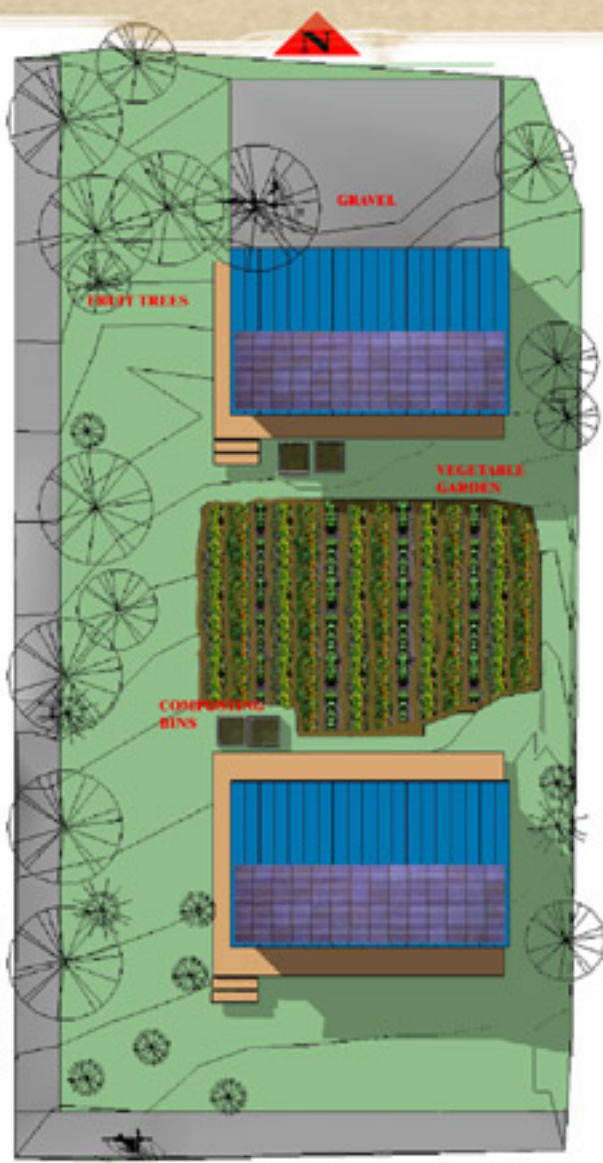
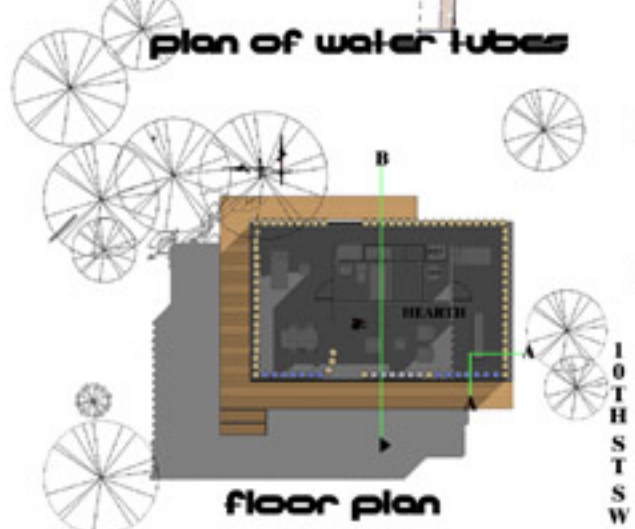
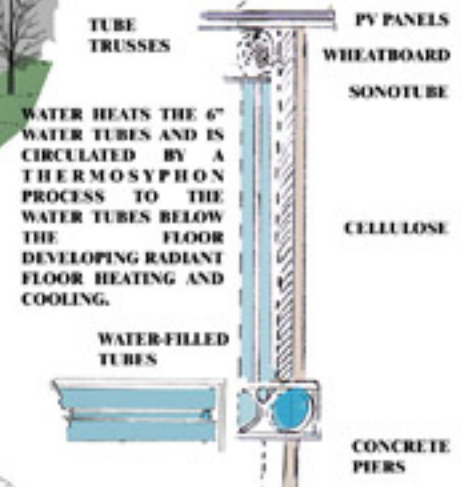
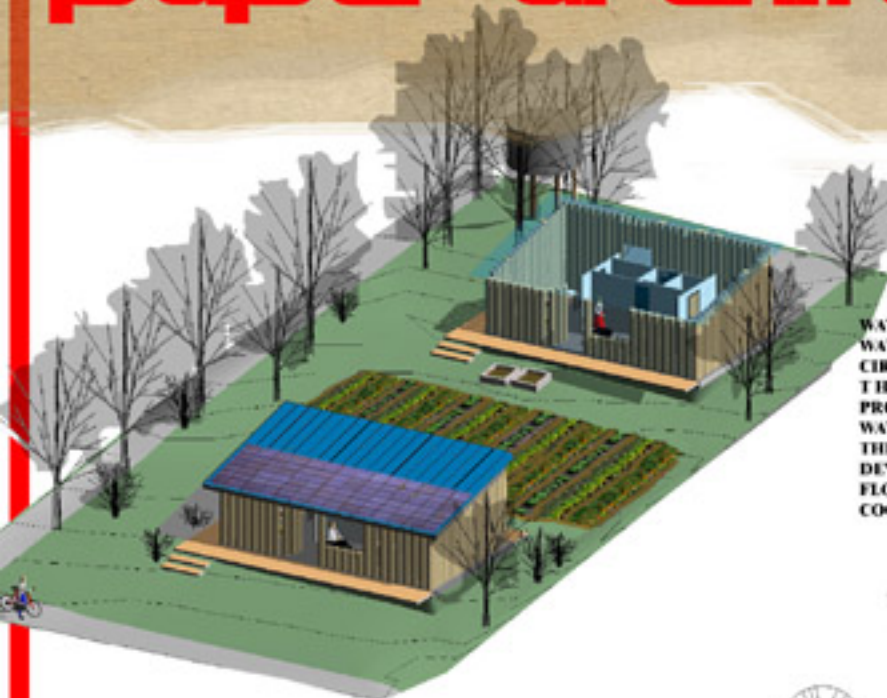


