

VILLAGE OF LOMBARD

Sustainable Project

41 S. 2nd Ave. Lombard

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In the following document, I would like to highlight the methods of design, construction, and operation that make 41 S. Second Ave. a truly "green" project in every way.

I would like to suggest 41 S. 2nd Ave. for consideration of the sustainability award. This project started as a necessary repair to a house that sustained a fire. Due to the extensive damage from the fire, it was decided that most of the original structure would need to be torn down. While this was a crushing blow to this young couple, they saw it as an opportunity to build an efficient new structure.

The total budget for the new house was \$94,000. The lot size is 54.7' X 140.63', and the total living space within the house is 1028 square feet. Below are some examples of the ways the homeowners worked sustainability into a project that most would have thought did not have the budget for a "green build":

Site Improvements:

- Obtained required variances to build house where it originally stood, and with a new second story. This allowed a reduction of the impact to the existing trees, reduced compaction of native soils. This also allowed a reduction of the original footprint of the house by adding the second story, thus increasing the pervious surface area within the lot.
- All excavated soil remained onsite, and was reworked into the landscape. This allowed for no additional soil to have to be trucked in.
- The sump pump discharges into to a rain garden to help keep rain water on site, and reduces the use of domestic potable water piped into the site.
- Grading and drainage management was designed to keep rain water on site as long as possible. This reduces the need to have water discharge into storm sewers, and also allows for usage to water plants.
- Reused brick and flagstone found on site for walkway pavers. This eliminated the need to haul them away to a landfill, as well as provided a pervious surface in place of a typical impervious concrete sidewalk.
- Native and edible plants are being used for landscaping in place of plants that are typically trucked in, watered heavily after planting, and offer no edible benefit.

Building Improvements:

- All energy efficient windows were saved from the original structure, except the bathroom and egress windows. This required extra effort to design the new house to fit the old windows, but it allowed these recently replaced energy efficient windows to be reused.

- Extra effort was put into placing the windows such that natural light and improved ventilation would reduce the need for artificial light and air conditioning. This house has no air conditioning.
- Along with careful placement of windows, ceiling fans were installed in each room to help eliminate the need for air conditioning.
- A 91% efficient furnace was installed, even though the code would have allowed for an 80% efficient furnace. This choice required sacrifice to be made, but it was the right thing to do.
- Compact fluorescent and LED lighting was used throughout the house.
- Energy star appliances were installed throughout.
- This was one of the first new houses to meet the 2009 International Energy Code (most current code). Creative design such as increased attic insulation and extra air sealing allowed for standard 2x4 wall construction to keep on budget. Most builders across the country use 2x6 walls to meet the code. The clever design used on this house allowed less wood to be used at a lower cost, while obtaining one of the most efficient houses built in Lombard.

While we all can point to some projects that used technology to save energy, this design shows obtainable design and construction methods that use less energy than a new house that costs twice as much. Many large houses use technology like a Hybrid SUV in an attempt to mask their huge carbon footprint, but this little house is actually green. The budget for this project (\$94,000) was less than what the average addition budget is, yet this couple managed to build a whole house, while having a smaller carbon footprint.

It is worth mentioning that this couple did not ask for praise. They did everything they did because it was the right thing to do. When I called ask the owners of the house if I could submit their project, they were stunned that anybody noticed their efforts. When I asked what was next, they described a rainwater collection and storage system they are planning to install. There have been several projects that installed \$100,000 worth of technology to reduce the large amount of energy they will use, but none that spent under \$100,000 to build a complete efficient house that will use less energy.