

Roseville Green Award Application - November 2012

Jamie & Gabe Becker-Finn
3033 Victoria St N, Roseville
New Construction Home - Rebuild

1. BMPs apply to property:

Did the home use sustainably-manage imported woods? Yes.

Did the home use proper ventilation base on testing? Yes, the HVAC tradesman used a manual J, manual S and manual D to determine the correct air distribution needed, the proper size of mechanical equipment and the proper duct size and design. The Energy Star rater did a duct blast test on the ductwork to confirm it was sealed tight according to Energy Star requirements.

Was the home inspected by an official energy auditor/rater? Yes, by an Energy Star rater.

How did the home integrate overall design and construction of Green improvements? The biggest problem the existing home had was moisture. The home sat on the property in a location and level that made it very difficult to keep water away. The home had 3 sump pumps and still have mold/moisture issues. That home was torn down and rebuilt. The new home and final grading/landscaping were designed to keep water away from the home to keep it dryer, healthier and the new home, according to Energy Star is around 50% more energy efficient than the average home built today.

2. BMPs on property:

What was the permeability to hardscape ratio? About 11-12% of this 0.8 acre lot is hardscape including the house, sidewalk and garage.

Was soil quality considered with new plantings? Yes, the homeowners brought in black dirt where it was lacking, before planting plants and seeding grass, so the ground should retain rain water better and longer.

Did the project protect natural site features? There were no wetlands on or near this property however there are a lot of mature trees on this property and not one of them needed to be cut down since the new home is, for the most part, on the same footprint.

What type of native and low-maintenance, drought tolerant plantings were installed? None yet, but the homeowners have plans to plant some native, low-maintenance plants near the driveway once it is completed and possibly near the road. Also, the homeowners consulted with someone from the Rice Creek Watershed District before planting anything to make sure they were making good choices.

What consideration was made for the installation of turf alternatives to reduce the need to mow lawn? The homeowners considered it but the city wants to see grass. They had "no mow" grass planted on the slopes on both the front and back sides of the house. Would estimate this was about 25% of the area that was planted with new grass.

What irrigation system was considered? None at this point, it should not be as necessary because there are a lot of shade trees that will protect most of the yard from the hot mid-summer sun.

Was outdoor living space considered? Yes, the homeowners hope to install a patio and a deck within the next few years. The patio would also reduce the amount of lawn that needs to be mowed.

What BMPs for erosion control were made at the site? Before construction was started, proper erosion control fence was installed around the property and left there until the yard was established.

Did the property install any rainwater harvesting products? The homeowners have a rain barrel and plan to install a rain garden someday, probably when they put in the patio.

Has the site been properly graded and is it draining correctly? Yes, there was a survey done which showed design for proper drainage and the final grade was done according to the survey.

Is there any compost bin/plan in place? Yes, the homeowners have a compost bin and they use it.

3. HVAC:

Are all appliances vented to the exterior? Yes.

Have bath fans been installed to mitigate moisture? Yes, the builder installed higher quality, Delta Breez bath fans: Energy Star Certified with DC Motor technology, Noise level at 1.0 sone, Annual energy cost for 24/7 operation is approximately \$14.93, Energy efficiency at 7.7 CFM/Watt, best price performance bath fan in the market.

Was the ductwork properly size and sealed? Yes, the ductwork was sized according to the Manual D calculations and sealed according to the Energy Star for New Homes Program requirements. Also a duct blast was performed by an Energy Star rater to confirm the ductwork is well sealed.

Where Energy Star rating systems installed? Yes, the builder installed a 95% furnace with a 2 stage, variable speed blower which makes it run more efficiently when heating or cooling. An air source heat pump was also installed which makes heating the home much more efficient. Also the air exchanger installed is an ERV system, which is more energy efficient than standard HRV air exchanger.

