

## BUILDING BIOLOGY: AN APPROACH TO BUILD HEALTHY LIVING ENVIRONMENT

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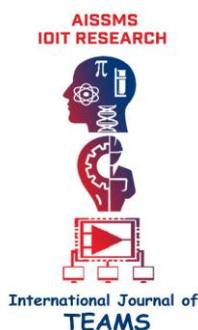
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### ABSTRACT

Industrial revolution & technological advancement has created numerous opportunities for humankind. These innovations and standardization lead to many hidden destructions and environmental illness which include sick building syndrome, chemical hazard and radiation pollution. It has also aggravated many lifestyle diseases which are dominant health challenges for humankind. Building Biology focuses on the study of the effect of built environment on human and environmental health. It focuses on a holistic approach to sustainability and livability to produce a naturally healthier way to live while reducing our ecological and environmental footprint. The application of Building biology in home construction and design is need of today's hour and is the universal need for peace and harmony. Building Biology principles helps in designing environment with holistic and sustainable approach. It also helps in identifying and evaluates right design which makes human life better. There are multiple studies and reports around damages created by different radiations. Architects, builders and all those responsible for the design and maintenance of new and old buildings need to be made aware of their responsibility to create healthy living environment by using Building biology principles. The objective to this research paper is:

1. Introduction of alternate methodology to measure the intensities of good and bad frequencies
2. Recommendations to improve the building/other residential complexes environmental parameters, in turn improving the positive impact on human life.

For all these studies we used energy / frequency measurement device Lecher Antenna.

**KEYWORDS:** Building Biology, sustainability, healthy living environment, Lecher Antenna

### 1. INTRODUCTION

Building Biology (Bau – Biologie) the study of the impact of building environment upon the health of people and the application of this knowledge to the construction of healthy spaces. [1]

The science of holistic interactions between life and living environment. Building Biology is all about healthy buildings and creating natural living spaces: a living space which is low in risk factors, but promotes life, vitality and regeneration as shown in Figure 1.



Figure 1: Building biology guidelines is about creating healthy and sustainable building in ecologically sound and socially connected communities

## 1.1. HISTORY OF BUILDING BIOLOGY

The emergence of environmental consciousness in the late 1960s is related to the beginning of *bau-biologie*. With this viewpoint, the building envelope is seen more generally as a third skin—as a connection to the outside world and to nature. The human environment is viewed as an organism that interacts with the natural environment around it and facilitates a healthy exchange of humidity and air. (Our own skin is thought of as our first skin, and clothing as the second.)

1968: *Das Gesunde Haus* (The Healthy House), written by Hubert Palm, is published. He is known as the "Pioneer of Building Biology."

1983: The principles of building biology were created by Prof Anton Schneider to provide detailed instructions for planning a construction or renovation to ensure an environmentally sound and healthy house or workplace. In Germany's *Neubeuern*, he founded the *Institute für Bau-biologie + Oekologie* (IBN).

Helmut Ziehe, an architect, spent the 1980s working as a resident engineer in North Africa. He saw that most residents in a 90,000 person city had given up their government-provided dwellings in favour of living in tents.

The Building Biology curriculum was translated for North America in 1987 by Helmut Ziehe. In Florida, United States, he established the International Institute for Building Biology and Ecology [2].

## 1.2 NEED OF BUILDING BIOLOGY

The application of Building biology in home construction and design is need of today's hour and is the universal need for peace and harmony. It is supposed to bring along with promises of good mental and physical health which result to happiness in life.

## 1.3 PRINCIPLES AND GUIDELINES OF BUILDING BIOLOGY

The aim of principles and guidelines is to live biologically and ecologically for regenerative and restorative buildings.

These principles consider this mediated relationship with Nature in terms of:

The site selection-

Consider Geobiology, Locate buildings at a distance from industries and main traffic routes,

The building materials-

Give preference to materials of natural origin hygroscopic building materials and materials with little or no radioactivity.

The indoor climate

Consider the thermal comfort, better ventilation and oxygen content, should be free from toxic fumes and odor.

Environment, water, energy –

Use light, illumination and colors in accordance with nature, refrain from altering the natural magnetic fields and minimize technical electromagnetic fields.

Use of natural resources like solar energy, wind energy and harvesting water.

Spatial design –

Need to plan proper setbacks on all sides [1] with open spaces, considerations for individual human aspects, ergonomics and design spaces in harmonic order.

## 2. DIFFERENT TYPES OF ENERGY FIELDS

An Energy field in simple term is the extension of an energy in a space. The Energy Field Which shall be in discussion here are invisible or un perceivable to us. That means, we cannot sense them. We cannot feel electrical and magnetic fields; in the way we feel the temperature near a flame. That makes things a bit difficult to explain and accept. Each one of us do have built-in sensors, which can be activated through conscious perception and knowledge. Unfortunately, these sensors have been put to sleep by our false habits and wrong education. That is why we have instruments today which 'Scientifically' sense and measure the invisible fields.

