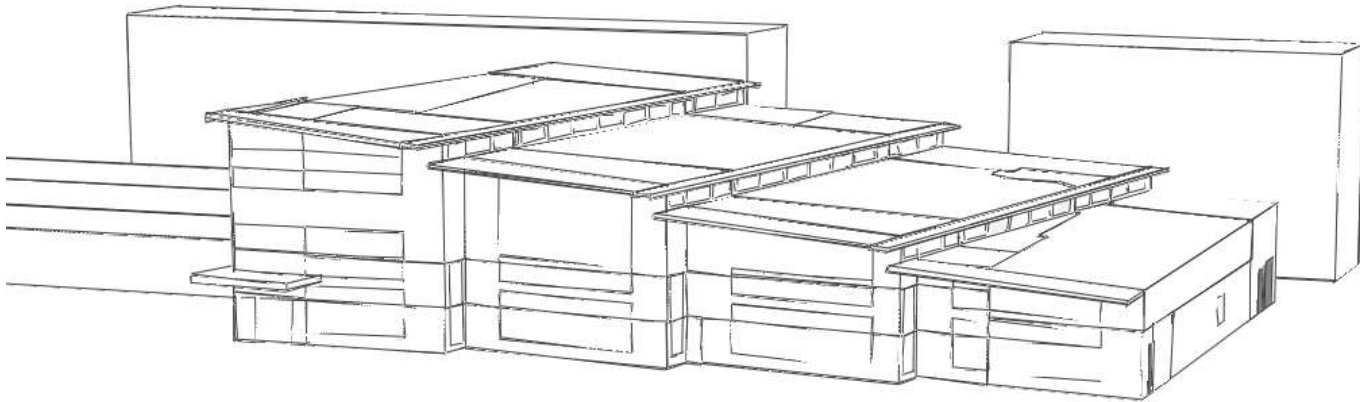




## It's Not Easy Being Green: Walgreen's Net-Zero Energy Store, Evanston, IL



# Vision

To create a showcase for innovative, sustainable, high-performance design at a retail location without altering the operational characteristics of the store in order to make it as highly-scalable as possible. To share this information with the sustainability, architecture, and retail communities in a completely transparent fashion as a means of encouraging the adoption of green building practices wherever reasonably feasible.



# Project goals

- First net-zero energy retail store in the US
- LEED Platinum Certification
- Living Building Challenge Net Zero Certification
- Better Building Challenge Showcase project
- Green Chill Platinum certification
- Energy Star
- Open before Thanksgiving 2013



# What is “net-zero”?

$$\begin{aligned} E = & -4t \int_0^1 dx \int_0^\infty dy \sin^2(n\pi x) e^{-2y} \left( Z - 4\lambda \right. \\ & \left. + 4\lambda y - \frac{\pi^2 n^2}{l^2} \right) \left\{ \frac{\alpha \eta \lambda}{2\pi l} \sin^2(n\pi x) e^{-2y} \theta \right. \\ & \times \left[ 1 - \frac{\alpha \eta \lambda}{2\pi l} \sin^2(n\pi x) e^{-2y} \right] \\ & \left. + \theta \left[ \frac{\alpha \eta \lambda}{2\pi l} \sin^2(n\pi x) e^{-2y} - 1 \right] \right\} \\ & + \frac{2Zt\pi l}{\alpha \lambda} \int_0^1 dz \int_0^\infty dy \left\{ \left( \frac{\alpha \eta \lambda}{2\pi l} \right)^2 \sin^4(n\pi z) e^{-4y} \right. \\ & \times \theta \left[ 1 - \frac{\alpha \eta \lambda}{2\pi l} \sin^2(n\pi z) e^{-2y} \right] \\ & \left. + \theta \left[ \frac{\alpha \eta \lambda}{2\pi l} \sin^2(n\pi z) e^{-2y} - 1 \right] \right\}. \end{aligned}$$