Has a programmable thermostat been installed and programmed? Yes, a Honeywell programmable Prestige thermostat, including the Gateway system and Redlink technologies that will allow operation of the thermostat remotely through an internet connection, which can save energy by allowing the homeowner to adjust the thermostat to a more energy efficient setting from their phone if they forgot to before they left or turn the heat way down when leaving on a trip and turn it back up when getting close to home. Homeowners are usually more willing to leave the home at a more efficient temperature because they know it can still be warm when they arrive at home.

4. High performance floors, walls, roofing, ceilings:

Was a soil gas mitigation system installed? Yes, the basement was filled with rock, before pouring the

floor, which allows gas, if present, to travel through, into the drain tile, which was installed around the perimeter of the footings and is connected to a sealed sump basket. There is a 6" pipe that would carry gases from the sump basket through the roof of the home. Also, the basement floor/foundation are sealed from air underneath.

Has the basement been tested for moisture or was moisture resistant materials used in basement?

Polyethylene was installed below the concrete floor and green treated studs were used for wall bottom plates.

Is the basement finished as living space? No not yet.

What level was the foundation insulated? R-10 Thermax insulation on the interior of the foundation. It was installed before the floor was poured so it created a thermal break between the foundation wall and concrete floor.

What was the concrete fly-ash content? 20%

Was sustainably managed lumber considered? Yes

Did the property recycle/reuse materials? Yes, the dumpster service used for this project recycles all materials that they are able to recycle (Commercial Container Corp, Minneapolis)

What is the efficiency of windows and doors? Doors: R-value of 15 and u factor of .16 / Windows: (3) Casement windows - U-value: .28, R-value: 3.57, SHGC: .28 / (1) Fixed window - U-value: .27, R-value: 3.33, SHGC: .33 / (rest of windows) Sliders - U-value: .30, R-value: 3.33, SHGC: .33

What is the insulation rating in the attic? The builder first spray foamed areas that are common to leak, then installed R-50 blown-in fiberglass insulation which is above and beyond what most builders do.

Did the property eliminate or limit recessed lights? There are recessed lights in this home however probably fewer than most.

Was an advanced framing system employed to minimize framing waste? Yes, SIPs (structural insulated panels) wall panels were used which are constructed in a factory, so there is less jobsite waste. Also each panel is cut from larger panels by machines with computer software determining where cuts should be made that makes the least amount of waste as possible. Also the wood waste is reused for engineered wood.

5. Appliances/fixtures:

Energy Star or higher efficiency appliances? Yes refrigerator, dishwasher and clothes washer.

Energy Star light fixtures? Yes.

Consideration of efficient lighting? Yes, CFL bulbs were installed.

Prepping/or installing Photovoltaic? No

Optimization strategies employed? Yes, the living room has switched receptacles installed in the floor

6. Plumbing:

Low-flow or ultra low-flow faucet and fixtures? Yes, low-flow kitchen faucet, low-flow bathroom faucets and low-flow shower heads.

Dual flush toilets? Yes, dual flush toilets were installed.

Plumbing lines run in copper alternative? No.

Tankless water heater or gas-fired water heater? Yes, gas water heater.

7. Finish materials:

Low/no VOC primer? Yes.

Low/no VOC paint? Yes.

Low/no VOC caulking/adhesive? Yes, Titebond Greenchoice adhesives were used which are VOC-compliant, urethane and solvent-free products.

Low/no VOC sealers on wooden millwork, doors, flooring? Yes.

Minimal/no carpet installed, all hard surface flooring? There is a combination of carpet and hard surfaces.

Cabinetry/millwork/doors is sustainably harvested/no-added formaldehyde wood and composite?