PAPER ARCHITECTURE

The intent is to design small affordable housing that is 90% recyclable and 100% off grid (electricity, gas, and water). The size and cost of the project allows the owner the option of having a second house built on the lot as a rental or as an extended family home. The cardboard structure (Sonotube) is waterproof, lightweight, and insulated with a recycled newspaper product (cellulose insulation). The south facing water-wall is used for both passive heating and night ventilation of the thermal mass. Photovoltaic panels with battery backup supply the energy needs. A cistern for rain catchment and a composting toilet eliminate water and sewer connections. Rainwater is used in the vegetable garden, which produces 382 lbs. per year of organic produce.



environmental footprint analysis

AVERAGE PERSON IN ROANOKE

CATEGORY	ACRES
FOOD	4.2
MOBILITY	4.2
SHelter	4.4
GOODS/SERVICES	9.4
TOTAL FOOTPRINT	22

IN COMPARISON, THE AVERAGE ECOLOGICAL FOOTPRINT IN YOUR COUNTRY IS 24 ACRES PER PERSON.

WORLDWIDE, THERE EXIST 4.5 BIOLOGICALLY PRODUCTIVE ACRES PER PERSON.

IF EVERYONE LIVED LIKE YOU, WE WOULD NEED 5.7 PLANETS.

AVERAGE PERSON LIVING IN THIS PASSIVE SOLAR HOUSE OFF GRID GROWING THEIR OWN VEGETABLES

90% RECYCLED PAPER PRODUCT BUILDING SHELL, RAINWATER COLLECTING, COMPOSTING TOILET, VEGETABLE GARDEN, FRUIT TREES, SOLAR ENERGY, SOLAR WATER HEATING, PASSIVE HEATING AND COOLING, EFFICIENT FLOOR PLAN LAYOUT, EFFICIENT USE OF ENERGY

