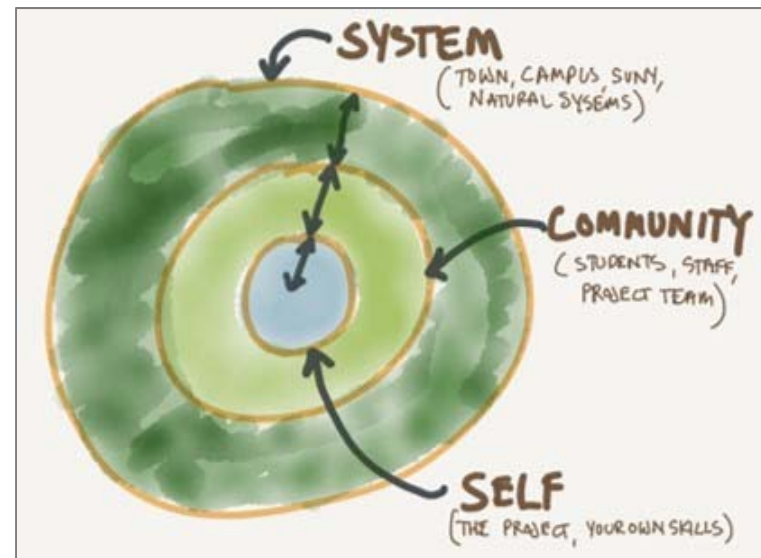
It is imperative to update the building envelope and the energy systems, together.



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Key reflections (so far...)

- One size doesn't fit all and there is no magic bullet
- Consider the context (nested systems)
 - Each project is part of several nested systems
 - An improved project improves the capacity of the systems around it (e.g., the campus, DASNY, New York State, student learning, the resources and skills available in the market)
- Those systems, in turn, can then better support the project
- All players on the team are on a learning curve
- Goal setting / bridging docs
- Project financials
- **Teamwork over technology**



How DASNY can help

- **Delivery methods** – construction expertise brought forward
- **ESCO services** – to assist with existing buildings
- **Term consultants** – for energy master planning, EPC, JOCs, etc.
- **DASNY expertise / knowledge**
 - Your campuses / facilities
 - Decades of support of your campuses
 - ZNE and ZNC projects
 - Integrative process skills
 - Interagency efforts



Questions?



To be continued . . .

The screenshot shows a Zoom meeting interface. At the top, the meeting title is "Talking: John Boecker". The toolbar includes "Everyone", "Webcams", "Zoom: 65%", "Screenshot", and "Use two screens". The video grid shows seven participants: Go2mtg Truarchs, Edwards, Christine, John Boecker, Jodi Smits Anderson, Lachlan squair, Marcus Sheffer, and tyler. Below the grid, an Excel spreadsheet is shared. The spreadsheet has columns for months from January to October and rows for tasks. A task "Selected Contractors Proposal Prep" is highlighted with a duration of 11 weeks, spanning from January to May. A tooltip for this task indicates "12 weeks between 4/24 and 7/15". Other tasks include "Deadline for RFP Questions", "Post Responses to RFP Questions", and "Conduct Selection Committee Kick-off mtg".

Phase	Task	Weeks	January -19	February	March	April	May	June	July	August	September	October
1			1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
36	Selected Contractors Proposal Prep	11										
37		0										
38	Deadline for RFP Questions	1										
39	Post Responses to RFP Questions	1										
40	Conduct Selection Committee Kick-off mtg	0										
41	RFP Responses Due											

