

The Integrative Approach to Pursuing Net Zero Facilities

Moderator: Kelly Olson, P.E., LEED AP, MilCon, ODASD
(Infrastructure Modernization and Resilience)

Speakers:

- Adolfo Salas, Director of High-Performance Facilities Consulting, Merrick & Company
- Robert Tirocchi, Project Executive, Harkins Builders
- Shanti Pless, Senior Building Energy Researcher, National Renewable Energy Laboratory

May 14, 2024, 3:00 p.m.



MODERATOR



Kelly Olson, P.E., LEEP AP
Associate Director, MilCon
ODASD (Infrastructure Modernization and Resilience)

Fun Facts

- I recently moved to Raleigh, NC and bought my first house
- I ran the Boston Marathon last month (my 6th marathon)
- I love karaoke
- I once biked down the World's Most Dangerous Road in Bolivia

MAY 14-16, 2024
ORLANDO, FL

OPERATION:
COLLABORATION

SAME SAMEJETC.ORG



 **conferences i/o**



or browse to
jetc.cnf.io

This is an interactive session.
To participate, use your mobile device:
jetc.cnf.io
Or scan the QR Code

- Find the session.
- The presenter will unlock the poll(s) during the presentation.
- Please complete a brief Evaluation Survey at the end of the session.

MAY 14-16, 2024
ORLANDO, FL

OPERATION:
COLLABORATION

SAME SAMEJETC.ORG

HOUSEKEEPING ITEMS

Take Note of Exits

Silence Your Mobile Devices

Presentations and Audio Recordings will be available in the Attendee Service Center until August 30, 2024

Download your PDH record in the Attendee Service Center before August 30, 2024

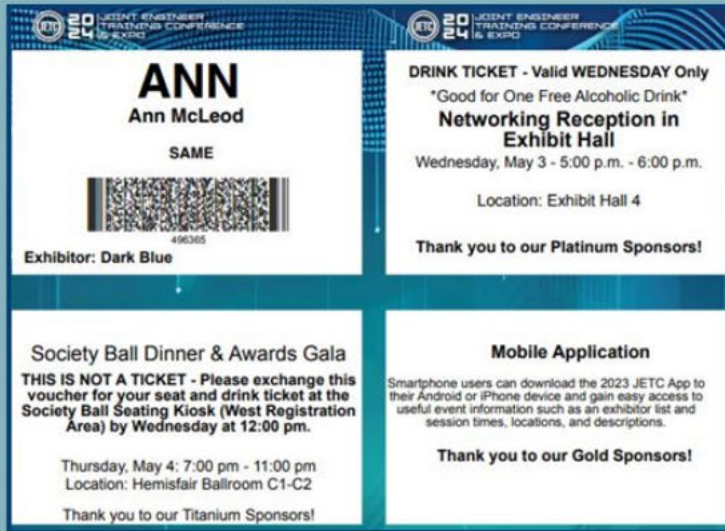


Thank You to our Education Session Sponsors



Opening Reception at Universal CityWalk

(Minimum age 18 - No Children)



Bring Your Name Badge
with Drink Tickets)
+ Your ID



Get Your Wrist Band
TODAY at the
Registration Help Desk
or SAME Booth



Buses depart Gaylord
& Caribe Royale,
beginning at 6:00 p.m.



Live Content Slide

Poll: When does the federal government plan to achieve 100% Net-Zero emissions across the federal portfolio of buildings, campuses, and installations?

Top Priorities



2024

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



[@PSAMENATIONAL](https://www.facebook.com/PSAMENATIONAL)



[@PSAME_NATIONAL](https://twitter.com/PSAME_NATIONAL) | [#SAMEJETC24](https://twitter.com/SAMEJETC24)



["SOCIETY OF AMERICAN MILITARY ENGINEERS"](https://www.linkedin.com/company/society-of-american-military-engineers)



SPEAKER



Adolfo Salas III
Merrick & Company
Director of High-Performance
Facilities Consulting

Fun Facts

- Mechanical Engineer, Commissioning Authority, & Sustainability Consultant
- Self-Defense Instructor
- Traveled to Spain for a tomato fight

MAY 14-16, 2024
ORLANDO, FL

OPERATION:
COLLABORATION

SAME SAMEJETC.ORG

Merrick

- **Net-Zero Carbon / Net-Zero Carbon Ready**
 - Impact on utility infrastructure
 - Resiliency
- **Practical Application of Sustainability Strategies**
- **Sustainability Approach Education**



SPEAKER



Robert Tirocchi
Harkins Builders
Project Executive

Fun Facts

- Favorite sport: Changing my 1year old's diapers
- Did you know? I have a twin sister
- Hobbies: Trying to find quiet time

MAY 14-16, 2024
ORLANDO, FL

OPERATION:
COLLABORATION

SAME SAMEJETC.ORG

Harkins

- **Standard Details for Construction**
 - The more consensus in the industry about how to achieve outcomes reduces risk
- **Pre-Construction Expertise**
 - Budgetary data is limited due to burgeoning field
 - Difficult to advise owners when cost data is still being developed



SPEAKER



Shanti Pless
National Renewable Energy
Laboratory (NREL)
Senior Building Energy Researcher
<https://www.nrel.gov/research/staff/shanti-pless.html>



MAY 14-16, 2024
ORLANDO, FL

OPERATION:
COLLABORATION

SAME SAMEJETC.ORG

NREL

- **What is the building's role as the grid evolves?**
 - On-site renewables
 - Electrification
 - Do you know your local utility plans?

