

Northpoint Homes

Start with 2,700 square feet of living on three floors.

Then choose one of five front exterior designs.

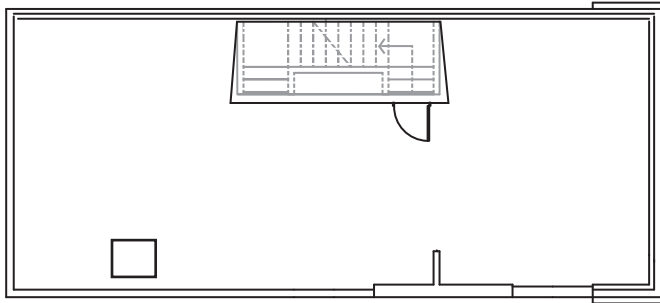
Own this beautiful, **Green and Sustainable** home with a two car garage on your site for as little as \$325,000.

We're happy to work with you on special requests for customizing with an array of interior and exterior Green features of your choice or to assist in creating a completely new home design in a design-build collaboration with architect.

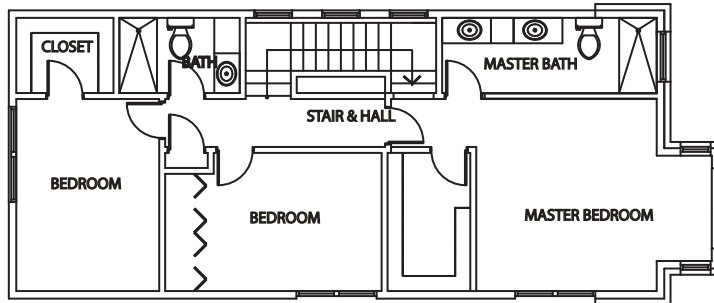
Call us at **733.506.2799** for free consultation.



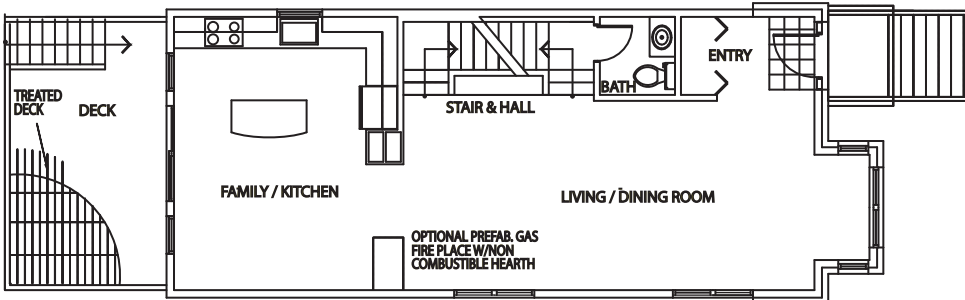
Flat roof for green roof garden, with or without a fake Gabel front elevation



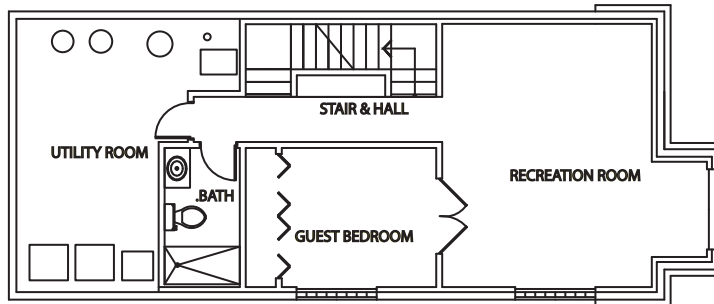
Second Floor



First Floor



Lower Level



Green is hot! According to a survey conducted by McCraw-Hill Construction, demand for green building had outpaced supply by early 2007, as home buyers looked for greater energy efficiency. The National Association of Home Builders (NAHB), a trade group not known for making wild predictions, now believes we've reached the tipping point when half or more of its members are incorporating green features into the homes they build. Even the modular housing industry is getting into the act with a growing list of designers coming up with houses that embrace the goals of sustainable building, not simply fast construction.

Green building shows every sign of becoming a self-fulfilling prophecy: The more people are exposed to the benefits of green homes, the more green homes will be built. Coast-to-coast, the home-buying public is asking for green features from their architects and builders."

-David Johnston

Below is a listing of optional Green methods, equipment, materials and finishes. This information is a sampling of what's available and most viable. All information to follow (is regularly researched and compiled to provide you with the best value, quality, comfort, sustainability and cost efficiency.

