

# Thinking Fast

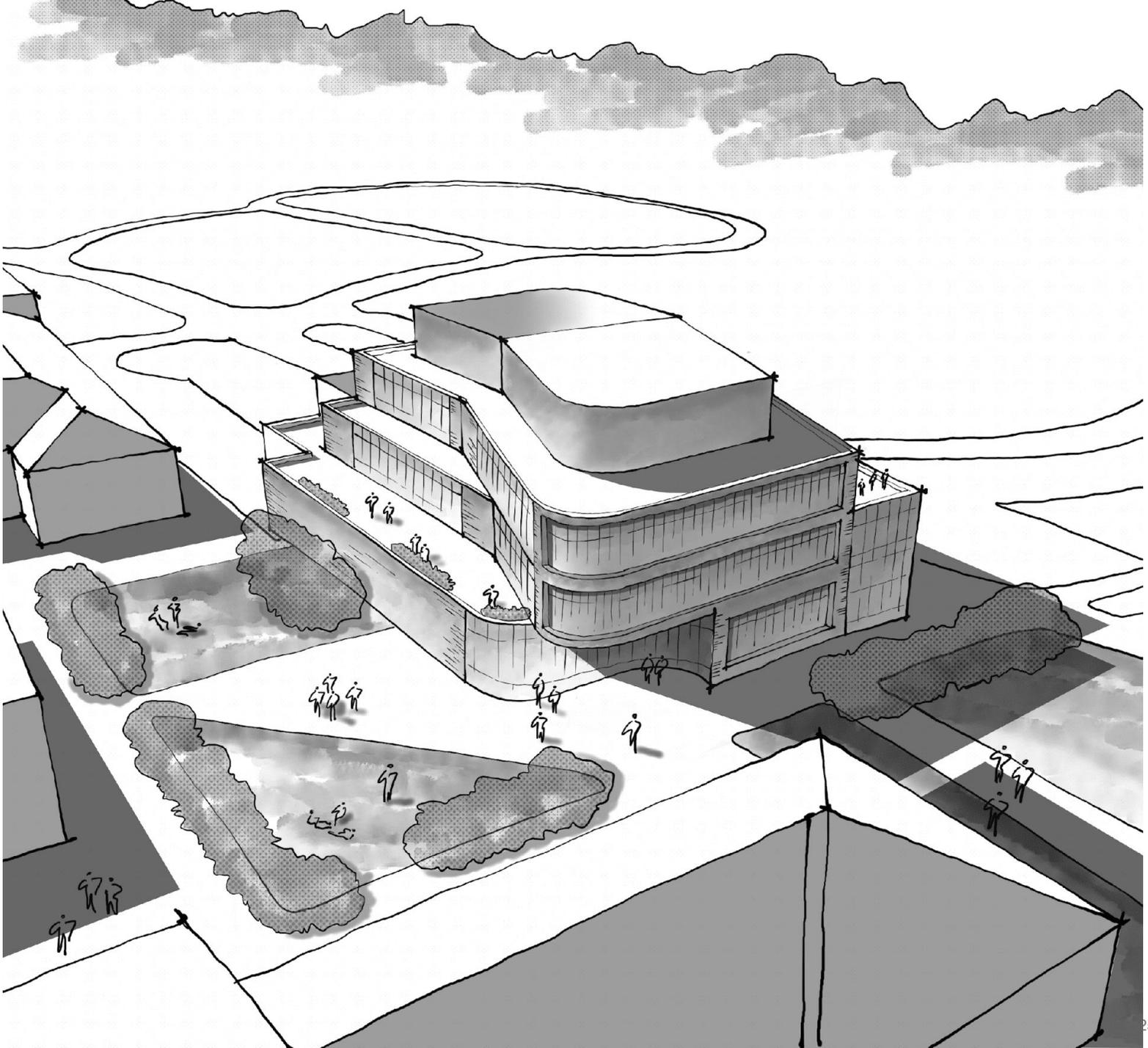
Data-Informed Early Design



**Kim Reddin**  
Director of Sustainability



**Zac Heaps**  
Project Designer



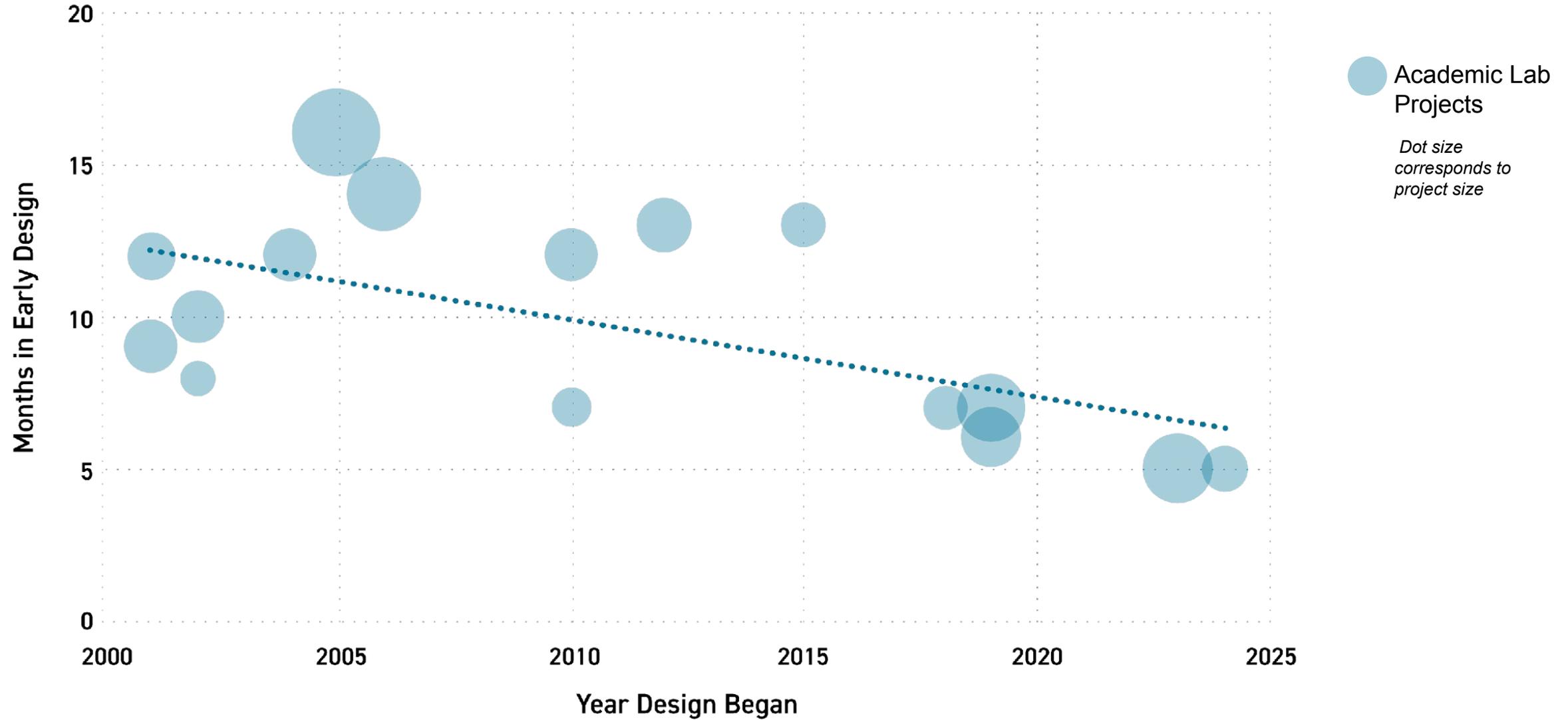
# The Stakes of Early Design

Lab Performance

Occupant Experience

Environmental Impact

# Project Timelines



# Thinking Fast

## SYSTEM 1



## SYSTEM 2

fast



slow



subconscious



conscious



automatic



effortful



everyday decisions



complex decisions



intuitive



calculated



**These can and do happen at the same time.**

# How Do We Get Good at Thinking Fast?



# How Many Reps Can We Actually Get?

$$\frac{40 \text{ years}}{\text{career}} \times \frac{2-3 \text{ projects}}{2 \text{ years}} = \frac{40-60 \text{ projects}}{\text{career}}$$

# Where Can We Get More Reps?



Buildings Zac worked on in  
concept design last year:

# Every Lab Building Is a Prototype

This is a 400yd par 4

*This* is a 400yd par 4

***This*** is a 400yd par 4

# Typology Reps



Veterinary  
Medical Hospital

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Purdue University



School of  
Veterinary Medicine  
Addition

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University of  
Wisconsin-Madison