- I. Direct magnetic fields (DMF)
- II. Alternating magnetic fields (AMF)
- III. Alternating electric fields (AEF)
- IV. Direct electric fields (DEF)
- V. Electromagnetic waves (EMW)
- VI. Cosmic energy
- VII. Telluric energy

### 2.1. DIRECT MAGNETIC FIELD (DMF)

Direct magnetic field are artificially produced wherever there is flow of alternating current. A natural magnetic field is that of our earth, which is measurable with a magnetic compass. Our body is used to and adapted to this natural magnetic field, for millions of years. A distortion of this natural field can also be observed where there magnetized metal objects (e.g. reinforced concrete elements) or magnets (e.g. loudspeakers).

### 2.2 ALTERNATING MAGNETIC FIELD (AMF)

Alternating Magnetic Fields are produced wherever there is flow of alternating current. Understandably, these fields cannot be registered by a compass, because the needle is too slow to register the change in the polarity of the field every 11,100 of a second for 50 Hz cycle, for example. AMF is the fundamental principle used in all transformers and therefore, such fields can be expected around all electrical equipment, which contains transformers, as well as in the vicinity of wires, where current is flowing. The intensity of both these magnetic fields increases with the amount of the current flowing

(Amperes), both of them propagate themselves in closed circles around the source and are hardly affected by any material in their intensity that is the go unhindered though, but reduce only with distance in their intensity.

### 2.3 ALTERNATING ELECTRICAL FIELD (AEF)

*Alternating Electrical field exist even when there is no current flowing but only a potential difference exist, i.e., when a wire is still connected to a plug point, although the appliance is switched off, also all conducting building material (e.g. metal window frames, radiators, etc) or even humid walls, which are not properly earthed and are well insulated, can attract or get charged with electrical fields often created large electrically charged surfaces.*

### 2.4 DIRECT ELECTRICAL FIELDS (DEF)

Direct Electrical Fields are also commonly known as a static electricity. A natural phenomenon that demonstrates DEF is lighting – it is a static electricity, which tries to discharge itself on to the earth. Actually, in the nature also, there is a constant charge in the air, which gets totally disrupted when there is a thunderstorm, e.g.

That is why there are people who are very sensitive to the changes in weather. That means the air, we breathe in is charged as well as our body, with positive (+) and negative (-) ions. This is normal and accepted and even important for our wellbeing, so long as it is in right dosage. The problem arises when we change this balance with artificial means such as synthetic carpets, wall cladding and other building materials. The dry air in our room (especially in cold countries, due to central heating) considerably increases the static charge because it does not allow the conduction of ions, as would be the case when it is humid. All Electrical fields are practically diverted or shielded by every wall, bush, tree, etc.

### 2.5 ELECTROMAGNETIC WAVES (EMW)

Electromagnet waves are created by high frequency sources whose range lies between 30 Kilo Hertz and 300 Giga Nertz (GHz). With such high frequencies and small wave lengths, the electric and magnetic fields ‘melt’ and cannot be registered anymore. That is why they are known as Electro Magnetic Waves. EMW are the basis of all our present day communication networks. Thousands of different frequencies are present everywhere at all times in the atmosphere (e.g. we receive short and medium wave Radio Programs everywhere. Added to that are the EMW caused by Electrical appliances such as Televisions, walkie talkies, microwaves ovens, etc.

The influence of all fields are discussed here depend on 4 physical factors, which should be kept in mind: Distance, Frequency, Duration, Out-put. Over and above this, there influence also depends on other

Biological factors like age, sex, type of constitution of the person as well as psychological factors, etc.

### 2.6 COSMIC ENERGY

Cosmic energy is super powerful and can manifest anything and everything. It is super intelligent with the power of infinite super computers. It is formless and can take any form. It is permanent and indestructible.

Cosmic rays are high –energy particles or cluster of particles that moves through space at nearly the speed of light. They originate from the Sun, from outside of the Solar System in our own galaxy, and from distant galaxies

### 2.7 TELURIC ENERGY

A **telluric current** (from Latin *tellūs*, "earth"), or **Earth current**, is an [electric current](#) which moves underground or through the sea. Telluric currents result from both natural causes and human activity, and the discrete currents interact in a complex pattern. The currents are [extremely low frequency](#) and travel over large areas at or near the surface of the [Earth](#). [3]

## 3. MEASUREMENT TECHNIQUES OF DIFFERENT TYPES OF ENERGY FIELDS BY LECHER ANTENA

In 1890, Ernst Lecher made the discovery of how to measure energy. Based on Dr. Lecher's idea, a group of German physicists created the Lecher Antenna in 1975. "Intuition" was once merely a method of locating a body's vibration. One cannot establish it. However, a device that monitors the energy fields that surround the physical body is now available. To assess a client's physical state, all relevant domains must be considered, including their organs, individual body parts, and illnesses with varying recurrence rates. Our physical body should be the correct centre for the energy field. [4]