MASONRY

Green elements include masonry materials using up to 10 % recycled content and mortar that is moisture resistant. The Brick Industry Association (BIA) states "Sometimes recycled and industrial waste aggregates, such as fly and incinerator ash. In all cases, the high firing temperatures used in the manufacturing process render the bricks environmentally safe and user-friendly. Fly-ash makes the mortar considerably harder. Fly-ash makes the concrete stronger, more water resistant and more durable than a batch that uses portland cement alone. Throughout this process, there is virtually no waste — virtually all of the mined clay is used in the manufacturing process."

(BIA also provides training to our subs in installation to maintain the "greenness" of the product through proper mortar application and material handling.)

FOUNDATIONS

Foundations are insulated to prevent heat loss in cold climates. We recommend rigid insulation to protect the perimeter of the foundation.

ROOFING

A high-quality roof can also be a powerful asset in reducing energy consumption. When used with appropriate insulation on low-sloped or flat roofs, a high-emissivity reflective roofing system can:

- reduce building energy consumption by up to 40 percent
 - improve insulation performance to reduce winter heat loss and summer heat gain
 - preserve the efficiency of rooftop air conditioning
 - potentially reduce HVAC capacity requirements
 - decrease the effects of "urban heat islands" and related urban air pollution
-

SOLAR SHINGLES

The new PV Shingles enable roofs of residential or commercial buildings to become sources of electricity, as well as protection from the elements. The face of the PV Shingle is textured to blend and complement the granular surface of conventional shingles. This system will produce on average of between 10% and 30% of the power needed in a medium-size energy efficient home.

STAND ALONE POWER SYSTEMS

Everything in one complete "Stand Alone" (ST) package line, meaning that they are not connected to an electric utility. Stand-alone solar electric power systems install easily for all types of standard or remote power needs. Systems add a battery backup for uninterrupted power during utility blackouts or outages. Solar modules come with 20 year warranty, are hail-resistant, produce 120 watts DC power in full sunlight. Solar array sizes available from 8-40 modules, generate from 480-4000 watts of solar power in full sunlight, delivering up to 580 kWh/month. Larger sizes also available. Rooftop mounting systems for all types of roofs (shingle, tile, flat), rated for 125 mph winds DC-AC inverter continuously converts solar DC current into common household AC current, UL listed Battery bank of 4-40 kWh gives instantaneous backup power during utility blackout or outage, allows uninterrupted operation of important loads and is recharged each day by the solar array as long as the outage continues.

Visit: www.oksolar.com

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CONSTRUCTION SERVICES, INC.

4553 N. Clark St. • Second Floor • Chicago, IL 60640
773.506.2799 • fax: 773.506.2871

Web: www.nptcs.com • inquiry@nptcs.com • Newsletter: backtoagreenfuture.com



SHR-17 PV Shingles by UniSolar: The flexible thin-film solar cell shingles can be installed in new construction nailed in place using common roofing nails on conventional roof decking over 30-lb felt underlayment. The shingles can also be placed over existing roofing. The surface is textured to blend and complement the granular surface of the surrounding conventional shingles. 18-gauge lead wires exit from the underside of each shingle. Lead wires on the backside of the head-lap pass through the roof deck to allow wiring connections to be made in the roof space. The sun warms the solar electric shingle providing a bond that forms a weather-resistant covering. Unit-Solar PV Shingles are UL listed. Visit: <http://www.oksolar.com>

PANELIZED WALL CONSTRUCTION OPTIONS

ELFI Wall Panel System is constructed with 16 or 18 gauge structural metal studs embedded in rigid foam. The wall panels are typically 8 inch thick and the roof panels can be from 10" to 14" offering a thermal rating up to R-80. There is a 25 to 40% savings in building materials and labor. Elfi walls are flame and moisture retardent, stronger and more resistant to damage. Visit: www.elfiwallsystem.com

Structural Insulated Panels (SIPS) combine frame and cavity insulation in one and produce conformable, energy-efficient framing. SIP "sandwich panels" are constructed of 7/16" OSB panels on each side with a rigid foam core. The results are superior strength from the structural lumber without losing thermal performance. Visit: www.greanseal.org

WALL AND ROOF INSULATION

(For Stick-built or "Conventional Panelized" wall framing systems using wood studs)

The wall systems previously mentioned (Elfi and SIPS) contain their own insulation. There are many options for insulation with conventional framing methods. Northpoint highly recommends cellulose or bio-based foam insulation. Both are sprayed on and create a wall cavity without gaps. These materials have effective sound barrier qualities as well and are energy efficient, moisture and air filtration barriers. We typically recommend cellulose for cost and thermal qualities.

Cellulose insulation controls air filtration better, has a higher R value per inch and is more effective than fiberglass. Testing has shown that blown fiberglass loses R-value as the outside temperature decreases. Whereas cellulose thermal insulation gains in R-value. Cellulose closes the unavoidable gaps that is left by fiberglass batting and provides an even, complete monolithic seal that envelopes every corner gap, fixture and device.

