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GOING BEYOND GREEN™—HEALTHY HOME MONTHLY

presented by INTERNATIONAL INSTITUTE FOR
BUILDING-BIOLOGY® & ECOLOGY

AUGUST 2017

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With your help we can all live in healthier indoor environments. Make your personal commitment to sustainable design and indoor vigilance: Join us today.

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View our membership page for more information on the benefits of membership. **Sign up today** to start making a real sustainable difference in global indoor environments.

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Innovators, thought-leaders, and movement-makers are mobilizing to join us this year at our 30th Anniversary Celebration Conference, and the networking opportunities that will avail themselves following each of our expert speakers' presentations will be incredible.

The topics for presentation include Solar, Building Envelope, Universal Design, New Construction & Building Biology, Healthy Wiring Practices, Biogeometry, and a Healthy Building Case Study. Not to mention our celebration Dinner (Saturday evening), our very special guest Susannah Ziehe, wife our pioneering founder Helmut, and a *top-secret, very hush-hush award* presentation for outstanding achievement in Building Biology.

For all conference news and opportunities to register, book your lodging (on or off-site), check out the many helpful pages in our website's Conference 2017 section, at: <http://hbelc.org/conference-2017-oct>

We will have to release our group room block, on 5 September, the day after Labor Day Weekend, for our conference. Our 40% discount will still be in effect, but based on room availability at a very popular time of year for get-away weekends, and 5 September dates your last ensured chance to reserve one of our reduced-EMR rooms for your stay.

Our Student Advisory Committee Members, all of whom are current IBE students or recently certified IBE alumni, will be manning a desk at this year's conference. Their *raison d'être* is to use their IBE experiences as students and grads to assist other current IBE students in making informed choices, as well as in airing any grievances or suggestion without their identities being passed on to IBE, and to offer answers for potential IBE students. Stop by and say hello, they'd love to meet and serve you.

IBE 214 and IBE 215: Two seminars, presented back-to-back (with a one-day break in-between, each of them focused on creating a fresh new generation of health-supporting buildings and remodels that do not incorporate elements that create health hazards nor the "safe harbors" in which they can fester. Both seminars, when combined with IBE 213, our Building Physics/Building Biology Seminar, and with an approved Final Project, result in [BBNC \(Building Biology New-build Consultant\)](#) professional certification. *Voila!*

Michael Conn, IBE Executive Director



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Beyond Green

Take Back Your Power launches new phase of “smart meter” resistance



Josh Del Sol, director of the film *Take Back Your Power* has launched the [InPower Movement](#). This open source, crowd-funded movement is designed to put the tools in the hands of consumers to enforce "the individual commercial liability of corporate execu-

tives and government representatives who are causing egregious harm" by continuing to fast-track ‘smart meters’ without adequate testing or safeguards. Tools include templates and documents you can use to put your utility commission members on notice that they will be held individually responsible for harm caused by these dangerous and intrusive meters.

New EPA documents reveal even deeper proposed cuts to staff and programs



[The Washington Post](#) reports that the Environmental Protection Agency “has issued a new, more detailed plan for laying off 25% of its employees and scrapping 56 programs including pesticide safety, water runoff control, and environmental cooperation with Mexico and Canada under the North American Free Trade Agreement.”

Contact your representatives and let them know how you feel about this dangerous course of action. *Common Cause* maintains a tool on their website to search for your representatives, and their contact information [here](#).

Calendar of Coming Events

IBE Events: 2017

[212 – Electromagnetic Radiation](#): 25 through 29 September 2017, IHM Retreat/Conference Center, Santa Fe, New Mexico.

[Building Biology Conference 2017](#): 06, 07, 08 October 2017, Osthoff Resort & Conference Center, Elkhart Lake, Wisconsin.

[IBE 214 and IBE 215 – For the first time ever!](#): 02 through 10 December 2017, IHM Retreat & Conference Center, Santa Fe, New Mexico.



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Building Science Basics

An IBE Course Excerpt

Introduction to Building Science Basics

In order to become a very good building biologist it is first necessary to have a good understanding of building science.

Building science¹ “is the collection of scientific knowledge that focuses on the analysis and control of the physical phenomena affecting buildings.” The purpose is to optimize building performance and understand or prevent building failures. Building Science is the study of the transfer of temperature (heat and cold), moisture and air through a building envelope. These phenomena described in building science are scientific fact and must be understood in order to understand how built space “behaves”. The solutions that conventional building has applied to this understanding are, from a standpoint of human health and ecology, not optimal. By first understanding these principles we become capable of building properly out of different materials and can understand and explain the scientific principles at play in using alternative methods of construction. Just as an artist, regardless of medium, must understand light, proportion, composition and color, a building biologist must have a firm grasp of the laws of science that govern buildings, their design, operation and construction. Although the focus of this course is new construction and renovation, it is essential that Building Biologists, who go on to a career other than building design and construction, also understand the physical principles at play within any

building envelope in order to diagnose and prescribe the proper cures.