Key Challenges



2024

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



[@PSAMENATIONAL](https://www.facebook.com/PSAMENATIONAL)



[@PSAME_NATIONAL](https://twitter.com/PSAME_NATIONAL) | [#SAMEJETC24](https://twitter.com/SAMEJETC24)



["SOCIETY OF AMERICAN MILITARY ENGINEERS"](https://www.linkedin.com/company/society-of-american-military-engineers)

Merrick

- **Decreasing Pool of Technical Professionals and Skill-Sets**
- **Desire for Sustainability is Outpacing the Industry**
- **Great Ideas with Not Enough Research to Support Their Application**
- **Resiliency is Not Just Based on Climate**

Harkins

- **Budgets don't match the request**
 - Net Zero is administratively burdensome and impacts both cost and schedule
- **Certifying Agency**
 - Who is setting the bar?
 - How do we know we are on track to achieve goals?

NREL

- **How can a project reduce first costs and operational costs while eliminating fossil fuel scope 1 emissions?**
 - Heat pumps, electrical infrastructure sizing, peak demand charges, passive design for load reduction



20
24

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



@SAMENATIONAL



@SAME_NATIONAL



#SAMEJETC24



"SOCIETY OF AMERICAN MILITARY ENGINEERS"

Potential Opportunities



2024

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



[@PSAMENATIONAL](https://www.facebook.com/PSAMENATIONAL)



[@PSAME_NATIONAL](https://twitter.com/PSAME_NATIONAL) | [#SAMEJETC24](https://twitter.com/SAMEJETC24)



["SOCIETY OF AMERICAN MILITARY ENGINEERS"](https://www.linkedin.com/company/society-of-american-military-engineers)

Merrick

- **Clean Power Generation**
 - Vertical wind turbines
 - Modular Reactors – better for campuses
 - Allam Cycle power plants (carbon capture)
 - Nuclear plants
 - Micro Reactors – possible for larger buildings
 - Thermal batteries
- **Carbon Capture used in Other Industries**
- **Look Back at Older Technologies**

Harkins

- **Growing Market**
 - Net Zero is rapidly growing driven by government regulations, environmental concerns, and increasing demand from building owners
- **Early Adopter Advantage**
 - Early adopters of Net Zero construction methods positions contractors at the forefront of innovation

NREL

- **Building Electrification**
 - Passive design for load reduction even more important
 - High efficiency heat pumps
 - Air source
 - Ground source
 - Waste heat source
 - Wastewater
 - Cooling
 - » Refrigeration
 - » Datacenters

Key Takeaways



2024

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



[@PSAMENATIONAL](https://www.facebook.com/PSAMENATIONAL)



[@PSAME_NATIONAL](https://twitter.com/PSAME_NATIONAL) | [#SAMEJETC24](https://twitter.com/SAMEJETC24)



["SOCIETY OF AMERICAN MILITARY ENGINEERS"](https://www.linkedin.com/company/society-of-american-military-engineers)

Merrick

- **Prime opportunity for innovation**
- **Need for technical support**
- **Opportunity for end users, designers, and contractors to expand sustainability expertise**



20
24

JOINT ENGINEER
TRAINING CONFERENCE
& EXPO

SAMEJETC.ORG



@SAMENATIONAL



@SAME_NATIONAL



#SAMEJETC24



"SOCIETY OF AMERICAN MILITARY ENGINEERS"

Harkins

- **The field is new with many unknowns and untested designs**
- **Room for contractors to grow with the field**
- **No clear guidelines or best practices**
- **Opportunity to be an early adopter and build expertise**

NREL

- **Cost effective building electrification can be achieved with an integrated approach**
- **Understanding the interaction with the grid becoming more important**
 - Sizing
 - Peak demand costs
 - New utility rates that include time of use impacts

THANK YOU

Please take a few minutes to complete a short survey about this session. Your feedback will help us improve future programming for JETC.

 **conferences** i/o



or browse to
jetc.cnf.io

Q&A

- Kelly Olson, kelly.m.olson4.civ@mail.mil
- Adolfo Salas, adolfo.salas@merrick.com
- Robert Tirocchi, rtirocchi@harkinsbuilders.com
- Shanti Pless, shanti.pless@nrel.gov