



UNIVERSITY OF ARKANSAS

# CARBON-NEUTRAL STUDENT HOUSING

Daniel Cox and Seth Spradlin

Anthropology and Architecture



UNIVERSITY OF ARKANSAS

## THE PROBLEM

The amount of carbon dioxide entering our atmosphere is unsustainable. While government and big business approaches to solving the problem are making progress, we must also employ bottom-up approaches that empower people at the personal level to make their own sustainable choices. By creating this opportunity for young people at the University of Arkansas, we can help to empower them to change the arc of their life at an early age to a more sustainable path.

## THE PROJECT

An existing 8-unit apartment building will be expanded with a new LEED-certified wing of 6 energy-efficient units. The addition is designed explicitly to maximize solar photovoltaic energy production potential and to minimize energy consumption.



## MINIMIZE ENERGY CONSUMPTION

The following appliances will significantly reduce energy demand in the new units:

APPLIANCE	EFFICIENCY
FUJITSU HALCYON 9RLS3 MINI-SPLIT HVAC	33 SEER 18 EER 14.2 HSPF
ECOSMART 18KW ON-DEMAND ELECTRIC WATER HEATER	99.8% EFFICIENT; USES 50% LESS ENERGY
LED LIGHTS	6kWh PER MONTH
WHIRLPOOL WDT790 DISHWASHER	20kWh PER MONTH
LG WM3987 COMBO WASHER-DRYER	11kWh PER MONTH
WHIRLPOOL WRT134 REFRIGERATOR	28kWh PER MONTH

## MAXIMIZE ENERGY PRODUCTION

The photovoltaic system is comprised of the following components and arrangements:

ITEM	DETAILS
ASTRONERGY 260W MONOCRYSTALLINE PV PANEL	108 QTY, FACING DUE SOUTH AT 34 DEGREES
SUNNYBOY 9000TL-US-12 INVERTER	QTY 3; CAPABLE OF 27,000 WATTS REAL-TIME PRODUCTION
SWDM-10 SYSTEM MONITORING	ALLOWS MONITORING OF ENERGY PRODUCED
IRONRIDGE RACKING SYSTEM	DIRECT-MOUNTED TO METAL ROOF
TOTAL ESTIMATED SYSTEM PRODUCTION	45,792 KWH ANNUALLY



## SUSTAINABILITY

We will help students and young people choose to reduce their carbon footprint by providing a carbon-neutral apartment-living opportunity at a great location and at affordable rates. By pricing this in-line with other non-solar-powered apartments, we hope to attract students that wouldn't otherwise choose to live in such a facility. Further, we hope to show other local apartment developers that it is not only possible to develop carbon-neutral student living options, but that it is in fact a wise business choice.

By providing this opportunity to young people, we hope to help them experience for themselves that it is not only possible for them to live in a carbon-neutral home, but that it can be achieved without having to forgo quality of life or creature comforts.

For more information about this project, send an email to Daniel Cox at [landlord@campusgrove.com](mailto:landlord@campusgrove.com).

