

# Making Better Choices for Healthier Environments

INDOOR AIR QUALITY ● ELECTROMAGNETICS ● PLANNING & DESIGN ● EDUCATION



*“Bau-Biologie or Building Biology is about the study of healthy buildings. It is about the relationship between our bodies and our built environment.”*

## What is Building Biology?

From before recorded history human beings have constructed shelters. Though floor space and investment value may factor in, the primary job of every home is to create an environment that allows this biological mystery called human life to flourish.

Have you ever spent time in a building that embraced and nurtured you...body and soul, one that awakened and delighted your senses? Imagine being in a forest, near a gently flowing clear mountain stream. The sun is shining and its rays warm your face. A fragrant breeze lightly brushes your skin as your footsteps trod upon the soft loam of the earth beneath your feet. You can experience these sensations once again when you enter your own home, provided your home has been built in accordance with the laws of nature. In order for us to be truly natural and healthy, our homes need to supply us with adequate opportunity to rest and relax, they need to nurture, as it is only through that, that we can truly recuperate at the end of the day and recharge with the strength to deal with the next day's emotional and physical stresses.

Materials that are not natural don't resonate with us, and therefore don't nourish us – they deplete us. Nature is our ultimate guide.

There is an international movement of individuals who are concerned with the environmental factors of the built environment that affect human health. This group is involved with delivering current information



regarding environmentally friendly building systems and materials. This group is the International Institute for Bau-Biologie™ and Ecology (IBE).

Bau-Biologie™ is the holistic study of the man-made environment, human health and ecology. The intrinsic aspect of IBE is to hold Nature as the golden principle. Bau-Biologie™, or Building Biology, is not a narrowly specialized subject, but is a living subject that brings together fields of study that are otherwise only taught in isolation. Bau-Biologie was founded in Germany by a group of professionals from a variety of disciplines concerned about the inability of post-war housing to support health and ecology. IBE was started in North America in 1987, with a mission to raise awareness that buildings can abide by the laws of nature.

Bau-Biologie™ is the science of the holistic relationship between life, the living environment and the built environment.



## The Goal of Building Biology

The German term “**Bau-Biologie**” means “*building biology*” or “*building for life.*” **Building Ecology** can be defined as the relationship between the building and the environment.

The phrase “Bau-Biologie and Ecology” specifically refers to the study of

- The impact of the built environment on human health, and the application of this knowledge to the construction of natural homes and workplaces; and
- The holistic interaction of human involvement with the environment and the regenerative sustainability of the environment.

The underlying principle is one of “balance.” All materials that come from the natural environment make up the “living structure” and will promote health. When these materials are returned to the natural environment they will cause no harm.

Problems occur for people and the environment when synthetic materials and manmade pollutants are introduced.

IBE is in support of “Green Programs” as they promote the removal of all pollutants from the built environment. The IBE Principle sets a new vision of going beyond green by going beyond the standard material, methods and construction practices. The IBE Principle vision integrates ecology and biology with allied health practices. The engineering and energy conservation techniques are combined with the economics of each of these decisions resulting in a sustainability which is healthier for the occupant and the planet.

The IBE mission brings together design methods and technology to provide the information needed to create healthy homes and workplaces. This knowledge will raise awareness, provide for solutions, and promote effective ecological practices for our future generations.

### The IBE goals are to:

1. Nurture an interdisciplinary arena to continually refine our understanding of human health and the built environment.
2. Organize the information into a systematic and useful format.
3. Present the information and knowledge in an organized way to the general public, and various professionals – all with a desire to help others and themselves.



## Historical Perspective

While the phrase “Bau-Biologie and Ecology” is relatively new, the science is not. There have been many pioneers – in the United States, Canada, Germany, and throughout the world – who have studied and written about various aspects of building technology and effects on human health. A few of these forerunners include human ecologist Theodor G. Randolph, M.D., Wilhelm Reich, architect Richard Crowther, and writer Ken Kern (author of *The Owner-Built Home*) were driving forces in the United States. Hubert Palm, M.D., wood technologist Anton Schneider, Ph.D., and electro biologist Alfred Hornig helped to establish the Bau-Biological movement in Germany. The work of Nikola Tesla, electrical engineer/inventor, was also of significance to the movement.

*“Mother nature is the ultimate guide.”*



## The 25 Principles of Building Biology

The following list of **twenty-five principles** was developed by Anton Schneider, Ph.D., founder of the *Institut für Baubiologie and Oekologie*. These principles can be used while planning the construction of a natural and ecologically friendly home, or while remodeling an existing one.