WINDOW OPTIONS

Vinyl window frames are popular for their low cost, low maintenance, resistance to moisture and energy efficiency and durability.

Wood window frames are also energy efficiency though they cost more and will require some maintenance, unless they are clad with aluminum or vinyl. Wood window frames are a more sustainable/environmentally friendly product than the vinyl.

Fiberglass window frames are the most energy efficient. The initial cost is high, but the maintenance is little to none.

RECYCLED MATERIALS



Recyclable timber and lumber can come from barns, old mills and fences around the Northwest. Your doors, millwork and/or cabinets can also be built from reclaimed or FSC certified wood species from around the world. They are made entirely from post consumer recycled content, yet are built as solid wood doors with an engineered stave core (not made with composite or pre-manufactured materials).

Visit: www.reclaimedlumberproducts.com

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ROOFTOP GARDEN

Northpoint recommends **LiveRoof® System**. LiveRoof module arrives to the job site with full-grown plants inside the container and is simply set in place on top of a protective membrane surface underneath. There are no water reservoirs to cause root rot. The roof is instant and instantly functional.

Green roofs have been proven to bring about significant energy savings, particularly during the summer cooling season in which single story buildings can experience a reduction of greater than 25% energy use.

LiveRoof extends the lifetime of the roof. Typical estimates are – that a green roof extends the lifetime of a roof between 100 and 200 percent. The vegetation protects the rooftop from ultraviolet radiation, large temperature fluctuations, drying winds and punctures. LiveRoof requires very little maintenance unless a rain draught causes prolong dryness.

ENERGY EFFICIENT HEATING AND COOLING

Insulated ductwork running through conditioned space reduces heating and cooling loads and eliminate mold and conserves energy. Sheet-metal ducts are a good green choice. They are less likely to sag than flexible duct, don't contribute any fibers or contaminates indoor air and are made from a recyclable material.

Up To 97% Efficient Gas Furnace

Nearly all manufacturers makes a 90 plus gas furnace. The multi-stage modulating gas furnace is 92% To 97% AFUE (Annual Fuel Utilization Efficiency). Fresh air is induced "as needed" through Demand Control Ventilation.

Geothermal System

By reversing the direction of the refrigerant, the system can work as a heat source or as an air conditioner. The geothermal system can be used with either forced-air or radiant distribution systems. It does not use any fossil fuels which causes pollution. The Open-loop system is the cheapest to install, having a vertical systems as an option. Many physical factors regarding the soil on site effects the pricing. Overall, a **ground-source heat pump** is the most eco-friendly and cooling system available for a geothermal system, but are expensive to install.

Having healthy air inside the house does carry an energy price tag. A way of mitigating the damage is with a **heat recovery ventilator** (HRV), which can recover between 60 % and 85% of the heat from exhaust air.

SOLAR HOT WATER

A solar water heater is basically a prepaid utility bill. Systems range in cost from \$2,000 to \$8,000 depending on climate and water needs. While that's not exactly cheap, a solar hot water system will improve cash flow month after month as long as you live in the house. You might also receive a tax-free return on your investment of up to 25 percent. If the cost of the system can be rolled into the mortgage, it can amount to only \$20 or less per month. All you have to do is have that much in lower hot-water costs and you have a positive cash flow.

STORM WATER MANAGEMENT

Further conserve water with a rain water catchment system making it easy to fully water your lawn and garden with rain water.

RADIANT FLOORS

Radiant heating has a number of advantages: it is more efficient than baseboard heating and usually more efficient than forced-air heating, because no energy is lost through ducts. The lack of moving air can also be advantageous to people with severe allergies.

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Hydronic Radiant Floors

Hydronic (liquid) systems are the most popular and cost-effective radiant heating systems for heating-dominated climates. Hydronic radiant floor systems pump heated water from a boiler through tubing laid in a pattern underneath the floor. In some systems, the temperature in each room is controlled by regulating the flow of hot water through each tubing loop. This is done by a system of zoning valves or pumps and thermostats. The cost of installing a hydronic radiant floor varies by location and also depends on the size of the home, the type of installation, the floor covering, remoteness of the site and the cost of labor.

Hydronic (liquid-based) systems use little electricity, a benefit for homes off the power grid or in areas with high electricity prices. The hydronic systems can also be heated with a wide variety of energy sources, including standard gas- or oil-fired boilers, wood-fired boilers, solar water heaters, or some combination of these heat sources.