College of  
Veterinary Medicine

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Clemson University

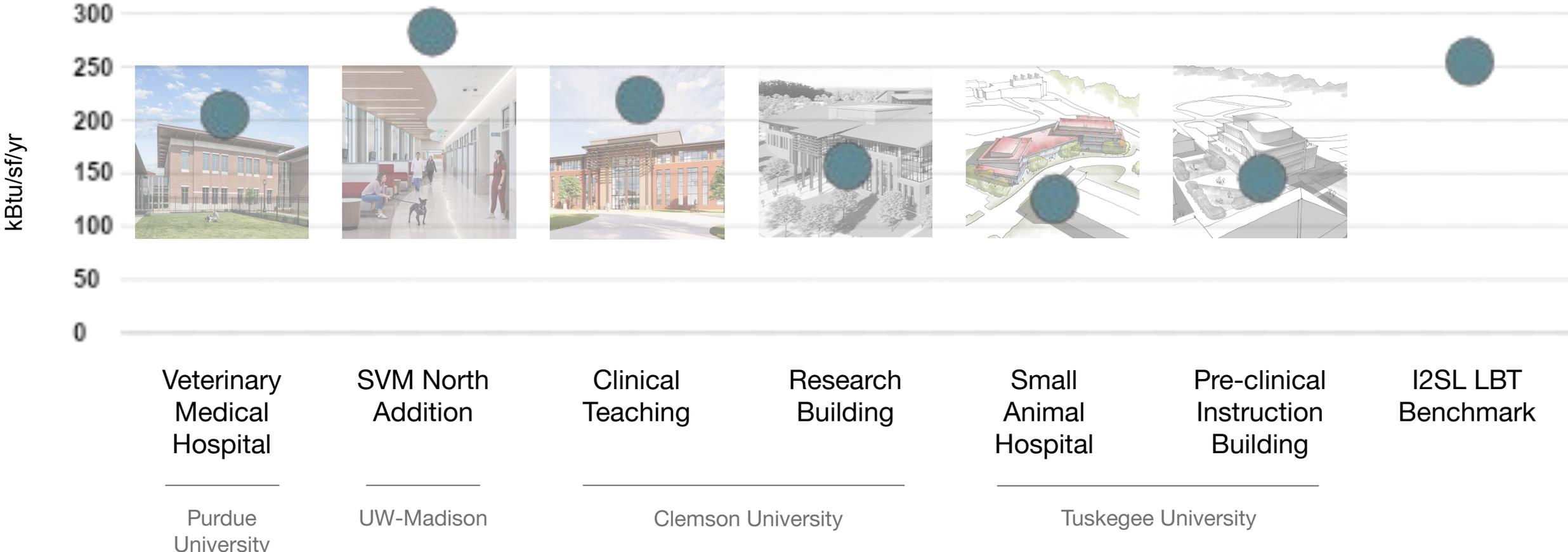


College of  
Veterinary Medicine

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Tuskegee University

