

## Final Project Guidelines for EMRS



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



INTERNATIONAL INSTITUTE FOR  
**BUILDING-BIOLOGY® & ECOLOGY**



## **Final Project: Putting Building Biology® Principles in Practice**

This final project is the home stretch for your certification as a Building Biology Electromagnetic Radiation Specialist. You are expected to demonstrate understanding of and proficiency in applying the testing protocols, analysis methods and data interpretation as taught in IBE's 212 and IBE 312 seminars as well as holistic environmental awareness of other factors that may be affecting a client's built environment as taught in IBE 101.

You will be working with a mentor who is an experienced EMRS. IBE will assign your mentor to you, based on the best match of a mentor's established skills and your stated goals. While IBE will make every effort to accommodate student requests for a particular mentor, IBE does not guarantee that the mentor requested will be available during the time frame you have selected, and IBE reserves the right to assign an alternate mentor to you.

Your mentor has volunteered for this responsibility, and is committed to devoting three to four hours aggregate of their time to your undertaking, via phone and e-mail, at no cost to you. Should your mentor agree to grant you additional time, and/or their more personalized involvement (for example, inviting you to accompany them on client house calls), with or without assessing a fee for their additional commitment, it is solely at you and your mentor's discretion.

You must pass this final project in order to become a certified Building Biology *Electromagnetic Radiation Specialist* (EMRS). Passing or failing this project rests solely on your mentor's judgment as to your ability to safely and effectively carry out the Building Biology assessment process. Please spend enough time interviewing your mentor prior to their official appointment to ensure that you and your mentor are suited to each other and that you can depend on full and accurate communications between the two of you.

We at the Institute look forward to welcoming you into our international community of certified Building Biology Environmental Consultants and Electromagnetic Radiation Specialists.

### **Home Assessment and Report**

Conduct a home assessment and write a detailed report to your client explaining your findings and remediation plan. The sample report format recommended in the *IBE Business Support Program* (contact the Institute to gain access) will be used as your template for this report. The maximum time to complete Part A is three months from the date of your assignment to a mentor.

Based on the specifics of the home you are going to evaluate, it may be necessary to consider and report on the existence of additional non-EMF environmental factors that you might become aware of based on visual and olfactory assessment. The IBE philosophy requires you to always take a holistic view of any environment you will be evaluating. All environmental factors to be aware of are listed in the IBE document: *BBEC: Assessment Procedures v3.1*.

What you need to do now:

1. Discuss your specific assessment home and the assessment elements with your mentor. (You may NOT use your own home. We want you to interact with a client.)
2. Write a proposed Home EMR Assessment Plan based on discussion with your mentor.
3. Submit proposal to your mentor for review, discussion, modification and, finally, approval.
4. Upon approval of assessment plan, conduct the assessment of the home using the IBE Protocol: *Measurement of Non-ionizing Radiation in Low-rise Residential Buildings* provided in the IBE 212 and 312 student materials.
5. Discuss any additional non-EMR findings resulting from your holistic assessment with your mentor and decide on how to handle these in your client report.
6. Specifically discuss with your mentor the mitigation options for the EMR problems identified and create a mitigation plan.
7. Write a client report following the *Business Support Program* report template. Include photos, diagrams if useful, test results and your mitigation plan. Submit the report to your mentor. Your mentor will review the report and give you feedback.
8. Follow up with the client to implement the mitigation plan and discuss the results with your mentor.
9. Provide your mentor with your client's email address and let the client know that your mentor will be sending an evaluation form that will be part of your grade for the final project.

Note: You are not yet a certified EMRS; Please do not present yourself as one. You may negotiate a nominal fee with your client if you desire to do so.

If needed IBE will rent a kit with all of the test equipment needed to perform the EMR evaluation. This kit can be rented for 5 days for \$150 not including return shipping (USA and Canada Only). Renting the kit requires a \$1200 credit card deposit. Additional details on page 6.