The millwork used was from Ferche Millwork, which has a lumber concentration facility where they receive random width and length lumber from sawmills, many of which are located in the Appalachian region of the United States. The Appalachian region is recognized by the United States Forest Service as a "Sustainable Hardwood Forest". This lumber is air-dried for an appropriate period of time and then kiln-dried in kilns powered by sawdust from near-by sawmills. Kiln dried lumber is then ripped in their manufacturing facilities where technology enables them to "optimize" each individual board to maximize its use. Longer lengths are processed into mouldings and shorter lengths find their way into component parts, edge trim or finger-joint core for their veneer operations. Sawdust, shavings and fines are burned to produce steam to power the Minnesota kilns and to heat the manufacturing buildings. Excess residues are sold into the agricultural and fuel markets resulting in no waste. Ferche embraces "green" with processes that greatly reduce waste and sustain valuable natural resources. They buy lumber from sawmills which selectively harvest trees from the forest. Their "lean" manufacturing philosophy has nurtured the development of processes which give a higher yield of finished goods from the raw materials. They have implemented the use of minimal amounts of material for set-up. Ferche's philosophy of "100% usable" material means less waste on the jobsite since we remove defects and channel this residue into the most appropriate use before it reaches the customer. Their commitment to responsible resource management predates 1985 when Ferche Millwork received a National Award for

Energy Innovation for its proactive approach to recycling wood byproducts for fueling its boilers to heat kilns and buildings. In April of 2009 Ferche Millwork was granted Forest Stewardship Council (FSC) Chain of Custody Certification by Scientific Certification Systems (SCS) who is accredited by the FSC to certify companies to their international standards. While many certification systems provide assurances that the resources are responsibly managed, FSC is the only system currently accepted under the United States Green Building Council's LEED program.

Materials were salvaged/reused? Anything that was salvageable from the old house was sold on Craigslist or given away so that it was re-used instead of trashed. The homeowners also salvaged all of the old cabinets from the old kitchen and are using those in the garage and basement.

Materials were locally sourced? The lumber and framing system were sourced from 3 hours away and the rest of the materials were from 30-60 minutes away.

Materials were recycled? Yes, the engineered lumber that was used was made from extra wood scraps at the lumber plant.

8. Waste Management:

Construction waste recycled? Yes, the dumpster service used for this project recycles all materials that they are able to recycle such as all metals (steel, aluminum, iron, and copper), shingles, clean wood, concrete, cardboard, paper products and plastics.

Construction waste reused? Yes, the recyclable waste materials are recycled and reused (metals/plastic are melted down to be reused, concrete is ground up and reused in new concrete mixes, cardboard/paper are ground up and reused in new paper based products).

Hazardous materials were recycled/disposed of properly? Yes, a hazardous waste inspection was done and hazardous waste materials were removed by a certified contractor.

Recycle center installed for homeowner? Yes, there is a recycle bin pullout built into the kitchen cabinets.

9. Home design

Additional or enlarge bathroom? There is a master bathroom.

Added master bedroom suite? Yes, master bathroom and walk-in closet.

Created main floor family room? No, there is a main floor living room and a future family room in the basement.

Enlarge/improve kitchen? Rustic Hickory custom cabinets and granite countertops.

Added a second story? No.

Added a second garage stall? No

Additional street appeal? Front stoop with stone pillars. The driveway and yard layout a lot nicer now.

Other: The new home is wheelchair accessible which makes it a more functional property for more people.

The new home is a tremendous amount healthier than the old home. The old home and lot were designed so that water would run towards the home, there were 3 sump pumps installed in the home and moisture issues such as water staining and mold were still prevalent. The new home and land were designed to have water run away from the home and gutters were installed around the entire home. Also, air returns in most new construction homes are installed in the wall chases so if the air that runs through there is moist it can easily land on the wood and drywall in the wall chase to create mildew/mold issues. The builder for this home installed metal hoods for the air returns connected to metal ductwork so there are no organic materials in the returns for moist air to latch on to which is part of the EPA's Indoor airPLUS Program.

The window treatments are Cellular Shades that have an insulating cellular design which keeps the home cooler in the summer and warmer in the winter. They are one of the most, if not *the* most energy efficient blinds on the market since the pockets of air provide insulation.

The old home that was at this location was purchased last year in the low \$100s and the new home appraised in the upper \$300s, so the value of this property was raised dramatically which helps the nearby property values.