Ecological Footprint Assessment: The Results
PER CAPITA FOOTPRINT IS 3 ACRES

analysis of materials within the building

A materials' list and their recyclable contents

Material	Item	Volume	Totals Weight (lbs)	Volume	Recycled Weight (lbs)	Volume	Recyclable Weight (lbs)	Percentage Volume	Percentage weight	
Concrete	piers	30.3	1800	0	0	12	1000	24	64	
	in tubes		430	0	0	0	0	3	1	
	roof structure		528	0	0	0	0	1	1	
	internal walls		275	0	0	0	0	1	0	
	posts		110	0	0	0	0	0	0	
Certified lumber	miscellaneous		275	0	0	0	0	1	0	
	panels	2.0	140	2.0	140	2.0	140.0	3	2	
Cardboard	core	10.5	120	10.5	120	10.5	120.0	5	1	
	tubes	40.0	2800	30.5	2800	30.5	2800.0	26	15	
Other boards 100%	Sundeck	0.4	480	0.4	480	0	0	1	0	
	Wheatboard	15.4	2448	0	0	0	0	2	2	
Roofing	aluminum	8.5	1050	0	0	0	0	1	1	
Material Item:	Windows	glass	0.2	390	0	0	0.2	390.0	0	0
	Floor layers 100%	Cellotex insulation	3.0	300			0	0	11	1
Glue	in panels	0.6	570	0	0	0	0	1	1	
	aluminum 25% roofing	0.1	336	0.03	94.0375	0.1	336.2	0	0	
Steel 25%	staples	0.05	94	0.01	98.375	0.0	0.0	0	0	
	plates for roof, etc	0.1	287	0.03	96.75	0.1	287.0	0	1	
Plastics	one layer of polyethylene	0.0	2	0	0	0	0	0	0	
	water retardant	0.0	0	0	0	0	0	0	0	
Chemicals	fire retardant	0.0	0	0	0	0	0	0	0	
	building paper	0.3	90.4	0	0	0	0	0	0	
Miscellaneous	pv array			0	0	0	0	0	0	
	batteries			0	0	0	0	0	0	
	electrical wiring			0	0	0	0	0	0	
	solar hot water			0	0	0	0	0	0	
	water pipes			0	0	0	0	0	0	
	cistern			0	0	0	0	0	0	
	water tubes			0	0	0	0	0	0	
	underfloor heating pipes			0	0	0	0	0	0	
	composting toilet			0	0	0	0	0	0	
	sinks			0	0	0	0	0	0	
	kitchenette			0	0	0	0	0	0	
	all of the above		1.0	1000	0	0	0	0	1	1

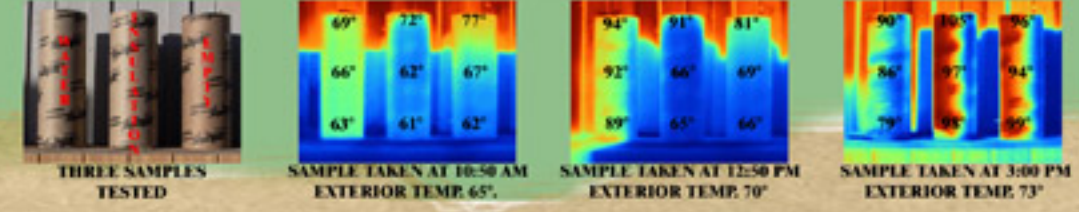
vegetable garden information

The garden can supply fresh vegetables during the growing season. It will also supply canned and preserved vegetables from the surplus.

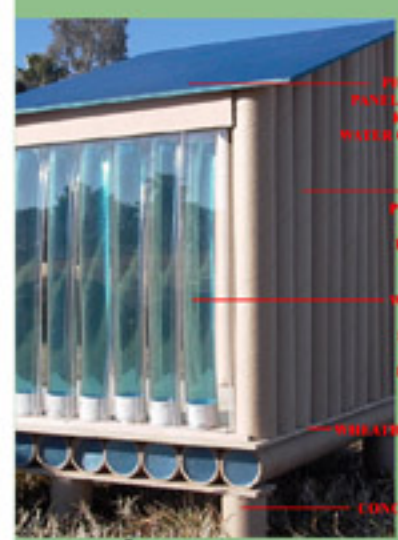


thermography study

DATE OF SAMPLE: SATURDAY NOVEMBER 11TH, 2004



isometric view



exterior view

section a



interior view