### **Electromagnetic Radiation Assessment Elements**

#### **1. Map of Property:**

- a. Sketch a map of the lot showing footprint of the house. Show utility lines and service entrance points—water, gas, cable, electric. Indicate bedroom location relative to the utility entry points. Measurements of interest can be noted on this map to be included in the report and shared with the client.
- b. Sketch a floor plan for each floor of the house. Indicate bedroom and bed locations. Mark utility entry points. Measurements of interest can be noted on this sketch to be included in the report and shared with the client.
- c. You can examine the sketches to look for patterns and thus identify places to explore and identify sources. A picture can be taken of each sketch and included as a jpg file in the body of your report.

## 2. **Magnetic Field Assessment**

- a. Measurement of all rooms and property surrounding occupied building(s)
- b. Determine if the following issues exist on your screening tests:
  - i. Wiring errors
  - ii. Outside field sources
  - iii. Electric current on parallel neutral return paths to the neighborhood transformer
  - iv. Point sources, including in computer/home office, sleeping areas, kitchen and other locations
- c. Record magnetic field for 15 minutes in bedroom. Comment on the DE frequency components.
- d. If there are other areas with elevated fields, pick the highest and record in this area as well. Comment on the DE frequency components.
- e. Develop a 9 point bed map. Comment on the DE frequency components.
- f. Develop a remediation plan based on above measurements.

## 3. **Electric Field Assessment**

- a. Assessment of sleeping locations using 9 point bed mapping.
- b. Record the electric field for 15 minutes at a sleeping location with the highest field and comment on the DE frequency components.
- c. Develop remediation plan for each location by circuit breaker manipulation per protocol. Pinpoint outside field sources if they exist.
- d. Further assessment of other locations as dictated by client needs. Include assessment of electric field exposure at a computer and refrigerator (whether grounded or not).
- e. Develop a remediation plan based on above measurements.

## 4. **MEP Assessment** using a Microsurge Meter

- a. Assess initial pollution level
- b. Assess power supply pollution level
- c. Identify inside MEP sources
- d. Develop remediation plan

## 5. **Radio Frequency Radiation**

- a. Measure interior RF levels; ID sources
- b. Measure exterior sourced RF levels; ID probable sources
- c. Develop a remediation plan based on above measurements. Use the directional feature of the HF59 to find locations for application of shielding if a more limited approach makes sense due to source location.
- d. Using a floor plan, collect dimensions of the rooms to be shielded and the window/door glass to be shielded. Calculate shielding materials and accessories required. Indicate, using colored markers:

- a. Walls and glass areas are to be shielded.
- b. Indicate using colored markers the location of single point for wall Earthing connection in each room.
- c. Mark the location of the outside Earthing rod(s).

## IBE Rental Kit: Equipment & Terms

### EMR Equipment

- NFA1000 Meter & Holder  
Value: \$2000
- RF Power density- GigaHertz HF59B  
with UBB-27 and Log-Per Antennas  
Value: \$1800
- Greenwave Microsurge meter  
Value \$130



### Shipping Case

Value \$100



### Rental Terms

Rental cost: \$150 for five days in your hands (plus 4 days shipping each way)  
Rent beyond 13 days total time including shipping: \$50/day  
Deposit: \$1200 via credit card hold  
Shipping: UPS or Priority mail 2 days to most zip codes in the USA  
Shipping Weight: 10 lbs (approximate)  
Total Equipment Value: **Insuring return shipment for \$4000**

## Estimate of Project Costs

<b>Test Kit Rental</b>	\$150
Shipping & Handling	\$115
<b>Total</b>	<b>\$265</b>

- We require a deposit using a credit card hold for \$1200 to cover potential damage to the equipment. This \$1200 will be refunded after the equipment is inspected less any cost for repairs.
- Please insure your return shipment for \$3000 unless you can cover the loss of the shipment out of your own pocket.
- We expect you to return ship the equipment at your own expense, clean, undamaged in operating condition and packaged as delivered so as to avoid equipment damage in the return shipment so the next student renting the equipment get it without delay.