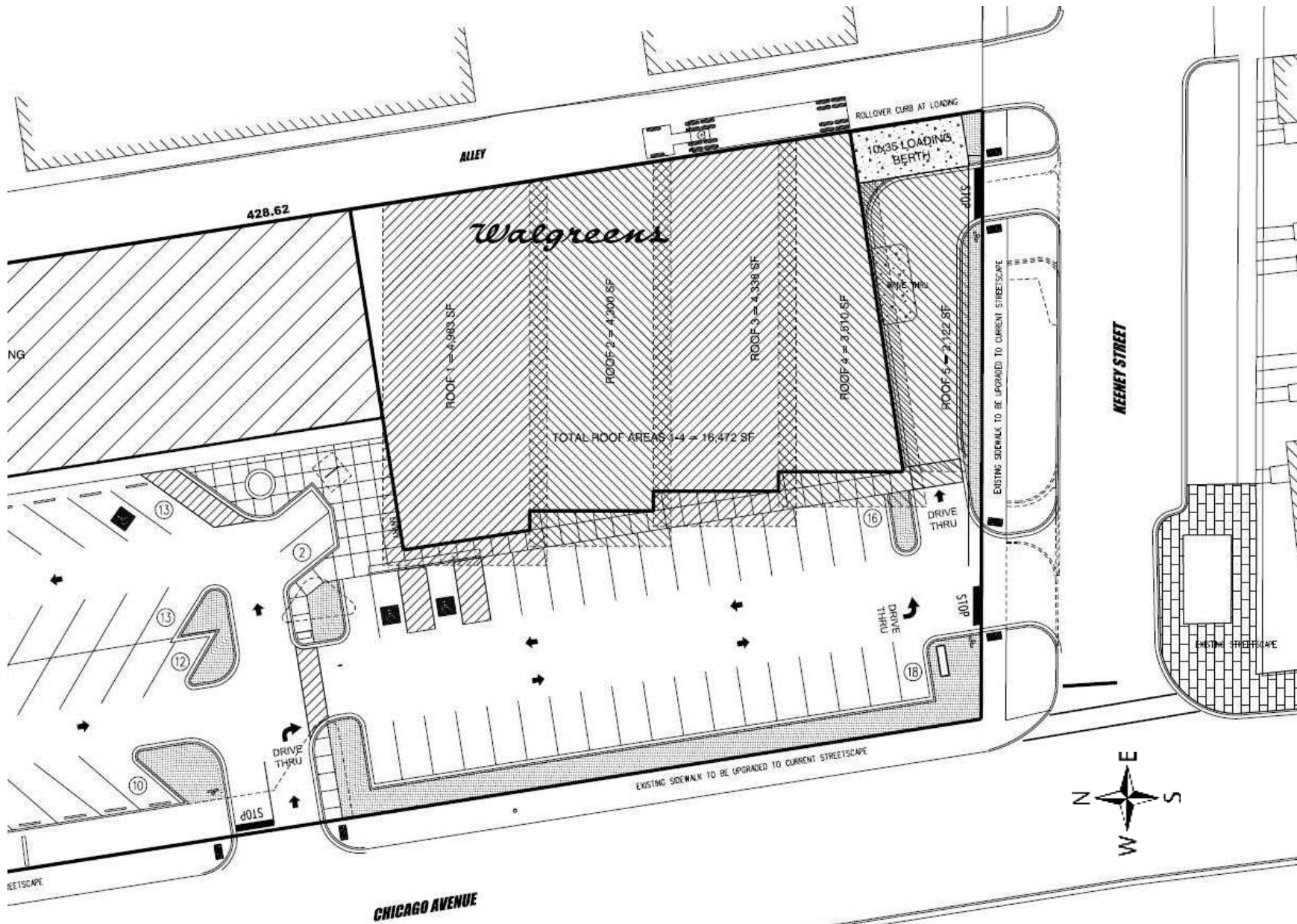
Energy Produced – Energy Consumed > 0



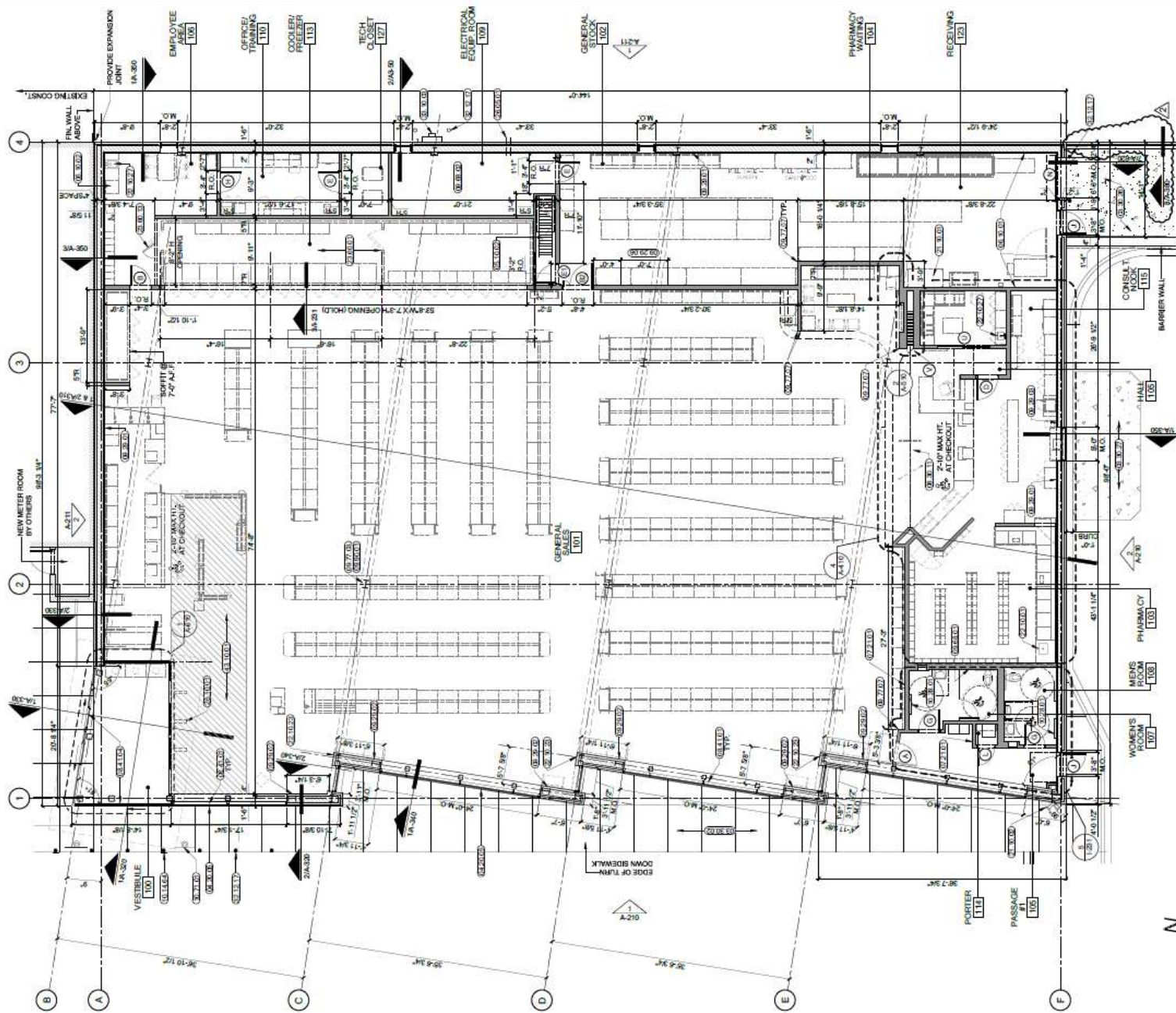














# Energy produced

- Solar panels