# Typology Reps – Energy Use Intensity



Veterinary Medical Hospital

Purdue University

SVM North Addition

UW-Madison

Clinical Teaching

Clemson University

Research Building

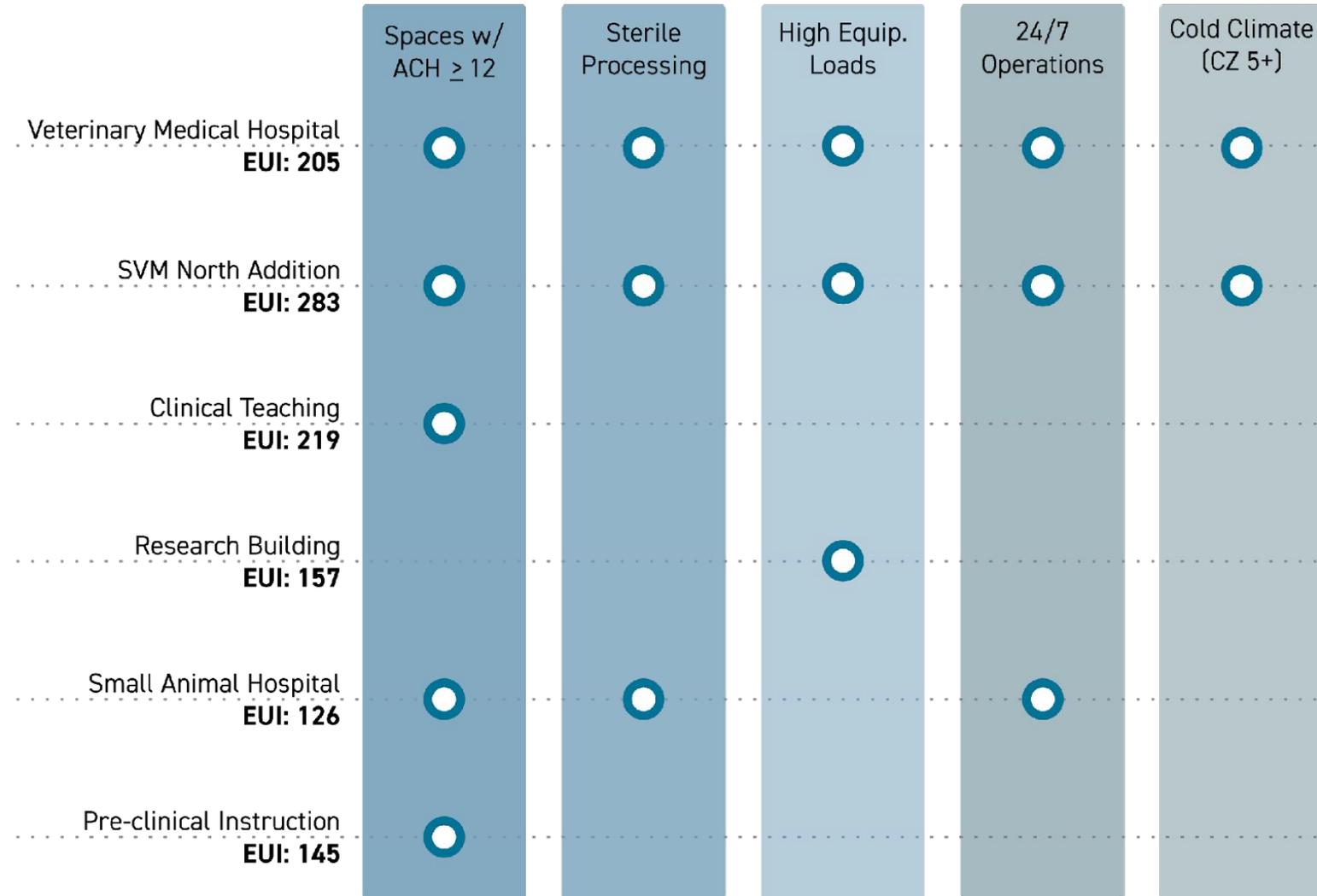
Small Animal Hospital

Tuskegee University

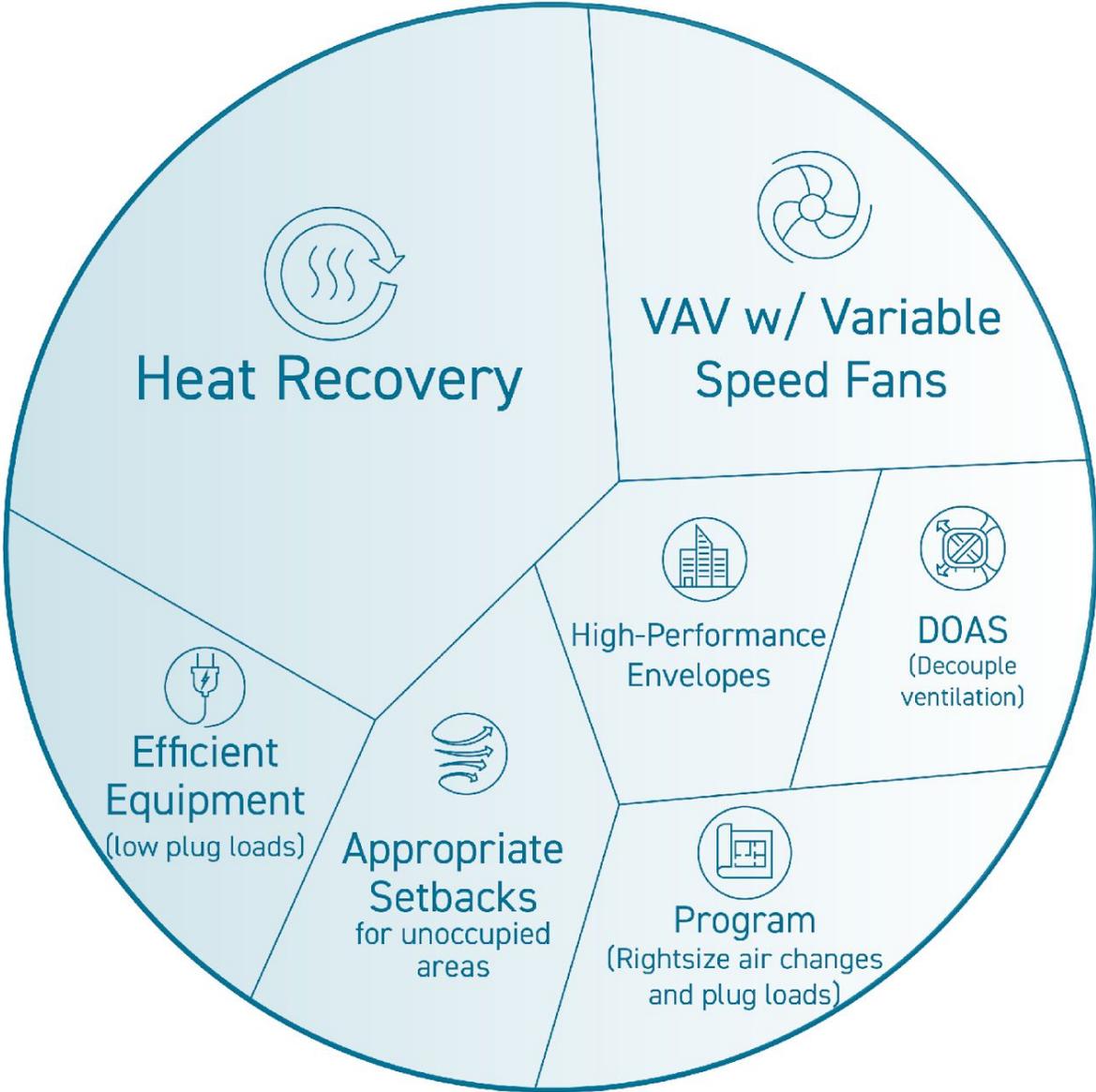
Pre-clinical Instruction Building

I2SL LBT Benchmark

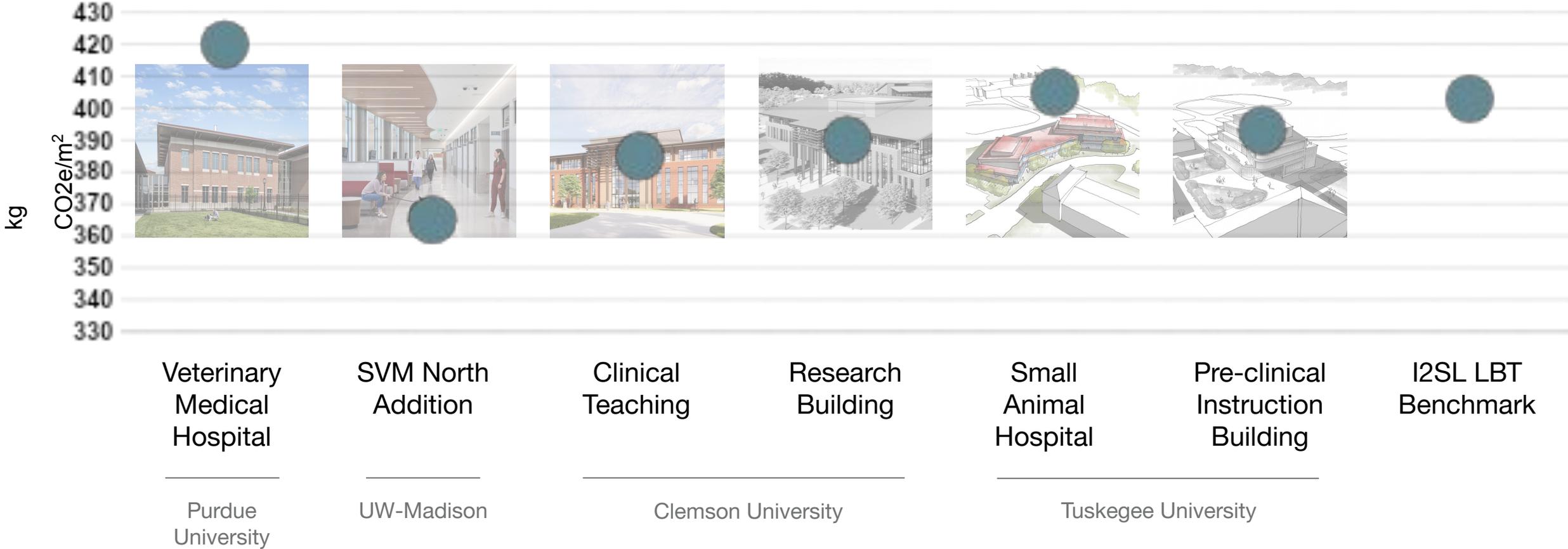
# Energy (EUI)



