

---

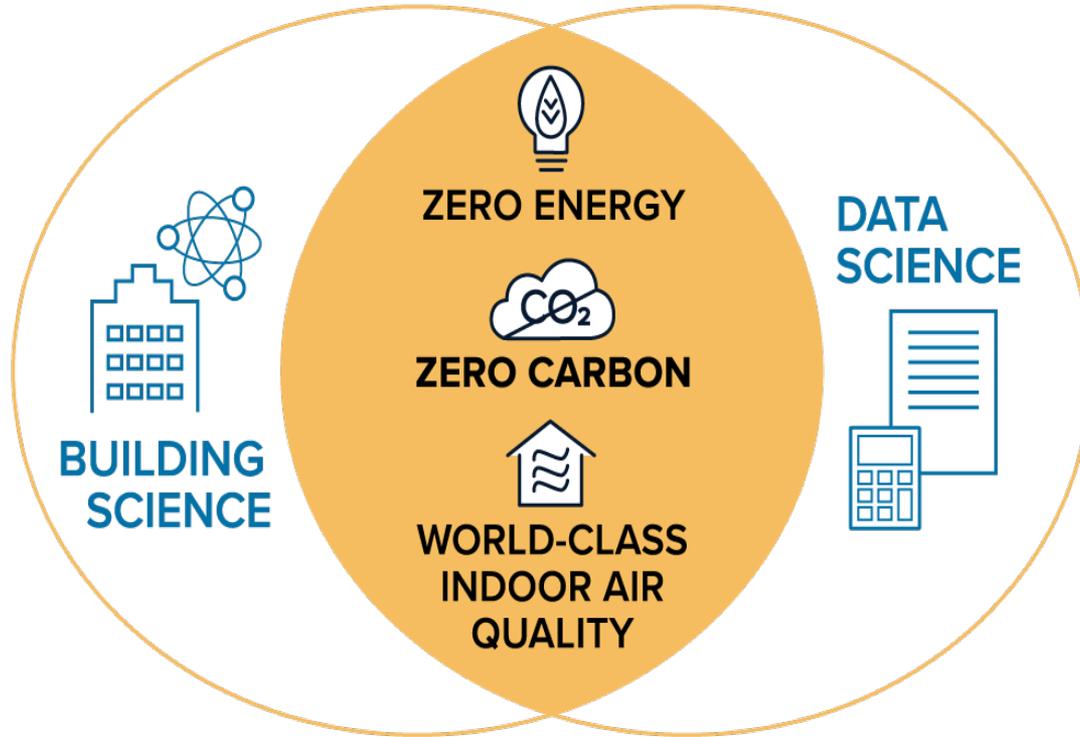
# Haystack in Sustainability and ESG

Adam Wallen, Ziva Tech Solutions and  
Craig Stevenson, AUROS Group



# PROJECT HAYSTACK ENABLING ZERO CARBON ...

... the intersection of building science and data science





# CASE STUDY: Zero Energy, Smart Building Development

Over 1 million square foot development

“One Developer Takes  
a Bite Out of Carbon  
and Can Prove It.”

The Gate, Frisco, Texas





# CASE STUDY: Using a Decarbonized High School to Teach Future Citizens

Over 60 thousand square foot development

“The Environmental Charter School Puts its Mission into Practice.”

ECS, Pittsburgh, Pennsylvania





# CASE STUDY: Zero Carbon, Zero Waste Factory

Over 450 thousand square foot development

“A New Factory  
Demonstrating  
Performance.”

Blueprint, Windsor, Connecticut





## The Opportunity is Game-Changing

“When you combine Haystack tagging with the power of Physics-based simulations, you can easily compare where you are with where you want to be in a variety of ways.”

