

Project Summary

Wright Path to Zero challenges the previous residential building performance of active military housing in Dayton. Dayton's Wright Patterson Air Force Base draws a large number of military personnel and their families to the area for shorter-term stays (max. 3 years)

Our goal is to re-envision the homes at The Properties at Wright Field, consists of mainly four-unit buildings (quadplex). We also propose a new housing and urban design prototype in this location that challenges the cul-de-sac form. With the integration of Passive House Principles, Quality Daylighting, and High Efficient Systems, we hope to enhance the quality of life and community for military families and create a balanced cost-effective design that works for this transient neighborhood.



Figure 3: View of Entry Sequence

Project Data	
Location	The Properties at Wright Field, 82 Nogoso Cir, Riverside, OH 45431
Climate Zone	5A
Square Footage	2,000 sf/unit
Type Unit	2 story Townhome 3 Bedroom 2 Bath

Energy Estimates	Calculations	
Source Energy Limit	6200 kWh/person	Passive house standard
Source Energy Factor	3.16	
Site Energy	1962 kWh/person	6200kwh/person/3.16=
Occupancy	4 people	3 Bedroom +1
iCFA	8,000ft	per quadruplex(4)
Allowable Annual Electricity Demand kWh	31,392 kWh/yr	
Annual Electricity Demand in kBTU	107,109.5 kBTU/yr	(31,392 kWh/yr)(3.412 kBTU/kWh)
EUI Estimate	12 kBTU/ft2.yr	Sefaira model based on technical specification listed
Estimated Monthly Energy Cost: Dayton Municipal Utilities Energy Charge: \$0.0536/kWh	\$147.28/month/quadplex \$36.82/month/unit	(31,392 kWh/yr)/(\$0.0563)/12 based on \$147.28/ 4 units
Preliminary HERS Score:	50 (wo/PV), -2 (w/PV)	

Chart 1: Project Data

Chart 2: Energy Summary