How Building Science Began

Houses since the dawn of humanity have been naturally built. Be they sticks, leaves, rocks or mud, these basic elements have been incorporated and used successfully to house and shelter people throughout time. Errors in design were worked out over generations of craftspeople, and communities who built homes together. They collectively learned from their mistakes and made the changes to ensure the following homes didn't suffer the same deficiencies.

At the turn of the 20th century, homes were mainly wood and brick construction in North America. Hollow walls allowed for moisture to move and dry typically, and airflow throughout was also keeping air exchanges up high. Plaster interior walls modified indoor humidity levels, until wallpaper became popular. Costs to heat these homes were nominal and as such no one cared about the cold and just added more coal or wood to the fire to stay warm. These homes were all built by skilled labor, labor that went through apprenticeships and gained master status within their trades.

World War II ended an economic recession through military spending and the hopes of the business world were that this spending would continue once the war ended. Every serviceman and woman was guaranteed a job and a new home upon returning from the war. This created an unprecedented amount of new housing stock requirement for North America. The need for factories to have product also was a requirement. This led to the industrialization of the housing market. Homes were no



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longer built by hand using natural or minimally processed materials, but now building materials were being manufactured in the factories to help speed up the building boom. Materials such as drywall and batt insulation rapidly became mainstream items, reducing the need for skilled labor as the installation required less talent and building knowledge. Taping drywall was significantly easier than plastering an entire house. Slowly the older trades people were replaced with those whose knowledge came from the suppliers, and not from fellow builders. This slide down the knowledge slope led to more and more products becoming available to make it easier and easier to build homes, to the point of corporate slogans such as “You can do it, we can help”, meaning you no longer need an understanding of how buildings work to build, you just need a credit card.

The second major issue that occurred to change the face of buildings was the oil crisis of the 70s. This was the introduction to the concern that in fact, the costs to heat one’s home, could be expensive, and not as cheap as it once had been. This concern led to the energy efficiency mantra of everyone involved in buildings. Start insulating your home and draft-proofing, and save some money. This worked and everyone started to make their homes tighter and tighter. Unfortunately there were now effects from their actions. Homes became damp and moldy. People didn’t understand exactly what was going on, and the school of building science was created; by engineers, architects, and trades people, to try to figure out what was going on and how to fix it. The academic realms worked hard to calculate heat loss and moisture movement with great success. Cause and effects were determined and discussed at great length. Unfortunately the trades suffered from a lack of knowledge, because they simply learned from the stores, or their untrained superiors, who didn’t understand building science either. The social networks on the job site typically kept the various

trades from truly interacting with each other and trying to share knowledge and ideas. The jobsite became more competitive and time was money, thereby not allowing the time to train and learn about the various concepts of building science that were becoming available if one knew where to look. Product manufacturers could train trades on their products and did so out of a desire to have their product used, not as much as a building science knowledge improvement opportunity. The problem with the whole system is that it simply moved the existing building concept; stick frame construction, forward problems and all, and added band-aid after band-aid to the problem, and never looked at the design as a whole and take into consideration other styles of construction, that worked successfully for centuries.

Building science turned the built environment into various systems, mechanical in nature. Water movement became a mechanism, as did airflow. These were no longer natural systems, but mechanical, that could be rationally calculated and processed, and theoretically defeated through the proper mechanical solution. Occupants are also part of that mechanical system process. Homes became mechanical more and more, requiring less skill to build, less to operate, and more to cost so it seemed. Technology, it seems, was our salvation with respect to buildings.

¹http://en.wikipedia.org/wiki/Building_science

**Excerpt from IBE 202.2 Building Science Basics, available for \$49 by [clicking here](#).*



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On the Road to an EMF Theory of Calcineurin Inhibition

By Paul Raymond Doyon

Becoming Ill in Fukuoka

Way back in 2005, shortly after moving to the city of Fukuoka, Japan and starting a new teaching/research position at [Kyushu University](#) as an Associate Professor, I started to experience what turned out to be a plethora of bizarre symptoms.

At first, I started waking up earlier and earlier — 5 AM, 4 AM, 3 AM, etc. — until I was no longer able to sleep. I think I went a week with very little sleep before I went to the hospital in search of sleeping pills. The doctor there took one look at my eyes and face and handed me the prescription.

I went on to develop extreme thirst, musculoskeletal pain, heart pain and palpitations, night sweats, extreme fatigue, brain fog, difficulty concentrating, swollen lymph glands, anxiety, rapid weight loss, and skin rashes, among other symptoms. Eventually, I was no longer able to continue working at my position at Kyushu University and took a leave-of-absence.

Chronic Fatigue Syndrome?

