

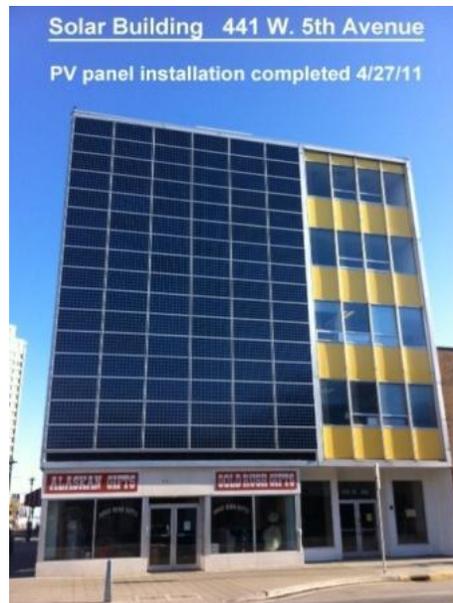
Please visit [alaskasolartour.org](http://alaskasolartour.org) for updates on this tour

## Anchorage Solar Tour: Tour day is Saturday, June 7th, 2014 – Tour Starts At 9:45am

Start Of Tour Meeting Location: Meet at downtown Kaladi Bros. Coffee (621 W. 6th Ave) by 9:45am. Tour organizer Andy Baker (cell 350-2084) and assistants will be there and the group will walk across Town Square Park to the Solar Building @ 10am. There is plenty of free parking downtown on Saturday mornings, however the annual Women's 10K Run will block off some of the streets, so plan to arrive downtown by 9:30am so you have plenty of time to park before the tour starts. You can meet up with other tour goers at this first site and car pool to other sites, the time slots for other tour site visits are given below.

<u>Sites</u>	<u>Times</u>	<u>Building</u>	<u>Address</u>	<u>Area of town</u>
Site #1	10am – 11:30am	<b>Solar Building</b>	441 W. 5th Avenue	Downtown
Site #2a	11:30am – 1pm	<b>Lousaac Place</b>	200 W. 20 <sup>th</sup> Avenue	Mid-Town
Site #2b	11:30am - 1pm	<b>Seth Downs Tri-Plex</b>	821 Edward Street	East Anchorage
Site #3a	1pm - 2:30pm	<b>Jake Struempfer Shop</b>	11741 Timberlane Drive	South Anchorage
Site #3b	1pm - 2:30pm	<b>Kittleson House</b>	5976 Muirwood Drive	Sand Lake Area
Site #4	3pm - 4:30pm	<b>Lowe Residence</b>	18700 England Circle	Potter Marsh Hillside

### Site #1: Solar Building – Downtown Anchorage – 441 W. 5th Avenue



**Commercial office building.** The solar building features a photovoltaic solar array of 96 Trina Solar tsm180-da01 at 180 watts = 17.28 kilowatts output. Three SMA 6000 watt inverters convert the dc power into ac and feed it into the building electrical service. This system is now the largest net metered solar PV array in the Anchorage area, the local utility is ML&P. Part of the south facade was used to place the panels at 90 degree tilt. This incorporates the array into the existing building envelope with very little maintenance requirements. Building Owner: **Steve Zelener**; Architect: **Mayer Sattler-Smith**; Contractor: **Renewable Energy Systems**. **This tour site is open from 10am to 11:30am; tours will start at the 5th Avenue street entrance to the building. If you arrive while a tour is in progress, please wait outside until the next tour starts.**

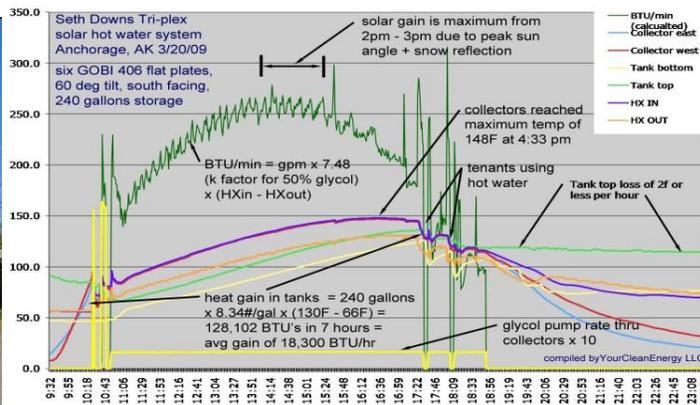
## Site #2a – Z. J. Loussac Community Building – Mid-Town Anchorage – 200 W. 20<sup>th</sup> Avenue



Community Activity Center. Owned and operated by Cook Inlet Housing Authority (CIHA), this facility serves the residents of the adjacent housing complex for families. The center operates daily for student education and recreation programs. Unique and innovative architectural design by Tamas Deak of KPB Architects that includes Energy Star 5+ envelope, fantastic day lighting, radiant floor heating, solar thermal domestic hot water heating, and native plant green roof. A great example of integrating passive and active solar into a very good looking and functional facility - enjoyed by many people each week year round in the seasons of Anchorage.

This site is open from 11:30am to 1pm; please park in the parking lot or on the street.