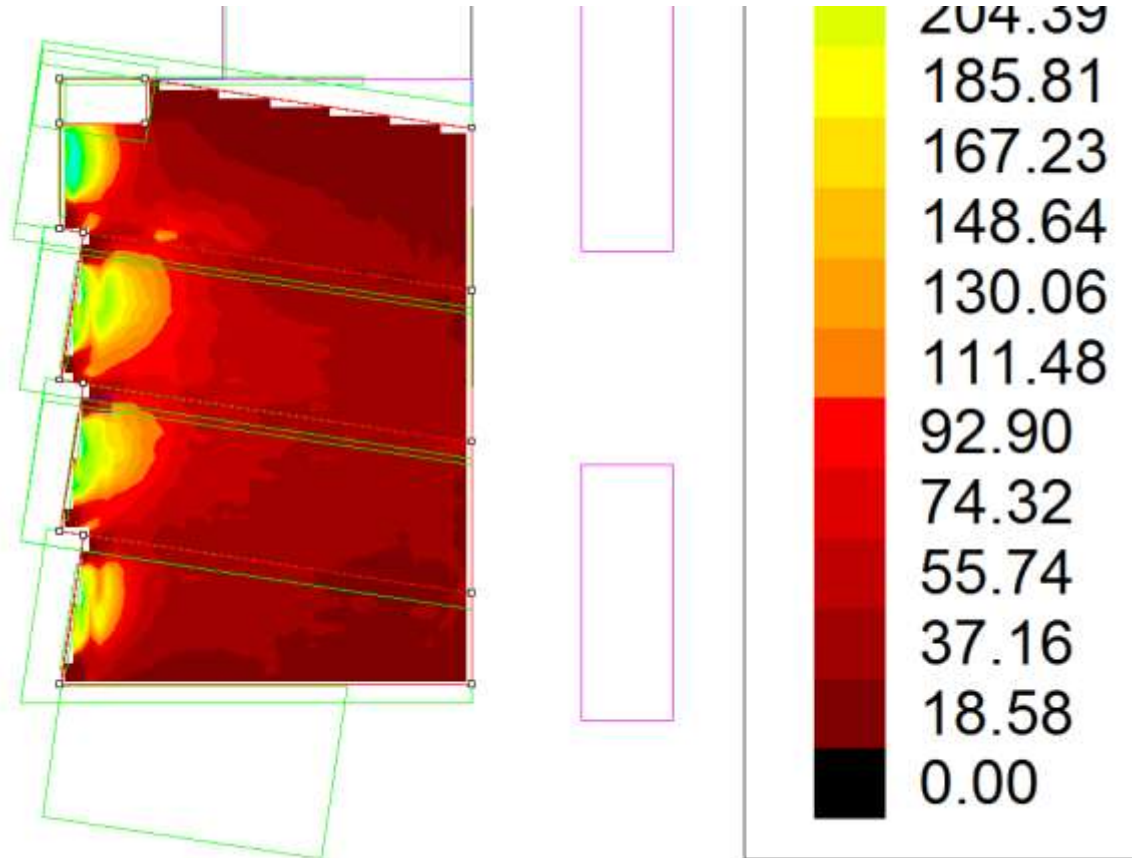
# Energy produced

- Wind turbines



# Energy used

- Geothermal energy
- All LED lighting
- Daylight harvesting
- Natural ventilation
- Automatic dimmers
- Mechanical system
- Revolving door
- Reduce plug loads
- Thermal mass
- Control strategies
- “Ceiling” height