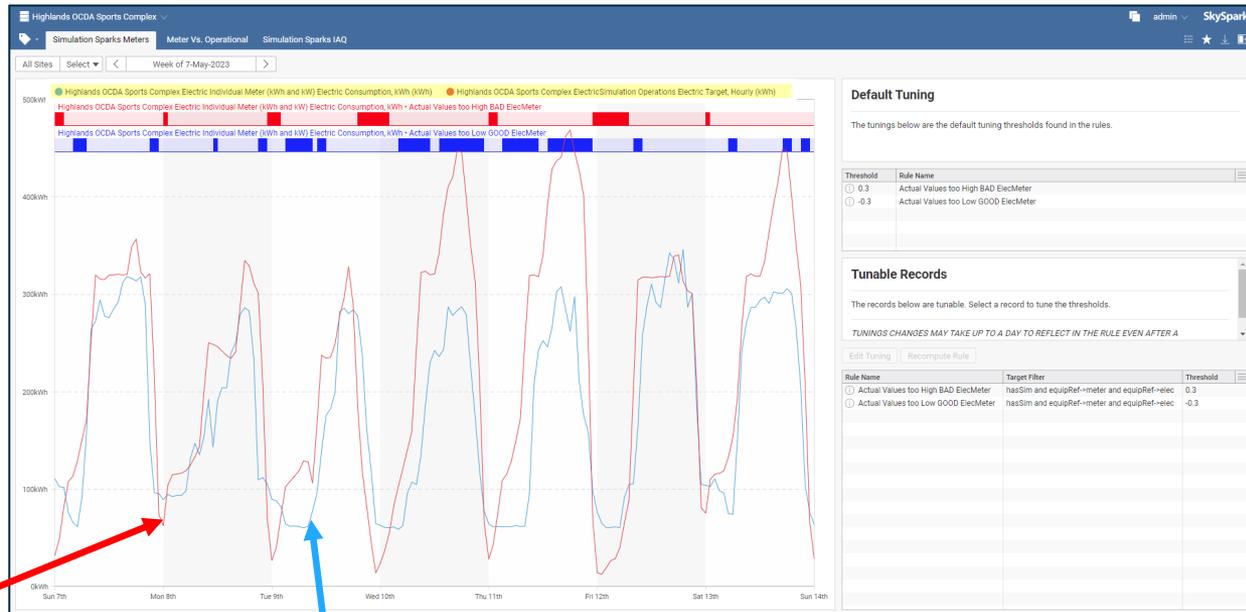
Adam Wallen, Ziva Tech Solutions

# FAULT DETECTION & DIAGNOSTICS



## Integrated Simulation

Physics-based modeling and simulation provides innovative context



Simulated Performance    Actual Performance

Building Owners want to know:  
“Did I get what I paid for?”

# MONITORING-BASED COMMISSIONING



## Integrated Simulation

Physics-based modeling and simulation provides innovative context



Simulated Performance    Actual Performance

Facilities Managers want to know:  
“How is my building supposed to perform?”



# CASE STUDY: Ohio County Development Authority, Highlands Sports Complex

Over 150 thousand square foot development

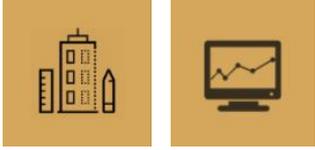
## Project Demonstration

<https://skyspark.auros360.com:7443>

Username: Haystack

Password: ZivaAuros

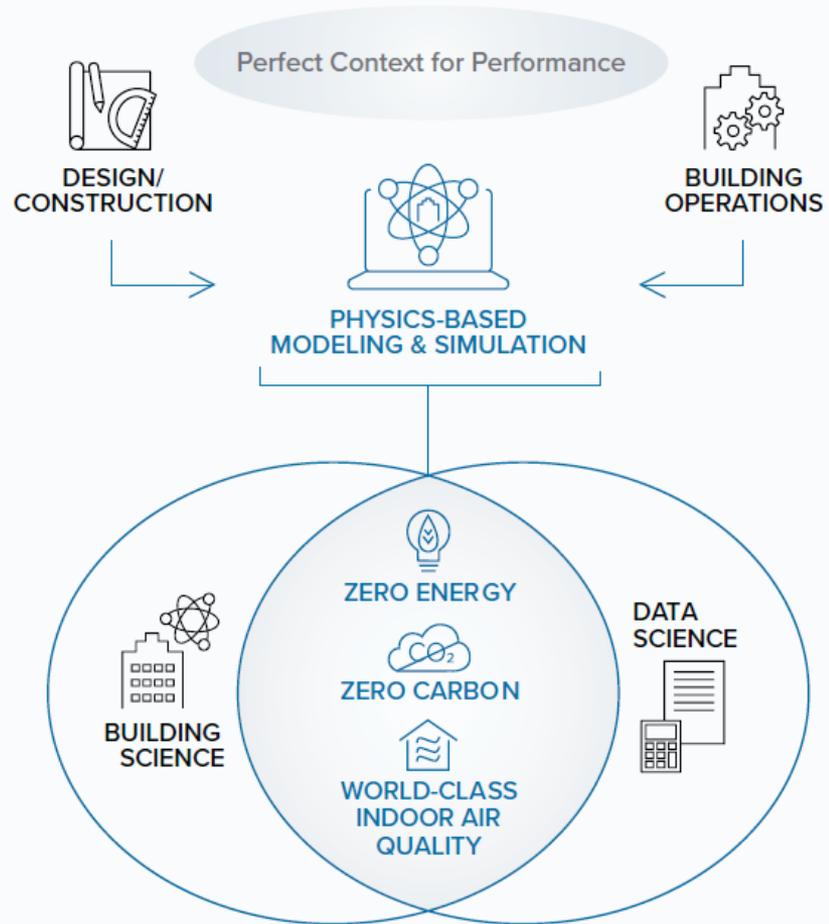




# Simulation is the Superpower

This is the only predictive tool that ensures every dollar of investment can be tied to an expected result.

## Simulation, in a Physics-based Environment, is a Superpower





# PROJECT HAYSTACK ENABLING ZERO CARBON ...

... the intersection of building science and data science

## Project Haystack's Role in Building Decarbonization

To deliver these results, the data science community needs to make room for the building science community.

Our ask is Simple, create an approach for time-series simulation and whole-building metrics similar to trended meter/sensor and operational technology data.

Can we count on you?

*Adam and Craig*



ZIVA TECH  
SOLUTIONS



Ziva Tech Solutions

Adam Wallen

804-986-4663

adam@ziva-tech.com

LinkedIn:

<https://www.linkedin.com/in/adam-j-wallen-8862061a9/>



Q&A



AUROS Group

Craig Stevenson

412-506-6777

craig.stevenson@orosgroup.com

LinkedIn:

<https://www.linkedin.com/in/craigstevenson>