## Site #2b - Seth Downs Triplex – East Anchorage – 821 Edward Street



This Solar Thermal system consists of 6 Heliodyne flat plate collectors, 240 gallons water storage, counter flow tube & shell heat exchanger, differential controller and web based data logging. The system provides 50% of annual domestic hot water (showers, laundry, sinks) with a simple and heavy duty Alaskan style flat plate solar hot water heating system. Temperature, collector flow, and BTU data is logged every minute of each day to track performance through the year. This project provided essential data to demonstrate that flat plate collectors can indeed be effective in our Anchorage climate. System financial evaluation and engineering design by clean energy consultant Andy Baker, PE of [www.yourcleanenergy.us](http://www.yourcleanenergy.us). The system was built in September 2008 by the owner Seth Downs, with help from friends and the staff of YourCleanEnergy.

This tour site is open from 11:30pm to 1pm; please park at the adjacent Ptarmigan Elementary School lot.

## Site #3a – Jake Struempler Shop - 11741 Timberlane Drive - South Anchorage



Jake Struempler is a mechanical contractor and innovator who has successfully completed a very ambitious and innovative solar thermal collection/storage/distribution system on his large shop building/hangar. Below the floor he has excavated a 36ft x 36ft x 8 ft deep pit and filled it with wet sandy gravel to make an earth heat storage battery. The battery is lined with 4" blueboard + radiant barrier to keep heat from escaping to the surrounding ground.

Jake has also constructed a 2600 gallon concrete tank for water storage of solar heat. On the roof of the shop are Oventrop evacuated tube collectors = 64 tubes x 6ft long with custom racking to make south orientation and tilt angle of 75 degrees required for space heating. In the below ground mechanical room there is an innovative vertical manifold with sensor ports. He is able to monitor the temperature of the earth battery and water storage tank and circulate this heat for space heating of the radiant floor above. The system also allows city water pre-heat by running tubes thru top strata of dirt battery before topping up to 120F with indirect gas fired domestic water heater. The system was commissioned in November 2013, sending heat to earth battery and getting 30,000 - 40,000 Btu/hr @4GPM with 20F delta T. The shop building is detached and solar heat for radiant floor in nearby house is delivered via insulated buried glycol lines.

**This tour site is open from 1pm to 2:30pm. Please park in the driveway and allow room for other vehicles.**

## Site #3b – Kittleson House – Sand Lake Area - 5976 Muirwood Drive



This cutting edge house was designed from the start with the correct roof angle and orientation for great solar gain. Here is how owners Nicholas & Joann Kittleson describe the solar performance of their 2,000 sq ft house (new in May 2011): ***“Amazing! Passive overheats house unless we regulate by opening windows. In winter we use HRV to keep and circulate heat. Our domestic hot water has been provided nearly completely by solar collection since early March.”*** Built by Levi Smith of Alaska Decks & More LLC, with solar energy consulting by YourCleanEnergy LLC. The passive solar performance is enhanced by a large area of south facing Shiloh windows, moderate east and west window area, and minimal windows on the north side. The active solar hot water system consists of two Heliodyne 4 ft x 10 ft cold climate flat plate collectors, plus two 80 gallon storage tanks inside the building envelope. Federal Tax Credit of \$4,000. 5Star+ rebate = \$7,500. **This tour site is open from 1pm to 2:30pm, park on street.**

## Site #4 - Lowe Residence - 18700 England Circle - Potter Marsh Hillside



This owner built - custom 5+ stars home was completed in the fall of 2012 and is thought to be the first of its kind to hold an “off-grid” status that meets all building code requirements for the Municipality of Anchorage. At least 80% of the energy needed is produced by our hybrid off-grid renewable energy system (by Alaska Efficient Energy Solutions) harnessing both wind and solar.

In order to accomplish this, the building location had to work with the many elements of nature that are unique to the lot. The home was developed with an orientation facing northwest so it could deflect high winds, as well as capture majestic views of Cook Inlet and the Alaska Range. This energy efficient home has a high insulation value, a natural gas high efficiency hydronic system and Energy Star appliances. It was also constructed using the “remote wall” concept of CCHRC (Cold Climate Housing Research Center). The idea of using this wall design was to create a higher R-value that makes for an extremely air tight home and eliminates thermal bridging. In addition to these features and benefits, the owners believe this home is the first of its kind to obtain financing through a local bank (FNBA) with an off grid status.

### Off Grid RE System Consist of the following equipment:

- 12 – Sharp 240 W PV Panels
- 1 – WattSun AZ-225 Solar Tracker
- 1 – UGE 1000 W EDDY GT/X VAWT
- 12 – Surrrette 4KS 21ps 4 V batteries
- 1 – Xantrex XW Hybrid Inverter/Charger Generator

- 1– Xantrex XW MPPT 80 600 solar charge controller
- 1 – Xantrex XW SCP (system control panel)
- 1 – Xantrex BSM (battery status monitor)
- 1 – Xantrex XW AGS (automatic generator start)
- 1 – Cummins Onan 20KW Natural Gas backup
- 1 – Xantrex XW Power Distribution Panel

**This tour site is open from 3pm thru 4:30pm**