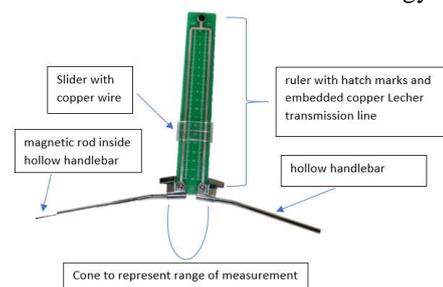


Figure 2 Lecher antenna parts

### 3.1. MEASUREMENT WITH LECHER ANTENA

The Lecher-antenna consists of an oblong epoxy glass fiber sheet with the parallel Lecher lines, a measurement scale (ruler with hatch marks), and a slider with a copper wire and two handlebars. This slider is used to adjust to different wavelengths (frequencies). Within one of the handlebars there is a polarized magnetic rod. This rod is used to measure

the energy's positive and negative polarization, both always present in each organ, tissue or cell. The ratio of this positive and negative energy is important. By adjusting the slider on the ruler: by placing the slider at a specific point, you determine the wavelength – a specific frequency – you want to measure for example wavelength 12 for cosmic energy.

A potential difference is required in order to be able to measure the energy value. To generate this potential difference, you will have to move the Lecher-antenna. A magnetic rod with a positive pole (red, short side), and a negative pole (blue, long side) is placed inside one of the hollow handles of the Lecher-antenna.

When 'setting up' the Lecher-antenna (closing your fingers around the handlebars with a slight tension), you create with your body a closed electrical circuit between your two hands. By moving the Lecher-antenna in an energy field, you generate a micro current if the Lecher antenna recognizes the wavelength. This minuscule electrical current goes through the forearm muscles, which makes them contract. The nervous system can be conditioned by training your perception -by unconscious contractions of your forearm muscles- in response to the weak signals from the handlebars of the Lecher-antenna.

Your own body is the point of reference for the energy you are going to measure. You are basically calibrating and comparing. This is why it is very important to create a closed circuit ('setting up' by closing the fingers around the handlebars) outside the energy field of the object you want to measure, and only then move through its energy field whilst maintaining the closed circuit. By continuing to move, it generates a continuous micro current until our resonance box is filled up with that particular frequency. When 'full', the Lecher antenna falls over and can no longer be put in the upright position without 'setting up' again. The stronger the energy, the sooner the sound box is filled, and the Lecher-antenna will therefore fall over.

Producing a harmonic series (octaves) is of major importance in order to be able to measure the right frequencies. A computer is not (yet) able to do so. Our body, which consists of 99% water, is one of the few media capable of bridging the octaves from the Lecher-antenna (around 2-16 MHz, 'radio waves') to the frequencies on which the body communicates (terahertz, infrared and ultraviolet spectrum).

### **3.2. APPLICATIONS HUMAN HEALTH**

The Acmos antenna measures all vibratory or energy emissions whether human, animal, vegetal mineral or environmental. It can determine the origin of an environmental aggression or a health energy disorder by identifying the type of aggression and locating the exact source of the perturbation.

Thirty-two levels of human disorders due to internal

and environmental aggressions can be identified by the Acmos Antenna methodology. The best solution to balance man in his body, his mind, his medication, his nutrition and in his environment can be analyzed and implemented.

### **ENVIRONMENTAL**

All environmental aggression can be identified by the Acmos method and the best solution applied in any various fields whether geopathic, ecological, electric, electromagnetic, radioactive, cellular, heavy metal poisoning, pollution related covering all ecological aggressions.

### **ARCHITECTURAL**

At project level determining best structural direction, material, partitioning, decoration and energy enhancing concepts.

## **4. CASE STUDIES –**

We have worked on live case studies to explain how we can analyze the energy levels for different spaces like Residential, commercial and renovation projects, etc.

### **4.1 RESIDENTIAL PROPERTY (APARTMENT) EVALUATION**

This property was new property with choice of location of Owner. Client wanted to know the impact of surroundings on the living/life in the apartment.

What was the challenge?

The focus area was around use of materials for interior and study of impact of surroundings on the energy levels of the apartment. The family has two elderly members and case study was focused around measuring frequencies with positive and negative impact on the life.

The decision making was mainly depending on:

1. Eco friendly material
2. Positioning of objects
3. Pathogenic emissions in the environment due to positioning of the objects.

How was the problem re-confirmed?

Initial energy levels:

Initial energy levels were measured without any interior work.

All these frequencies were compared with standards and highlighted the areas with lower favorable frequencies.

