

IBE 212

Electromagnetic Radiation

2025



Prerequisite reading: IBE 212.1 Electromagnetic Radiation (included in tuition cost), and Black & Decker *The Complete Guide to Wiring*, 8th edition (at [amazon.com](https://www.amazon.com), \$17 and up).

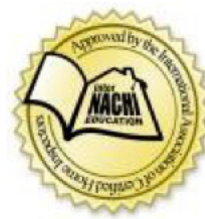
The daily schedule includes lectures and group activities, with practical experience in building science principles, research assignments, demonstrations, and interactive discussions.



Building Biology Institute
The science of healthy buildings

Table of Contents

Seminar Synopsis	page 3
Seminar Objectives	page 3
Seminar Schedule	page 4
Instructor Bios	page 5
Venue Information	page 6
Travel/Meals/Shuttle Information	page 6



Please direct all inquiries to:
outreach@buildingbiologyinstitute.org • (866) 960-0333

Seminar Synopsis

This seminar provides techniques for measurement and mitigation of man-made electromagnetic radiation (EMR); EMR is demonstrated with practical examples and case studies based on actual home inspections. Particular emphasis is placed on EMR in the bedroom. The recommended instruments used in the detection procedure are demonstrated, simpler abatement techniques are explained. Students learn by doing measurement in a lab environment. Lab time is approximately 50% of total time. Students are formed into teams. Each team has a complete set of recommended instrumentation. There will be an instructor or Lab Leader with every lab group.

Topics include:

- The physics of man-made energies
- EMF and human health issues (online study not covered in class)
- Static (DC) electric and magnetic fields
- Power system AC electric & magnetic fields
- Power system Microsurge Electrical Pollution
- Radio frequency (RF) radiation and wireless devices
- Assessment procedures & simple abatement for each type of energy

Prerequisite Course: IBE 212.1 Electromagnetic Radiation

Time requirement: Five days (successful completion of a proctored written exam is required)

Seminar Objectives

- 1) Understand the factors that affect the indoor electro-climate environment
 - Static Electric & Magnetic Fields
 - AC Electric and Magnetic Fields
 - Radio (Communication) Frequency Fields
 - Microsurge Electrical Pollution
 - Radiation and Radioactivity (online study not covered in class)
- 2) Learn IBE protocols and standards used to investigate electro-climate factors.
 - IBE protocols
 - Instrumentation usage
 - Data analysis and solution
 - Mitigation
- 3) Learn how to control/avoid EMF to improve health supporting nature of a building (basic mitigation techniques only)
 - Biologically effective: client responds positively
 - Technically sound: available, sustainable, effective and correctly installed
 - Aesthetically acceptable: affordable, family acceptable, sustainable
- 4) Understand general issues pertinent to Building Biology Environmental Consultancy
 - Information Resources
 - Basic Equipment Specifications and Recommendations
 - Electric code awareness
- 5) Understand how to educate & assist clients to create a healthier home

Seminar Schedule

Day One, Monday, 03 November 2025

- IBE Introduction
- Principles of Building Biology
- Basics of Electricity
- Building Wiring & Electrical Distribution Systems
- Equipment & System Grounds
- Smart Meters and 5G

Day Two, Tuesday, 04 November 2025

- AC Magnetic Fields
- Terminology & Common Sources
- Environmental Health Issues
- EMR Inspection Protocol
- Smart Meter Technology
- Lab: Magnetic Fields– Sources, Measurement, Detection

Day Three, Wednesday, 05 November 2025

- AC Electric Fields
- Overview of the Grid
- Terminology & Common Sources
- Environmental Health Issues
- EMR Inspection Protocol
- Microsurge Electrical Pollution (MEP) / Dirty Electricity
- 5G Cell System What is it; why is it a problem
- Lab: Electric Fields–Sources, Measurement, Detection

Day Four, Thursday, 06 November 2025

- Radio Frequency Fields
- Instrumentation 27 MHz to 10 GHz
- EMF Shielding and Materials
- Lab: RF Sources, Measurement, Detection
- Mock Home Assessment, Remediation Planning

Day Five, Friday, 07 November 2025

- Radioactivity/Terrestrial Radiation
- Equipment Recommendations & Specifications
- EMR Inspection Procedure Review
- Q&A + Review in preparation for Exam
- Exam (Starts at 11:30 or after lunch; Finishes at 3:00 pm)

Meet the Instructors

IBE 212: Electromagnetic Radiation



Mitch Marchand is an EMF consultant with a background in Electrical Engineering who helps people use their technology in a healthier way. Previously as an Electrical Engineer, Mitch programmed computers that controlled power plants in Canada and the US for 9 years. Now as an EMF consultant, certified Electromagnetic Radiation Specialist and Founder of EMF Aware, Mitch has explored the wireless technology and electrical environment of hundreds of homes and businesses since 2011.

As featured lecturer Mitch has spoken in medical clinics, to special interest groups, and the general public on the topic of EMF exposures from wireless technology and electricity. But, most importantly, Mitch is the chief cook and dishwasher for his wife and young son in Calgary, Canada. To contact Mitch, please visit emfaware.ca.



Rob Metzinger is an Electronics Engineering Technologist, Certified Building Biologist, Certified Electromagnetic Radiation Safety Advisor (CERSA) Consultant, President of Safe Living Technologies Inc. He is also a factory certified Gigahertz Solutions Test Equipment Technician and Instructor.

Mr. Metzinger's 20 years of experience as an independent corporate electronics field service engineer has yielded him a strong background in electrical and electronic problem solving. Education, Detection and Protection are the three pillars of his business. Rob has taken his 18 years of experience in the field of Electromagnetic Radiation to the next level and has become an educator with BBI. To contact Rob, please visit: www.safelivingtechnologies.com

Venue

Art of Living Retreat Center
639 Whispering Hill Road
Boone, North Carolina 28607
<https://artoflivingretreatcenter.org/>

BBI arranges your lodging and your food via contracts with the seminar venue, and your contract is with BBI, not with its venue. We must ask that any issues, concerns, or needs you may have regarding your room or your food be addressed to Erik Rosen, our Executive Director, who will be on-site and available to you 24/7.

We make every effort to ensure that your lodging room, as well as the classroom, dining room, and commons areas satisfy all Building Biology Standards for a health-supporting environment, and this venue's management joins us in our efforts. Please note, nonetheless, that no venue situated "on the grid" is entirely ideal.

Overview: Please pay your tuition and room & board in advance to the Building Biology Institute. Payment may be arranged online at BBI's website ([click here](#)), or by calling BBI's executive director (412-727-2233). To

Schedule: Classes begin on Monday, 03 November. Please arrive on Sunday, 02 November, and remain through your completion of the final exam, at or around 3:00 PM on Friday, 08 November. There will be a Meet & Greet Sunday evening at 7 PM in the venue's lobby.

Lodging: Each student will be provided a private room with private bath. Check-in begins at 3:00 PM on Sunday; check-out is 10:00 AM Friday.

Meals: Freshly prepared buffet-style meals will be served three times daily in the dining hall. Please note the meals will all be vegetarian, and the venue can accommodate special needs such as gluten-free options. The venue requests no meat be brought into the dining hall, or alcohol on premises.

Attire: Please dress at your own comfort level (as casual as you please). Also please note that, while your leisure time will be limited, AOLRC offers an impressive tableau of health-related recreational opportunities.

NOTE: All indoor areas are smoke-free. We ask that all students, in consideration of attendees who may suffer from allergies, to please refrain from using/wearing scented personal products.