# The Results

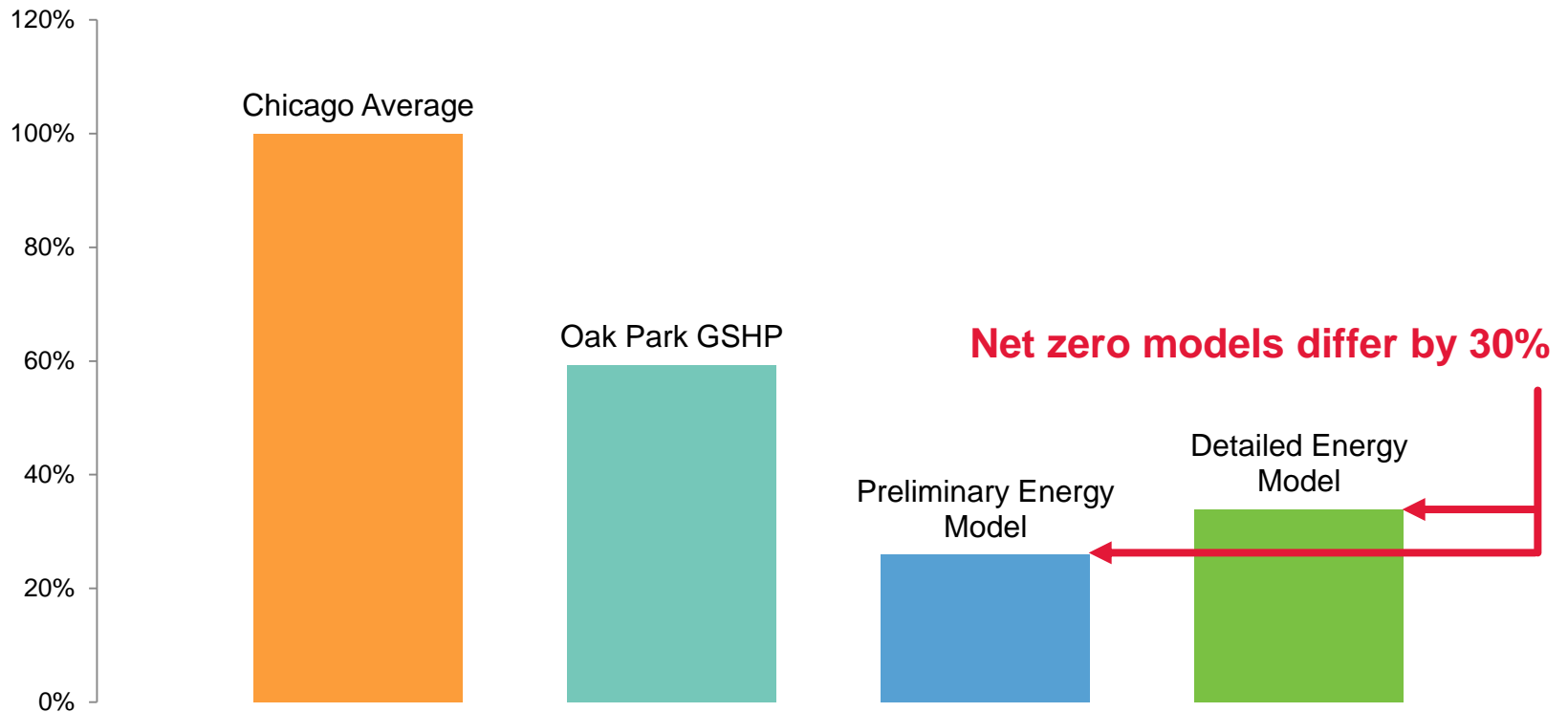


Figure 6: Net zero predicted energy use comparison  
(not including solar and wind energy production)

# Why?



# Happy and healthy



## Net-Zero Energy Retail As Walgreens Strikes A Progressive Goal Leading With Example

Today, our appreciation for this Chicagoland-based mega company has hit an all-time high.

## Good For You Walgreens: First Net-Zero Retail Store

Walgreen Co. is getting behind the "green" part of its name.

Who would guess that Walgreens, the largest US drugstore chain, would become an environmental leader?

**Walgreens does the right thing, again**

## Walgreens Continues Journey Into Future

Sometimes **Walgreens** really just blows our socks off.





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