1. Make sure the building site is geologically undisturbed.
2. Place dwellings away from industrial centers and major traffic roads.
3. Place dwellings well apart from each other in spaciouly planned developments amidst green areas.
4. Plan homes and developments individually taking into consideration the human aspect and the needs of family life and nature.
5. Use natural and unadulterated building materials.
6. Use wall, floor and ceiling materials, which allow the diffusion of moisture.
7. Allow natural self-regulation of indoor air humidity using hygroscopic materials.
8. Consider sorption of building materials and plants (in- and outside), which allow filtration and neutralization of toxic airborne substances.
9. Design for a balance between heat storage and thermal insulation in living spaces.
10. Plan for optimal surface and air temperature.
11. Use thermal radiation for heating building employing solar energy as much as possible.
12. Promote low humidity and rapid desiccation in new buildings.
13. Utilize building materials, which have neutral or pleasant natural scents and which do not emit toxic vapors.
14. Provide for natural light and use illumination and color in accordance with nature.
15. Provide adequate protection from noise and infrasonic vibration or sound conducted through solids.
16. Use building materials that do not have elevated radioactivity levels.
17. Preserve the natural (DC) air electrical field and physiologically beneficial ion balance in space.
18. Preserve the natural (DC) magnetic field.
19. Minimize technical (AC) electric and (AC) magnetic fields.
20. Minimize the alteration of vital cosmic and terrestrial radiation.
21. Utilize physiological knowledge in furniture and space design.
22. Consider proportion, harmonic orders, and shapes in design.
23. Use building materials that do not contribute to environmental problems and high energy cost in the production process.
24. Do not support products or building materials that over-use limited and irreplaceable raw materials.
25. Support building activities and production of materials which do not have adverse side-effects of any kind and which promote health and social well-being.



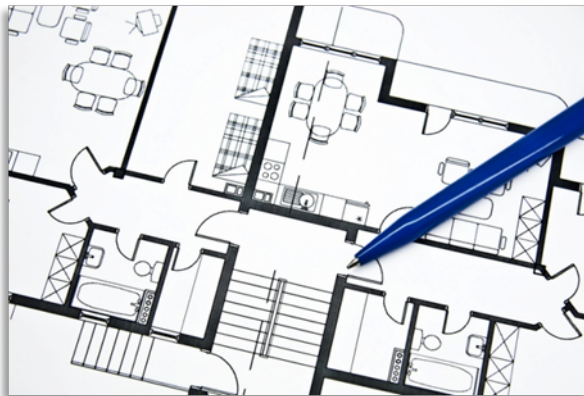


## Planning and Design Criteria

During the planning and design states of building a biological home, the following additional criteria should be considered:

1. **Selection of proper site**, including the analysis of the soil and geophysical conditions. Consider climatic factors, which would include prevailing winds, temperature, solar orientation, relative humidity and rain fall.
2. **Selection of proper building materials**, both structural and finishing that enhance the ability of the **structure to “breathe.”** Select natural building materials that allow for self-regulating interior relative humidity that accomplish this task utilizing hygroscopics. Consider using building and plant materials on both the interior and exterior that exhibit sorption and the filtering and neutralizing of toxic airborne substances.
3. **Make careful decisions about energy**; consider the use of solar energy, the methods of heat and energy conservation, and the use of thermal insulation. Design for a balance between heat storage and thermal insulation in living spaces that utilize radiant rather than convection heat distribution.
4. **Select appropriate ventilation, water and air filtration** systems to establish a healthful living environment. An efficient artificial ventilation system can be used to supplement the natural ventilation of a home. Water systems should be ecological and also non-harmful to occupants.
5. Take care to select the right **illumination** (light temperature, spectral range, intensity, etc.) for each room. This factor is an important for our well-being as shielding unwanted noise.
6. **Avoid electromagnetic fields**, especially in areas of the house where people spend lots of time (bedroom, play and work areas).
7. When doing the **interior design**, use furniture that is in proper proportion to the residents; use materials that do not outgas and create static electricity.

By applying the twenty-five Bau-Biologie Principles and seven Planning and Design Criteria, not only should the most obvious mistakes in modern building construction be avoided but also a home with living qualities far superior to those of the average home today should result. Experience by both architects and laypersons here and abroad, have created a fine variety of healthy, energy-efficient homes.



## 7 Steps to a Healthier Environment

These are steps you can take today in your home with relative ease and little money.