I had been doing Internet searches of my symptoms and two things were coming up: [Chronic Fatigue Syndrome](#) (CFS) and AIDS. I didn't have AIDS (and double-checked to make sure) and after seeing a number of doctors was eventually able to find a CFS specialist at Kyushu University Hospital who confirmed my suspicions. It is actually diagnosed as "Autonomic Nervous System Disorder" (*jiritushinkeishicchoushou*) in Japan. This CFS specialist had also found titers in my blood from a number of viral agents and mycoplasma (the latter test done at my request). He wanted to give me anti-anxiety medication and I turned them down and had him prescribe me sleeping pills and antibiotics instead. He told me that there was nothing he could really do for me and that my condition would eventually just become worse and I would become bedridden.

CFS first appeared in the United States in 1984, and though it has been over 30 years since it first officially made its debut, it is still stated by the [CDC](#) as having an unknown cause or etiology. There are a plethora of theories out there about what causes it from viruses, mycoplasma, mold, candida, Lyme to fluoride, mercury toxicity, free radicals, and mitochondria dysfunction, just to name a few.

In the United States, CFS is only officially diagnosed by a patient having had persistent and unexplained fatigue plus four or more symptoms from a set of eight designated symptoms for a period of six months or longer. Hence, while there



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may very well indeed be biological markers, these are not accepted in the diagnosis.

Frantic Research

Well, I was not willing to accept this doctor's prognosis and began a frantic search for the cause and a cure for this problem. I pretty much read anything and everything I could on the subject and started to suspect first 1. heavy metal toxicity, and then 2. electromagnetic radiation as perhaps the two major causal factors to this disease state I was experiencing. We began a search for 1. a doctor who could do chelation therapy, and 2. a place out of the electrosmog, as we had discovered that we were living in the vicinity of several cell towers with two of them within about 200 meters of our apartment at the time.

Dr. Yayama and a White Zone Log House



Dr. Toshihiko Yayama

We eventually were introduced to [Dr. Toshihiko Yayama](#), who is probably Japan's most famous alternative doctor, and then very fortunately found a log house in a "white zone" (or area free of [or low in] radiofrequency EMFs) within about a thirty-minute drive of his clinic.



Our Log House for Four Months in the small village of Sugiyama, Saga Prefecture, Japan.

The Zero Search Machine

When we finally went to see Dr. Yayama he used a bioresonance machine he had invented called a "[Zero Search Device](#)" along with a German Rayometer to diagnose me. He uses a combination of both devices to read the specific frequencies of a number of substances or biological agents. Basically, he was able to determine in approximately five to ten minutes that I had 1. mercury toxicity, 2. lead toxicity, 3. aluminum toxicity, 4. formaldehyde toxicity, 5. systemic candida, 6. mycoplasma infection, 7. Toxoplasmosis, 8. a number of reactivated viral



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infections (e.g. Epstein Barr Virus, Cytomegalovirus, Cocksackie Virus, etc.), and that 9. I was being affected by geopathic stress and electromagnetic radiation.



Rayometer (Left) with Zero Search Device (Right)

The Main Causes of Modern Chronic Disease

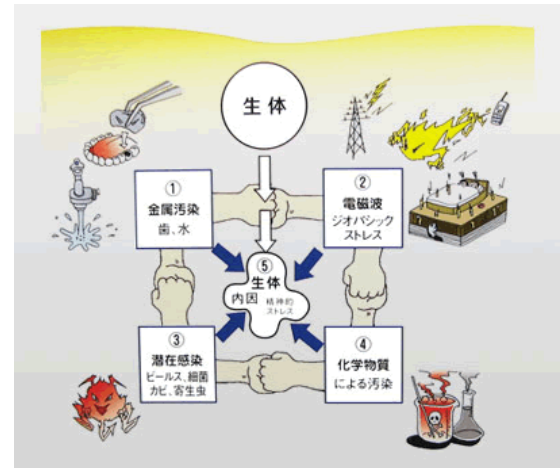
Sitting in his waiting room, I read in his pamphlet (now also listed on his website) his common-sensical theory of the cause of chronic disease:

The five main types of cause are as follows:

1. Metals such as mercury, aluminum, lead etc., enter our body by way of water, food and dental metal.
2. Electromagnetic wave noise comes from various electrical appliances such as mobile phone, computer etc.
3. Environmental inner-body pollution caused by chemical agents such as

chemical herbicides, insect killers, etc.

4. Underlying infection without any acute symptoms such as fevers caused by bacteria, virus, mold, and parasites.
5. Mental stress inside oneself.



Dr. Yayama's Theory of Modern Chronic Disease

On the ride home that evening, the cell phone towers that had previously blended into the background scenery, all became very noticeable to me.

