

The New National Green Building Standard

The ANSI (American National Standard Institute) has approved the NAHB (National Association of Home Builder) Green Building Standard into the ICC (International Code Council). That is a lot of acronyms for one sentence. What does this mean? We now have a national standard guideline for green building. The national standard is broken up into six basic categories of construction. These are: 1 - Lot Design, Preparation, and Development; 2 – Resource Efficiency; 3 - Energy Efficiency; 4 – Water Efficiency; 5 – Indoor Environmental Quality; and 6 – Operation, Maintenance, and Building Owner Education. Each one of these categories is broken up into smaller sub-sections and explained very thoroughly. Each item listed in the section is given a value. Some of the practices are required to achieve a certified green home and some you may pick and choose. There are also four different performance levels: Bronze, Silver, Gold and for the over achiever Emerald. Each section has a minimum number of points that must be attained and an overall point goal. This is to prevent an overload all of your points in a couple categories. The overall scoring only goes as high as the lowest section satisfied. In other words if you have enough points for an Emerald rating but you only scored Bronze in one of the sections then the highest rating you can be certified for is Bronze. The standard can also be applied to renovations and additions but depending on the size of the project it may be tricky to get a high rating. In most cases the addition can be rated but the entire house will not be certified unless the existing structure and systems are brought up to the standard.

The overall scoring levels are spelled out as : Bronze 222 points, Silver 406 points, Gold 558 points and Emerald 697 points. For a Bronze rating the subsection requirements are as follows: Lot Design 39 points, Resource Efficiency 45 points, Energy Efficiency 30 points, Water Efficiency 14 points, Indoor Environment Quality 36 points, Building Owner Education 8 points. Some quick math will tell us that this is only 172 points. There is another requirement. We must add 50 additional from any sections we desire to meet your 222 overall points. As the desired rating level goes up so does each sub-section point level. All of the levels other than Bronze require 100 additional points from any category. Let's briefly touch on examples from each category to see what you may get points for.

The first section is Site Design and Development. If your site is an infill lot in with existing infrastructure around it then you have not greatly impacted the environment and score 4 points. The next subsection is an important one. Have you implemented a team of qualified professionals? If so, you just scored 4 more points. The mandatory points we read about earlier come into play as you need to have a checklist of green development practices to be followed and completed during the project. Other examples of points achieved would be to conserve the natural resources by protecting natural areas during construction, installing a storm water

management system, or having a landscape plan. A great way to score 5 points is to stock pile the existing topsoil to re-use later to establish landscape plantings.

The next section is Resource Efficiency. The first sub-section is hard to get points as it relates to the size of the house. You get 15 points for building a house less than or equal to 1,000 square feet but you have to subtract 1 point for every 100 square feet over 4,000 square feet. Points in this section are given for using prefabricated wall systems, floor systems, and roof systems. Large points are awarded for modular construction and manufactured homes. These numbers can be equaled when the home designer can layout a custom home to the proper building dimensions to reduce waste and provide corresponding framing and structural plans. Points are obtained for having foundation drainage, proper drip edge installation, and having proper roof water discharge away from the house. Recycling the construction waste on-site by mulching concrete blocks, studs, drywall, etc into lawn mulch is a great way to get points. These items can also be taken to an off-site recycling center to get points. We also get into renewable materials and bio-based products such as engineered lumber, bamboo, cork and soy/corn based products and can get up to 8 points for using such materials.

The third section on our list is Energy Efficiency. You will start finding a lot more mandatory items in this section. The reason being is that now we are focusing on mechanical systems of the home. The ducts must be properly sealed. The HVAC contractor must fill out a Manual J to properly size the heating and cooling units. Other mandatory items include sealing rim joists and sills and properly caulking and gasketing windows. All recessed lights, attic access doors, and skylights must be properly sealed. The tighter the home becomes the easier it is to control the indoor air quality with the mechanical systems. Large points are given for ground source heat pumps and energy star appliances. Solar hot water systems, passive solar designs, and solar photovoltaic heating and cooling systems are also covered in this section.

The Water Efficiency section is all about water conservation and reallocation. The section gives points for reducing the amount of hot water used by installing one of the high efficiency piping systems described in the section. Other items receiving credit points are Energy Star water reducing appliances, low flow showerheads, low flow faucets, and low flush toilets. Irrigation systems are a large contributor to wasting our water resource. There are many options in this area to collect points from rain water recovery systems, grey water reuse systems to low volume soaker hoses and drip irrigation systems.

The next opportunity for green points is Indoor Environmental Quality. The main contributor to air quality is the HVAC system but there are a lot of possible pollutants that need to be addressed in this section. The use of Low VOC paints, caulks, sealants and carpets help prevent toxic outgases from being released into the home. Tile backing, crawl space moisture control and vapor retarders must be installed properly to prevent mold conditions. The house

works as a system and must bring in the proper amount of fresh air and exhaust the same amount of bad air consistently. Plumbing lines must be installed in conditioned spaces or must be properly insulated. Fireplaces must have proper draw and kitchen exhaust fans must be properly sized with make-up air provided.

The final section is Operation, Maintenance, and Building Owner Education. This is basically an owner's manual for the home. The builder is responsible for teaching the home owner how to use and maintain all of the systems, appliances, and equipment in the home. This is to include a list of all of the green features installed in the home with pictures of the installation locations. Also included in this section, the builder is to put together, a maintenance manual with a list of all service providers and a checklist of equipment settings and the items that will need to be replaced such as filters and light bulbs. This is to ensure that the home owner is aware of and understands how to operate all of the systems in the home. After all it does us no good to install this equipment if the home owner doesn't know how to use it and maintain it properly.

The green building items that we are planning to install in the home must be tested and approved by a third party verifier. The house will also need the standard building inspections and should be coordinated as not to make one inspector cause delays for the other. Once all of the paperwork and inspections are completed you can take solace in the fact that you will be moving into a clean, energy and water efficient home. As we look at the total life-time cost of a home, it is the next fifty years of energy and water consumption that is going to greatly out cost the value of your home. Your new green home will have a lower operating cost and consume and waste less energy. Remember the final step in green building is altering your lifestyle slightly. In other words don't install a showerhead that reduces water consumption by 20% to increase the amount of time you take shower by 20%. Learn how to use the green features we select to their maximum efficiency.

Obviously this was a brief overview of the new National Green Building Standard and there are plenty of more materials and building practices that can be instituted for green point credits. KDH Residential Designs can help you score your home, create a game plan, put together a green team and detail the constructions documents to institute all of the desired green certifications. The home owner, the design team, the builder, interior designer and third party verifier are the necessary players as you will look to build a green certification team. Communication is the most important facet of green building. All of the subcontractors need to know what our goals will be and how to achieve them. Contact me, Kevin Holdridge, today to get the ball rolling at 704-909-2755 or check us out at www.kdhdesign.com