- 1) Reduce dust mites and animal dander**
  - Wash sheets weekly in 130°F
  - Vacuum mattress, chairs and carpeting
  - Replace pillows every five years
  - Install solid surface floors in bedrooms
- 2) Control moisture sources**
  - Vent bathrooms, kitchens, clothes dryer, stove hood and toilets directly outdoors
  - Fix water leaks and clean up after floods
  - Ventilate in cold weather
  - Dehumidify/air condition in warm weather (RH<50%)
- 3) Eliminate combustion gases**
  - Use outdoor air supply for fireplaces, wood stoves
  - Use outside vented stove hood when using gas stove
  - Use sealed, power vented water heaters and furnaces
  - Eliminate non-vented combustion sources
- 4) Eliminate toxic pesticides**
  - Eliminate highly toxic pesticides
  - Discard synthetics exposed to pesticides
  - Use least toxic controls ([www.biconet.com](http://www.biconet.com))
  - Reduce air concentration with carbon/Zeolite
- 5) Eliminate volatile compounds**
  - Store toxic/volatile compounds out of the living space
  - Use safe paints and sealers (No VOC's)
  - Open windows to handle high polluting events, such as the use of home cleaning products, hobbies, painting
- 6) Reduce particulates**
  - Use a 3M Filtrete 1250 (MERV 11) or better particle filter
  - Replace filters regularly
  - Use hard floor surfaces rather than wall-to-wall carpet
  - Use a True HEPA filter equipped vacuum cleaner
- 7) Ventilation**
  - Provide a minimum amount of outside air
  - Using whole house mechanical ventilation
  - Open a few windows



## Creating a Sleeping Sanctuary

The human body is an amazing, self-rejuvenating entity that has the ability to repair itself while it sleeps. This is accomplished with its own, internal electrical system that functions with very weak electrical impulses.

Electrical impulses are generated by the brain and are used for intercellular communication. This is possible because the body is composed mainly of water with a high mineral content making it highly electrically conductive.

In the typical sleeping area, electrical exposure from external sources (live electrical wiring in ceilings, walls and floors) is thousands of times stronger than the body's own electrical system. Long-term exposure to these high level electric fields can impair the body's ability to communicate within itself and impact health. The average person spends approximately 1/3 of their life sleeping. Doesn't it make sense to reduce exposure to electric fields in our sleeping areas?

### 1. Use battery clocks near bed

- Research has shown that exposure to high magnetic fields while sleeping can cause severe long-term illness. Many electric clocks produce high magnetic fields.

### 2. Turn off bedroom-affecting circuits

- A restful sleep is necessary for health and a strong immune system. Electric fields affect the bio-communication system, keeping you from sleeping soundly.

### 3. Eliminate or shield from RF

- Radio frequency (RF) signals from portable cordless phones, cell phones, and wireless devices have been shown to interfere with the body's immune system.

### 4. Use beds without metal

- Metal frames and metal box springs can amplify and distort the earth's natural magnetic field, which can lead to a non-restful sleep. Use natural materials.

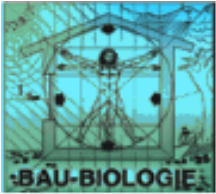
### 5. Make sure there are no elevated magnetic fields

- Magnetic fields from appliances and building wiring can penetrate walls into a bedroom and disrupt the body's communication system.

*“Any reduction in exposure is worthwhile.”*



Bringing together technology and design methods to provide the information needed to create healthy homes and workplaces



We're on the Web!

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## The Institute and Education

As stated above, in 1987 the **International Institute for Bau-Biologie and Ecology, Inc.** (IBE) was founded in Clearwater, Florida. Its purpose is to offer information on how to eliminate unhealthy living conditions in homes and offices, disseminating information through the Bau-Biologie Courses and Seminars. The basic course is an adaptation of the German edition created by Anton Schnieder, Ph.D. Thousands of individuals have completed this course to date, and have started on the path to healthier homes.

To address the needs of those wanting their homes and offices evaluated for levels of electromagnetic radiation, indoor air quality, and natural, healthy building methods, IBE has certification programs to train Practitioners and Environmental Consultants. Graduates include architects, electricians, builders, interior designers, naturopathic physicians, home inspectors, engineers, homeowners, parents, educators, and many other environmentally concerned individuals.

Please see the IBE website ([www.buildingbiology.net](http://www.buildingbiology.net)) for specifics of all courses and seminars, but some of our courses and seminars include:

**IBE 101** Natural, Health Building Course

**IBE 211** Indoor Air Quality Seminar

**IBE 212** Electromagnetic Radiation Seminar

**IBE 213** Natural Healthy Building and Remodeling Seminar

**IBE 312** Electromagnetic Radiation – Detection and Mitigation Seminar

### Annual Conference

In addition to our seminars, we host a conference to gather together like-minded individuals to discuss issues relevant to building and creating healthy indoor environments for homes, work places, and play areas. Please see the IBE website for the next scheduled conference and join us for this exciting, educational and enlightening experience.

*IBE is a 501 (c) 3 non-profit educational organization whose mission brings together design methods and technology to provide the information needed to create healthy homes and work places. This knowledge will raise awareness, provide tools for solutions, and promote effective ecological practices for our future generations.*