The decisions were made accordingly to place the interior objects and use of material for interior work.

The Outcome was presented to the owner for surrounding energies.

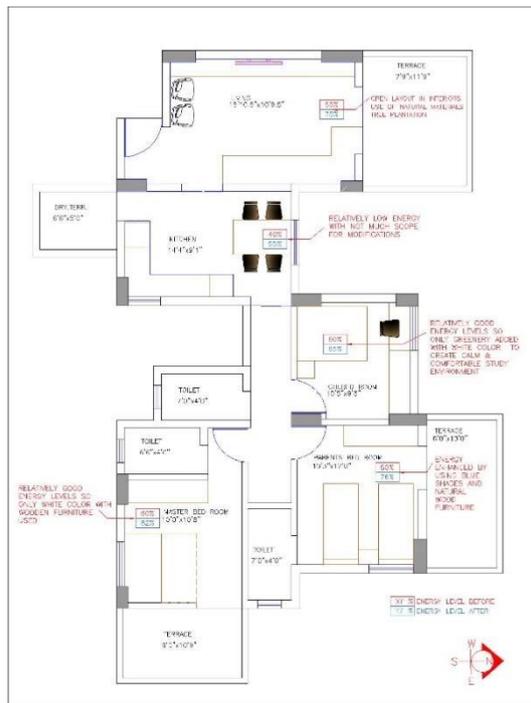


Figure 3 Layout of residential apartment

Lecher readings and recommendations?

Based on lecher readings few modifications were recommended.

- Relatively less percentage of favorable frequencies were observed in Passage area.
- Bed room was observed with relatively lower energies. Probably reason could be exposure to sub-station. Electromagnetic Insulation were recommended to enhance the energy levels and tune to right frequencies.

Final outcome:

- Room allocation was done based on the set of favorable frequencies.
- After multiple presentation decision to buy was confirmed
- The material selection and interior objects were position as per the frequencies observed.

#### 4.2 COMMERCIAL PROPERTY (OFFICE SPACE) EVALUATION

This was an old commercial property selected for office purpose. Client wanted to know whether property will be prosperous or not for office use.

What was the challenge?

How we can enhance energy levels with minimum interventions like furniture layout, color scheme, lighting arrangements etc.

How was the problem re-confirmed?

Initial energy levels were measured without any interior work.

All these frequencies were compared with standards and highlighted the areas with lower favorable frequencies.

With a number of discussions ,2D/3D options for interior layouts, color schemes and energy measurements finalized furniture layouts, details, finishes etc.

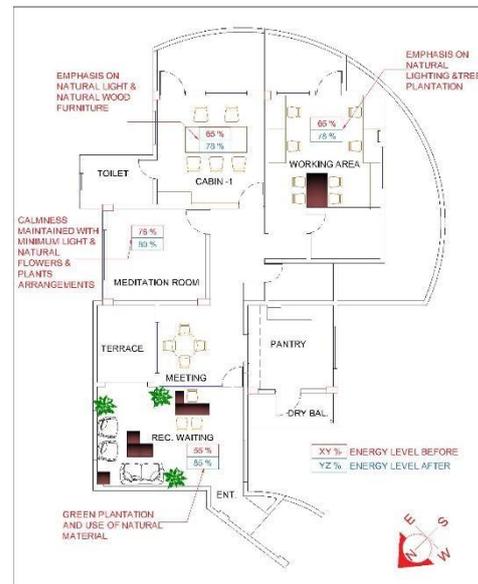


Figure 4 Layout of office

Lecher readings and recommendations?

Based on lecher readings few modifications were recommended.

- Maximum use of natural materials like wood for furniture
- Use of pure cotton carpet and jute blind to reduce static charges.
- Use of fresh, bright natural color shades like yellow and Gray etc.
- Indoor plantation to enhance oxygen levels and improve overall ambience by greenery.

Final outcome:

- We observed energy enhancement in all areas with very aesthetical pleasing environment and enhance working efficiency of occupants.
- The overall solution was energy efficient, cost effective and sustainable.

#### 5.CONCLUSION-

In concluding our journey through building biology it might be a good idea to spend a few moments on the current situation and on the behavior pattern of human being in this context. It might make you aware of the fact we have actually caused the whole situation ourselves and continuing to do so, which influences our well-being adversely.

So we need to become aware and start understanding the interaction of life and environment according to natural laws. We need to start working on holistic design approach considering building biology guidelines specified in this research paper.

1. Consideration of Geology, climate and ecology in the planning
2. Selection of natural materials
3. Application of maximum natural resources
4. Evaluation and enhancement of energy levels
5. Impact of cosmic energies on human life
6. Building awareness about various surrounding energies (Natural and man builded) and measurement techniques

These parameters will help us to build healthy living environment and achieve sustainability.

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