February 12, 2010
Energy and Lighting
Colleen Gifford

The Dansby's live in a home that was built in 1911. The home is in serious need of renovation. Why? The cost of electricity, gas, water and maintenance of the home has become extremely high due to several factors. The cost of the human physiological needs has been dramatic for the family health.

Jae Dansby who's mother lived in the home since 1954 and who grew up in this home and now works out of the home is having health issues that we believe are related to the indoor air quality.

The interior of the home is very dark. There is not much daylighting from natural sources such as windows or sky lights. The windows in the home are small and some are colored glass. Even during the day it is necessary to have several lights on.

The home use to be heated using steam radiators but was replaced with a Trane XR90 gas furnace with a Trane cleaneffects and an XR14 air conditioning system in 2006. Although this was a great change the problems with the cost of gas bills and electric and water still exist.

We scheduled a home energy audit with Energy Trust. I was able to go through the audit with the tech on site and what we found was pretty amazing.

The home is three stories high, basement, main level and upper level. When we reviewed the basement we found that the duct work from the Trane had several points where leaks could occur. We also found that around the electrical box there was daylight coming in so additional leaks.

There was no insulation in any part of the basement . The electrical box is open and the wiring throughout the basement is patched all over.

We found that the water heater was manufactured in 1999 and should be OK for now.

The Trane was zoned separate for all three levels. Insulation on the main level was sporadically found.

In the living room we did testing to find inner wall insulation on both sides, in the kitchen we were unable to detect if there was any or not and in the dining room there was none.

On the third level we found insulation to be an issue again. In the attic there was some insulation but not all the way through. There was also a lot of debree that should be removed. The R8 insulation was sporadic some areas had 8-12 inches and some had none at all. This needs to be consistent.

In the master bedroom we found through a closet opening on the wall breaking through the wall there was a room maybe 5x6 no insulation and lost space not being utilized.

There was mold found from the roof leaking in one of the rooms off of the second bedroom.

The bathroom although it had a fan in the light fixture it was really not working.

We performed a water leak test on both the main level and upper level toilets. There were no leaks.

In the upper toilet we figured the water per gallon flush was somewhere between 3.5 to 5 gallons.
By putting a tdiverter and a toilet bladder in the toilet we antipipate the flush to be 1 to 1.5 gallons per flush. In the main level toilet it would flush adequately with either the tdiverter or bladder.

On the sink in the upper bathroom we estimated a 2.2 gallons per minute, replacing the aerator took it down to 1 gallon per minute. This was also done in the downstairs bathroom.

Through the master bedroom there was a sunroom built on to the home at some point. The problem is because there is no insulation, the seven layer roof and aluminum clad windows there was moisture and at times unbearable heat.

We found the electrical on both the main floor and upper floors to not be working in some areas. There were old knob and tube wiring found in different areas as well.

Taking a walk around the house we found the house leaning to the left but an added on back upper porch leaning right. The was a chimney that was removed at sometime.

The backyard slopes from an ally down towards the front street. The Dansby believe this is caused by improper water lines up and down the street. You can see a large crack in the payment of the street all the way up to the home. Soil damage surrounds the home. The

duct, gutters and downspouts are not connected properly which also adds to bad water flow.

The end result is that there is structural damage. We need to have a structural engineer and the water department evaluate the home. The home needs to be lifted by 3 to 9 inches. This is the first step.

Next the 7 layer roof needs to be stripped down and replaced looking at solar is an option.

Then a air blower test should be performed and using a infrared heat gun to determine what is really in the walls for insulation.

Insulation and electrical work as well as redesigning the interior using green materials. Reusing some of the old wood and any other reusable products should be considered.

Restoring this home to its old glory and celebrating its 100th birthday next year is the goal.

There is a lot of work and expense in this project. Finding funding and help is next.