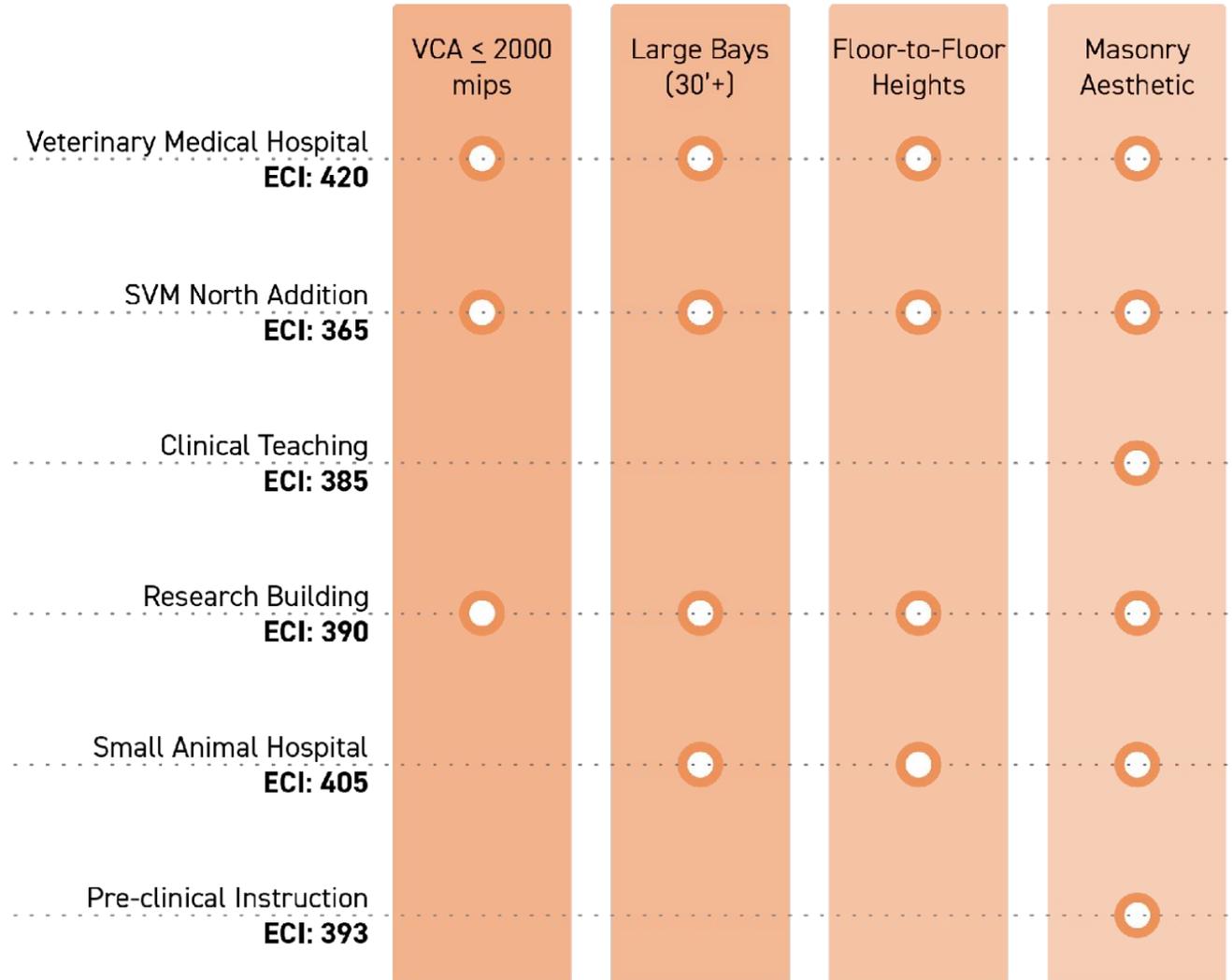
# Find the Shots that Matter



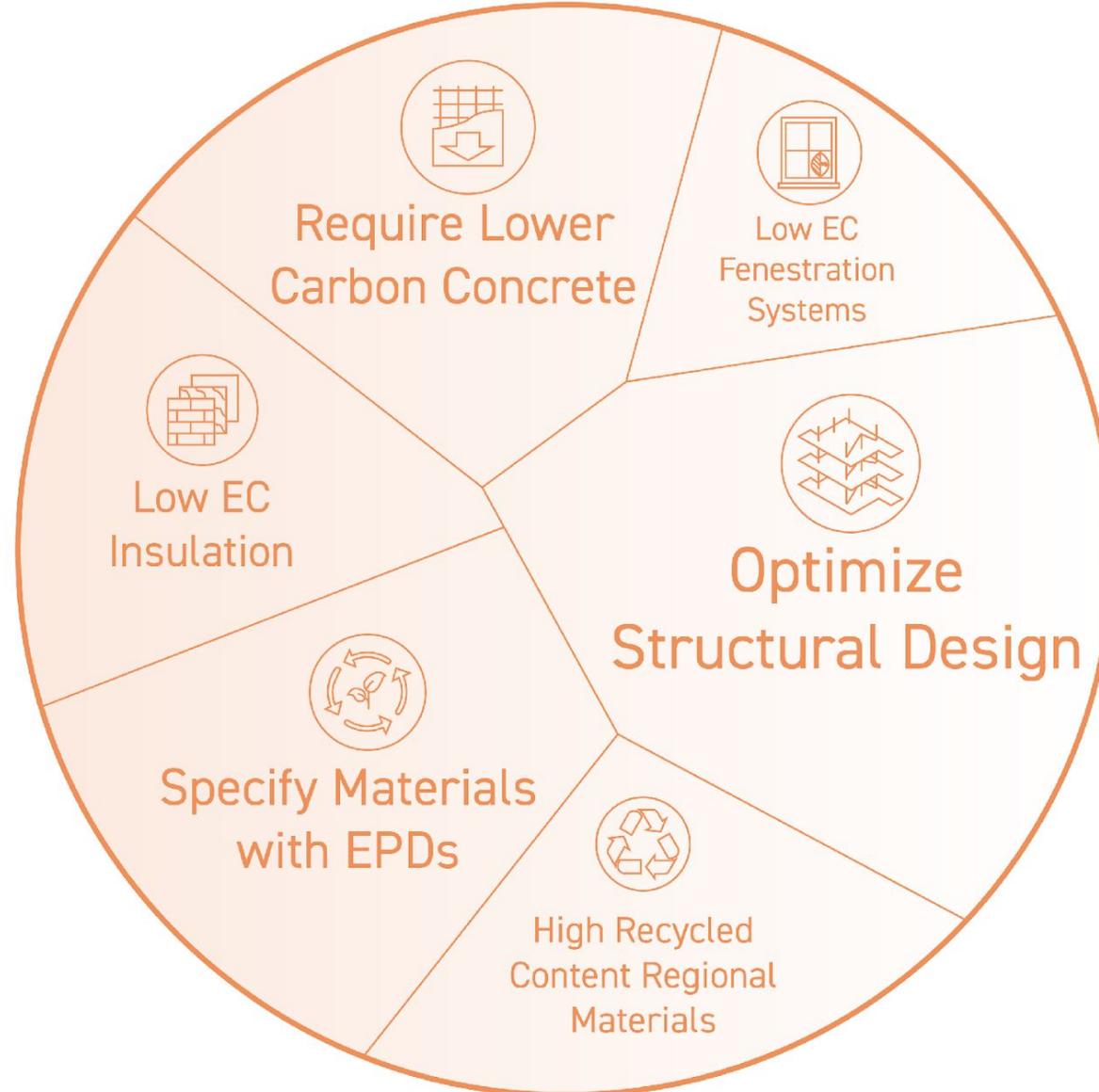
# Typology Reps – Embodied Carbon Intensity