Chinese Medicine Teas: *Metal* and *Infection*

He gave me two Chinese medicine formulas to drink: One he called “metal” (to clear the heavy metals from my system) and the other he called “infection” (to clear the infections from my system). I drank these for two months while living in the log house and doing other forms of therapy



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like having my teeth worked on, qi gong, and eating a strict diet.

After two months, Dr. Yayama said something like,

“OK. it is time now to do the heavy-duty chelation therapy. Don’t worry. I have done it myself and we mix in Vitamin C.”

Heavy-Duty Chelation Therapy: EDTA-Calcium

I then did an IV of EDTA-calcium once a week for approximately 10 weeks and noticed dramatic improvements in my health.

After living in the log house for approximately four months and doing all these alternative therapies, I would say that I was probably about 85% to 90% better — and while I had also become extremely electrosensitive, I was able to tolerate much more of the EMFs than I had after initially becoming sick.

Becoming an International EMF Refugee

I decided I could no longer live in Japan and ended up spending extended periods —as an EMF Refugee — for the next seven years in China, India, Thailand, and Chile.

Activist/Researcher

During this time, I also became an activist/researcher. I wrote a few ad-hoc papers published around the Internet that drew a bit of attention

and fanfare: For example, in 2006 I published a paper on the Internet titled [“Are Microwaves a/the Major Causal Factor in CFS/ME?”](#) where I listed 33 parallels between CFS and what had been described in the literature as “Microwave Sickness,” and where I stated among other things:

Exposure to microwaves and other EMFs is known to abnormally affect calcium flux into and out of cells. This is also an abnormality found in people with CFS/ME.

and

Nitric Oxide buildup — a byproduct of microwave exposure — is also found in CFS.

The results of this paper were publicized widely through the French group Next-up and were picked up by the Belgium newspaper, [LaLibre](#), and the Townsend Letter alternative medical magazine even wrote an [article](#) about me.

EMFs and Calcineurin

Anyway, to make a long story short, years later, I was reading about the side effect of immunosuppression caused by pharmaceutical agents called “Calcineurin Inhibitors” and noticed that they were remarkably similar to the infections I had developed when living in the vicinity of cell towers in 2004-2005. I suspected there might be a link and made these suspicions public. Professor Olle Johansson, Ph.D. from the Karolinska Institute in Sweden soon contacted me with the offer to co-author a paper on the subject and the



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rest is history. And with hundreds of hours of research and multiple rewrites later, the paper was finally accepted and then published by the prestigious journal, [Medical Hypotheses](#).

While I had heard anecdotal accounts and had read some research on the effect EMFs had on the immune system, I had never really read an account of any of the mechanisms behind such effects and hence began to suspect that calcineurin inhibition might be part of the picture. With the research I did with Professor Olle Johansson, we hypothesized that this inhibition might very well have to do with an increase of reactive oxygen species (ROS) within the cell and tied it in with Professor Martin Pall's research on how EMFs open voltage gated calcium channels causing an influx of calcium into the cell stimulating nitric oxide synthase to produce increasing levels of nitric oxide (NO) leading downstream to a number of other ROS, which in turn inhibit the enzyme, calcineurin.

The enzyme, calcineurin is a protein phosphatase, which activates the T-cells of the immune system. Calcineurin is also the target of a class of pharmaceuticals called calcineurin inhibitors, which organ transplant recipients will take in order to prevent or suppress organ transplant rejection. One of the major side effects of taking these pharmaceuticals, however, is immunosuppression. And this leads to the increased risk of opportunistic infection: e.g., fungal, viral (Epstein-Barr virus, cytomegalovirus), atypical bacterial (*Nocardia*, *Listeria*, *Mycobacterium*, *Mycoplasma*), and parasitic (e.g., toxoplasmosis) infections.

Hence, it was hypothesized in the paper that electromagnetic field exposure has the potential to inhibit immune system response by means of an eventual pathological increase in the influx of calcium into the cytoplasm of the cell. This, in turn, induces a pathological production of reactive oxygen species, which further in turn has an inhibitory effect on calcineurin. Calcineurin inhibition then leads to immunosuppression, which further leads to a weakened immune system and an increase in opportunistic infection.



Paul Doyon is the CEO and founder of two enterprises — *Electromagnetic Safe Planet* (ESP) and *EMF Refugee*. He is also a certified as a Building Biology Practitioner (BBP) and Electromagnetic Radiation Specialist (EMRS) with the International Institute of Building Biology and Ecology.

He has been researching the health effects of EMF exposure and working to educate people and raise awareness about these health effects for the last 12 years. He started a Yahoo Group in 2006 called EMF Refugee (now with over 1000 members) and a blog called *The Microwave Factor Blog* (with over 6000 posts) after becoming extremely ill in 2005 living in the vicinity of several cell phone towers/base stations while residing in Japan and had thus become an EMF Refugee himself.