



# WATER PETAL CASE STUDY

## ZHOME: A NET ZERO ENERGY COMMUNITY

zHome was launched in 2006 as a market catalyst for deeply sustainable, climate neutral homes for the everyday person. Born out of the context of years of small increments of improvement in environmental performance in green building, the creators sought to revolutionize the paradigm for what was possible, creating hope and action within the context of cultural and political confusion and inaction about climate change, persistent toxicity, and overconsumption.

The project is a ten unit townhome project designed to achieve zero net energy, as well as a 70% reduction from baseline water use. One of the ten units was being used as a long term education center, until it was converted into an affordable housing unit in 2016. Five of the ten homes achieved Living Building Challenge Energy Petal Certification.

### SYSTEMS

#### WATER EFFICIENCY

zHome features dual flush toilets, high efficiency laundry machines and dishwashers, drought tolerant landscaping and low flow faucet aerators and showerheads. All of the fixtures are WaterSense certified, making the townhomes the first EPA-certified WaterSense residential homes in the United States.

#### RAINWATER HARVESTING

The team had to go beyond installing water efficient fixtures in order to reach the goal of 70% reduction. Rainwater is harvested from the townhouse rooftops into small cisterns (ranging from 1,100 to 1,700 gallons) managed by each homeowner. The downspouts use a first flush diverter and a floating intake inside the cisterns. The water is treated further with 10 and 25 micron carbon filters before being plumbed to the toilets and laundry units. zHome was the first project in Issaquah permitted to use rainwater indoors for toilet flushing and laundry, using the Alternative Engineered Design Section 301.4 of the Uniform Plumbing Code.

The rainwater harvesting system relies on homeowner interaction to be successful. Each unit has a display that indicates cistern level, and many homeowners report checking the display daily and adjusting their consumption based on the status.

#### LOCATION

ISSAQUAH, WA

#### TYPE

MULTI-FAMILY HOUSING

#### SIZE

13,400 SQUARE FEET

#### OCCUPANTS

20 FULL-TIME

5 VISITORS PER WEEK

#### RAINWATER HARVESTED/YEAR

83,658 GALLONS

#### WATER USE INTENSITY (WUI)

15.0 GALLONS/SF/YEAR

#### AVERAGE WUI\*

40.1 GALLONS/SF/YEAR

#### CLIMATE

TEMPERATE MARINE

38 inches of rain/year

155 days of precipitation/year

*\*Average WUI by building type according to Seattle 2030 District data*

#### GROUP ON TOUR OF ZHOME SITE



PHOTO COURTESY ISSAQUAH HIGHLANDS