Electric Radiant Floors

Electric radiant floors typically consist of electric cables built into the floor. Systems that feature mats of electrically conductive plastic are also available and are mounted onto the subfloor below a floor covering such as tile.

Because of the relatively high cost of electricity, electric radiant floors are usually only cost-effective if they include a significant thermal mass, such as a thick concrete floor, and your electric utility company offers time-of-use rates. Time-of-use rates allow you to "no charge" the concrete floor with heat during off-peak hours (approximately 9 p.m. to 6 a.m.). If the floor's thermal mass is large enough, the heat stored in it will keep the house comfortable for eight to ten hours, without any further electrical input (particularly when daytime temperatures are significantly warmer than nighttime temperatures). This saves a considerable number of energy dollars compared to heating at peak electric rates during the day.

Electric radiant floors may also make sense for additions onto homes for which it would be impractical to extend the heating system into the addition. However, homeowners should examine other options, such as mini-split heat pumps, which operate more efficiently and have the advantage of also providing cooling.

Heated Radiant Floors

Because air cannot hold large amounts of heat, radiant air floors are not cost-effective in residential applications, and are seldom installed. Although they can be combined with solar air heating systems, those systems suffer from the obvious drawback of only being available in the daytime, when heating loads are generally lower (i.e. during work and school hours).

GREEN FLOORING OPTIONS

Bamboo Floors are a rapidly renewable resource. Unlike many of the hardwood floors available on the market today, that takes tremendous amounts of time to reforest, bamboo grows abundantly both here and abroad, and it replenishes very fast.

Engineered Wood Floors are made of many layers of wood similar to plywood. The core wood products are mainly recycled materials combined with special adhesives to make a very durable flooring product. The finished surface layer or "wearing surface" is coated with several coats of polyurethane applied in the factory. While it can typically be sanded only once in its lifetime, the product surface is much more durable than with field applied finishes.



Compact Fluorescents

LIGHTING

Day-lighting is designed to provide light to all rooms in daytime use and for the tasks and uses of each room. Northpoint suggests dimmers and occupancy sensors to minimize lighting requirements. Reduce electrical loads everywhere. Install compact fluorescent bulbs or LED fixtures where possible. Provide circuit switches to cut power to "always on" phantom loads.

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ENERGY STAR APPLIANCES



Upgrading to appliances that have earned the **ENERGY STAR**, and you can save up to \$75 per appliance a year in energy costs, while saving the environment. Remember, when buying an appliance, remember that it has two price tags: what you pay to take it home and what you pay for the energy and water it uses. ENERGY STAR qualified appliances incorporate advanced technologies that use 10–50% less energy and water than standard models. The money you save on your utility bills can more than make up for the cost of a more expensive but more efficient ENERGY STAR rated model.

ECOLOGICAL LANDSCAPING

Install landscaping that is native to your location. Plant drought tolerant species. Use landscaping to help reduce cooling loads, especially around east and west facing windows. Plant edible landscaping for people as well as birds, butterflies and wildlife. Install water catchment system based on your annual rainfall.

KITCHEN AND BATH TILES

Glass tiles can be used anywhere normal ceramic tiles would be installed, and they have the added benefit of being resistant to chemicals and stains, which makes them good for areas that are prone to getting wet. They can be installed on floors, walls, countertops, tabletops, among other locations, and they can be used outdoors as well as indoors.

LOW VOC MATERIALS FOR INDOOR AIR QUALITY

Today, alternative manufacturing techniques have allowed the development of low and no-VOC (volatile organic compounds) paints that release no, or minimal VOC pollutants, are virtually odor free and improves performance and durability. Regular paints, adhesives, and other protective finishes are often formulated with solvents (or VOCs). For persons who are particularly sensitive, or have strong concerns about air quality, most major manufacturers now offer special no-VOC paints that are odorless and completely "VOC-free."

Studies have also shown that the use of cleaner products reduces the incidents of health problems. Regular all-purpose cleaners, as well as specialty products, such as metal polishes and glass, tile and tub cleaners, pollute indoor air quality and may cause respiratory and eye irritation. Visit: www.epa.gov/iaq/voc.html

WHAT ARE THE BENEFITS OF A LEED RATED HOME?

A new study shows occupancy, rental rates and sale prices are higher than in conventional real estate. LEED certified homes and businesses are shown to outperform their non-green counterparts. Northpoint associates itself with architects that are LEED AP and we are fully familiar and experienced with the LEED AP procedures and guidelines. Visit: www.usgbc.org/

NORTHPOINT is happy to discuss your new or existing home or business. We provide cost proposals and consultation at no cost. Please call Pat or Mike to discuss your Green construction needs.

Please visit our website at www.nptcs.com and our newsletter at www.backtoagreenfuture.com.



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