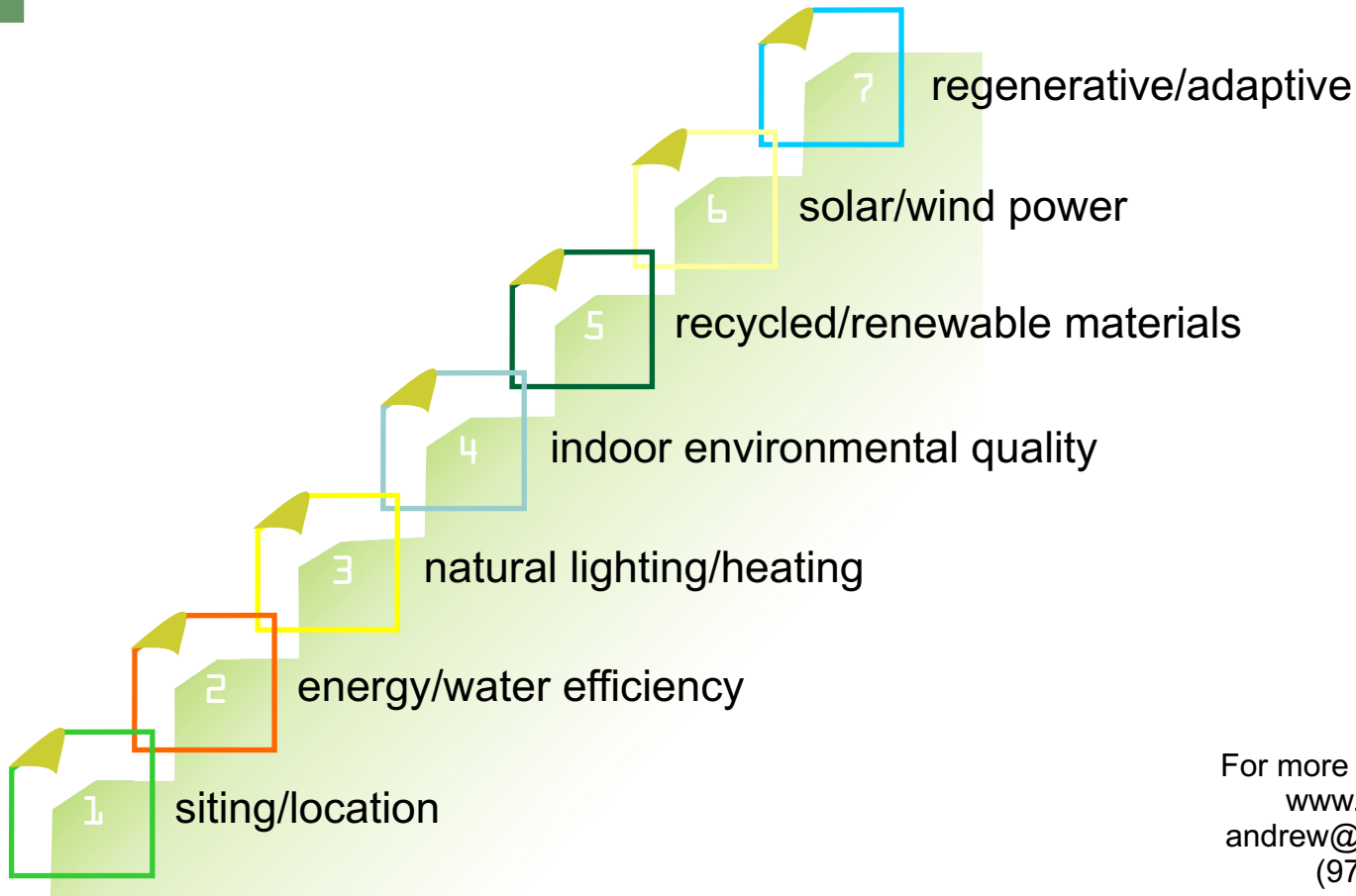


to a sustainable building,  
a performance path

# SEVEN STEPS



## Living Green

Through the purchase of wind power, changing incandescent light bulbs to compact fluorescent or l.e.d. bulbs, installing an energy-star programmable thermostat or a host of other options, you can make a significant contribution to living a more sustainable life. Best of all you can do this all in one day.

Taking the next step may not be as easy but is more rewarding as you make your building work for you, creating a space that is efficient, comfortable, and engaging. **Sustainable building is not a-la-cart but a systems approach as each component works with many others.**

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## SEVEN Steps to a Sustainable Building

### Step ONE

**SITING** of the building with a low impact on the land, paying attention to solar gain, prevailing winds, and water issues is key. Good orientation is one of the greatest gifts for a high performance building.