# Embodied Carbon Intensity (ECI)

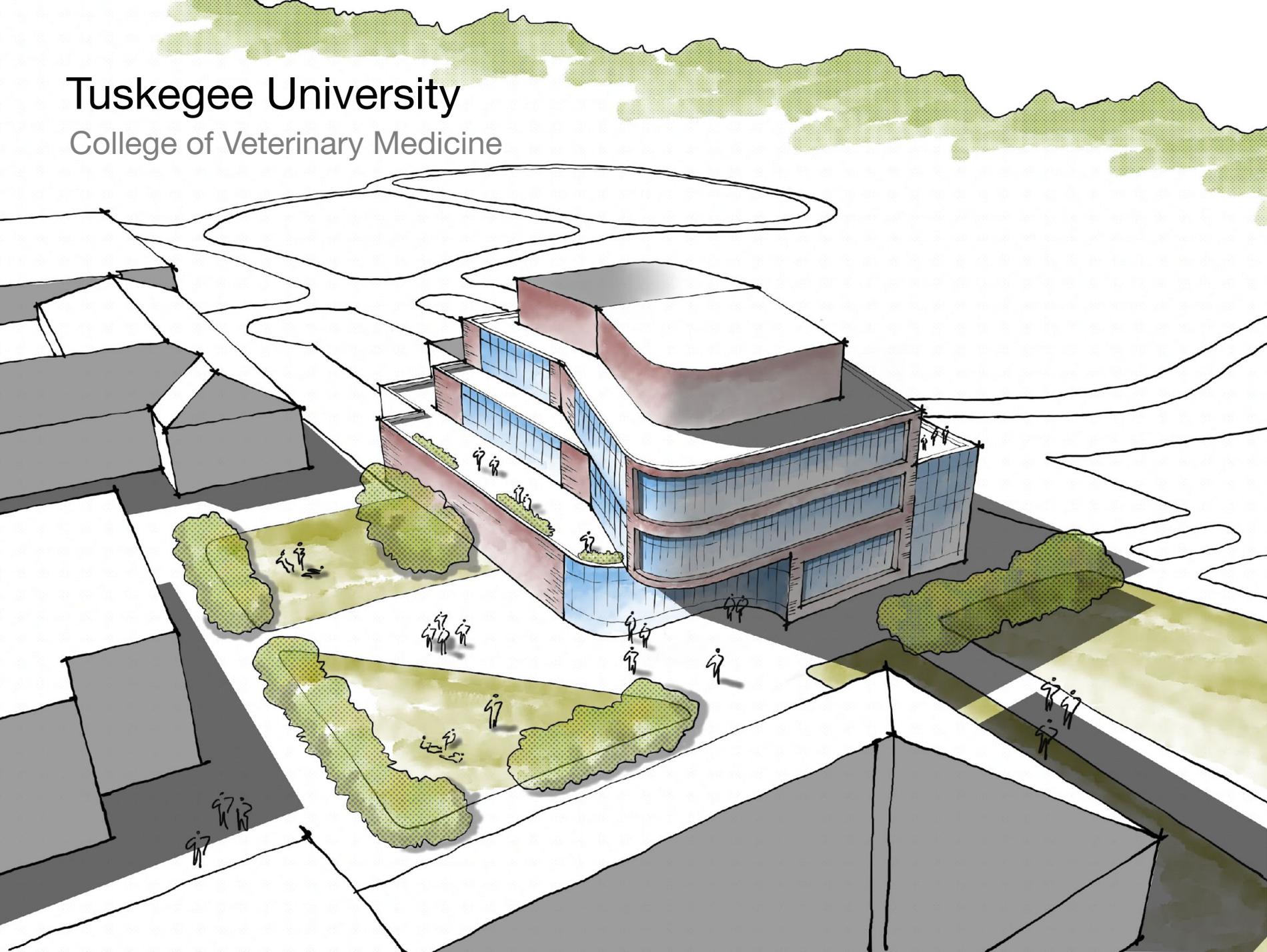


# Find the Shots that Matter



# Tuskegee University

College of Veterinary Medicine



Heat Recovery Chiller  
Airside Differential Enthalpy  
Economizer



VAV Air Handling  
Demand Control Ventilation



High Performance Envelope



Supply Air Setbacks  
Static Pressure Setbacks