**LOCATION** provides for walkable neighborhoods close to services, solar potential, good density, reuse and adaptation of existing infrastructure. A building is not an island, it is part of a community.

### Step TWO

**ENERGY EFFICIENCY** is a quality building envelope along with good insulation, low energy lighting and appliances throughout. Remember the environmental impact and operating expense for the building's lifetime.

**WATER EFFICIENCY** is for both the outside and inside. Along with hardy landscaping and low flow devices, being aware of how you use it is just as important.

### Step THREE

**NATURAL LIGHTING** means bringing the sun deep into the space, putting light where you need it. Free for all.

**NATURAL HEATING/COOLING** begins with solar tempering a space, using thermal mass wisely, good overhangs for the summer's heat, and natural ventilation. Engineer to the sun.

### Step FOUR

**INDOOR ENVIRONMENTAL QUALITY (IEQ)** means paying attention to air contaminants (IAQ), and providing a place in which the body and mind function well. Our health is a central concern when we design a building.

### Step FIVE

**RECYCLED MATERIALS** reduces our waste stream. Consider the cradle to cradle aspects of everything, building with recyclability in mind. This is an important goal of our future industries.

**RENEWABLE MATERIALS** are often low processed, natural, and local. Beautiful, hardy products and supplies meet our needs, and support local economies.



## SEVEN Steps to a Sustainable Building



SOLAR POWER often is the best onsite renewable energy choice, both electrical and thermal.  
WIND POWER can be bought from your utility, or if you can, put a “genny” up in your back yard.



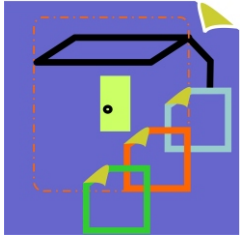
REGENERATIVE/ADAPTIVE is the future of building, utilizing technologies and techniques that positively respond to the greater environment.

### What is a performance path?

Many web sites and books have created green building charts that are **prescriptive based**, meaning they tell you what to use and do. This approach is inevitably incomplete, and often does not provide the right priorities. Money is spent less effectively or inappropriately as a result.

Rating systems like LEED© and Energystar for Homes™ are **performance based**. They define benchmarks to be met and provide metrics and testing to meet those benchmarks. It is up to the parties involved in the project to determine the best approach to meet those standards. There is also a different mind set involved when designing using a performance path. An array of options open as a clearer understanding of **interdependent design** is explored.

## Interdependent Design



Buildings are the result of both intended and unintended design and practices. When we make a decision about what to do or use it changes the character and function of the whole. Without tracing these changes through the project unintended consequences are the result.

Within the frame work of sustainable design is the importance of adhering to the seven steps of sustainable building. Because of the complexity of designing a building it is easy to get side tracked and forget the consequences of those decisions. **This is where the concept of interdependent design comes in.**

When we consider the relationship of the parts to each other and to the whole, we have much more control over the desired results. A simple example of this relationship is how we work with the thermal envelope in a home. When a house is very well insulated and sealed, the way we relate to other components of the building need to be understood. Clearly the heating system size can be reduced. If the glazing is well designed then AC may be eliminated, with night cooling being sufficient during the summer months. This will also allow for more fresh air. Because the building is so well sealed a controlled air exchange will need to be introduced. In the winter an air to air heat exchanger will do nicely, but in the summer, in a naturally cooled space, the air exchanger is redundant and becomes a parasitic load. By taking all of these elements into consideration the building's energy usage will be significantly reduced for years to come. Health conditions such as asthma, understood as a product of our environment, can be controlled and reduced.

Commercial buildings have a different set of issues to navigate, but many of the same principles are still evident. The cooling load for a large building, with a lot of people and equipment, is often a major issue. Reducing more heat from solar gain is obvious but often ignored. Although, the engineering can be complex to model, great efficiency gains can be made by redistributing the internal thermal mass. This type of modeling can also determine how air currents work in the building, helping provide fresh air to the occupants and creating strata, thereby reducing the amount of air to be conditioned. The result is reduced HVAC equipment and uncomfortable air. Using smaller equipment means that the budget may allow for the equipment to be more efficient, with a longer life expectancy, and requiring less servicing. In the end all this means spending less money.

This type of thinking can stretch through the project, potentially alleviating many undesired results and significantly reducing operating expenses. **Interdependent design requires an open mind, a thorough understanding of how a building works, and a willingness to try new, creative approaches.**