# Tuskegee University

College of Veterinary Medicine



Optimize Structural System



Low Carbon Concrete Mixes



Reclaimed Masonry



Mineral Wool Insulation In Lieu of XPS

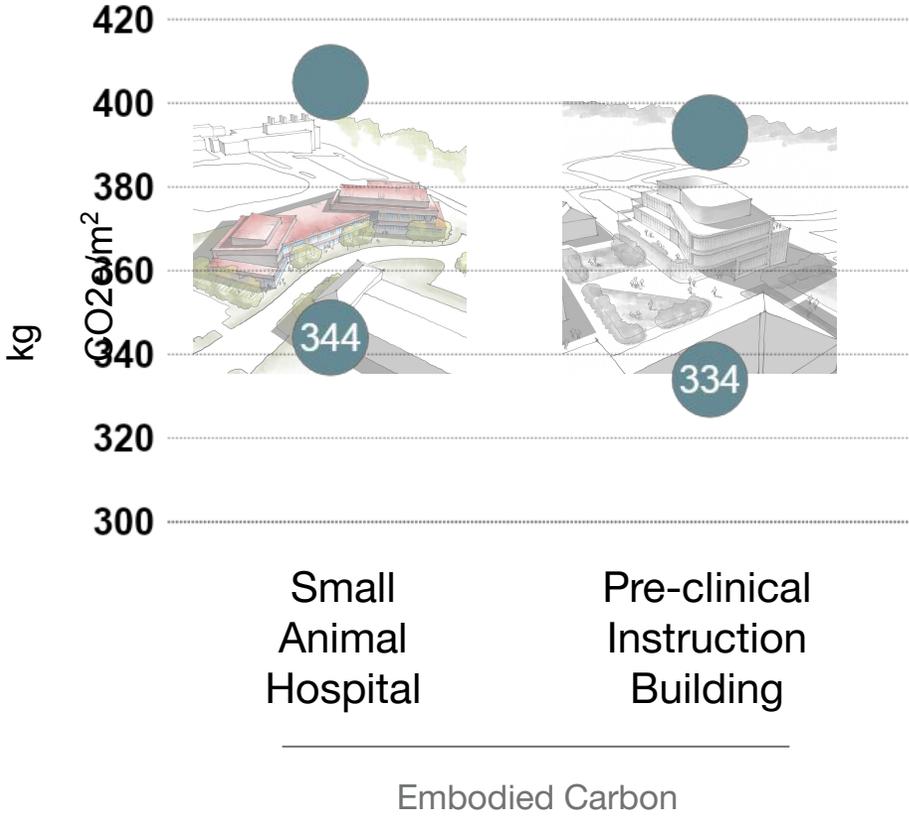
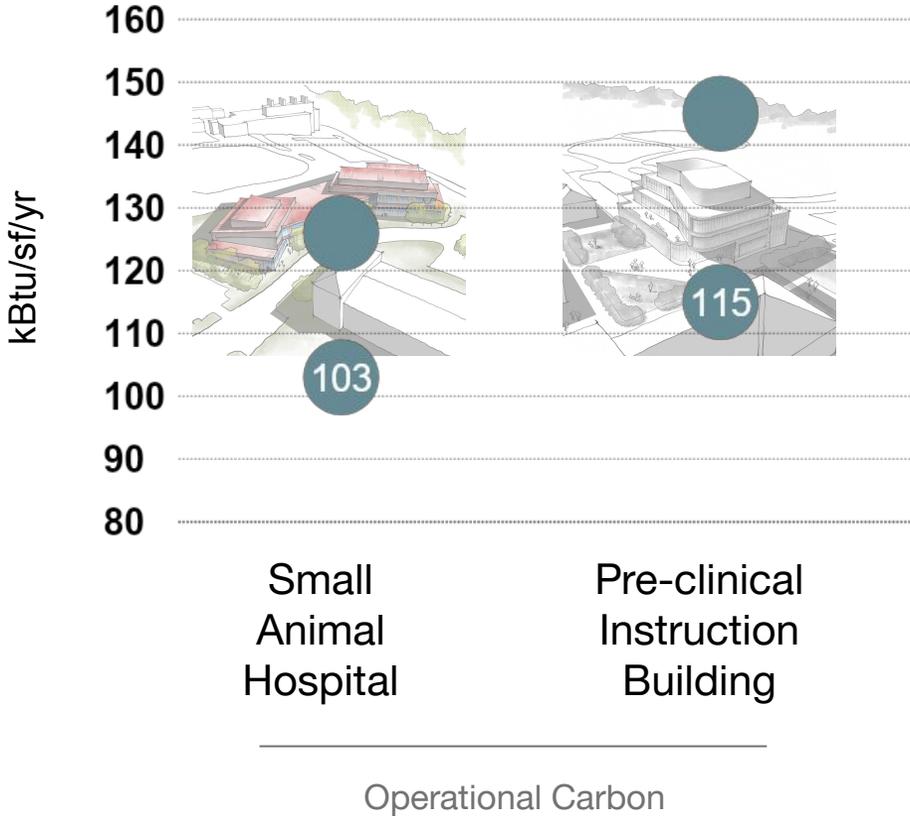


Products with Embodied Carbon Action Plans



# Tuskegee University

College of Veterinary Medicine



We Need More Data.