

IBE 213

2023

Building Physics/Building Biology



Open to all, from working professionals to the general public, this seminar benefits architects, interior designers, indoor air quality consultants, home inspectors, home dwellers, and other building professionals.

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



Building Biology Institute
The science of healthy buildings

Seminar Syllabus: IBE 213

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The Building Biology Institute (BBI) does not and shall not discriminate on the basis of race, color, religion (creed), gender, gender expression, age, national origin (ancestry), disability, marital status, sexual orientation, or military status, in any of its activities or operations. These activities refer to any and all interactions involving our potential or current students and our alumni; these operations include, but are not limited to, hiring and firing of staff, selection of volunteers and vendors, and provision of services. We have been and remain committed to providing an inclusive and welcoming environment for all.

IBE does however reserve the right to deny enrollment, whether first-time or continuing, of students it deems to present the risk of being or becoming disruptive of our program presentations, and/or a distraction for our students from what they have come to us to learn and experience.



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

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Cancellation Policy

Seminar students who paid their tuition in full, and then cancel at least thirty (30) days before the first day of classes, will receive a tuition/tuition deposit refund in full (100%). Those who cancel less than thirty days out, but more than ten days out, and had paid their tuition in full, will receive a fifty percent refund; the amount they forfeited will be considered on deposit for one year, and may be applied toward any subsequent BBI event or online course. Those who cancel ten or fewer days out will not receive a refund, but their entire forfeited payment will be considered on deposit for one year.

If a student cancels out of a seminar after having received a digital and/or hard-copy of that seminar's manual, and elects to apply their tuition credit to a seminar *other* than the one for which they cancelled out, their tuition credit will be reduced by the value (\$425.00 USD) of the course manual for the seminar out of which they cancelled.

Regarding seminar room & board, our refund policy is dependent on the chosen venue's cancellation policy; if the venue should issue a refund, BBI will pass 100% of the venue's refund to the student. In like manner, should the venue refuse BBI a refund, in whole or in part, then said venue's policy becomes fully representative of BBI's policy.

Extended Policy Stipulation

BBI does not endorse products, methods, practices, services and/or business opportunities (hereafter referred to as “offerings”) that are extraneous to BBI’s policies, practices, and/or curriculum, regardless of whether they are vended/sponsored by our alumni, students, or by outside third parties or organizations.

This policy extends to our seminars, our biennial conference, and all other live or interactive events. And while participants in our events are not restricted by BBI from apprising their fellow participants of any offerings, regardless of whether they are or may be or may not be in conflict and/or in competition with BBI, they may in no way solicit or otherwise “pitch” their fellow attendees during said event(s). Subsequent to said events, neither offerings nor follow-up appraisals of offerings may be made attempted by any means - telephone, e-mail, or snail-mail - without the expressed *prior* consent of their intended recipient(s).

BBI reserves the right to deny/rescind enrollment, whether first-time or continuing, to students it deems to present the risk of being or becoming disruptive of our program presentations, and/or a distraction for our students from what they have come to us to learn and experience.

Discrimination: Zero Tolerance

The Building Biology Institute (BBI) does not and shall not discriminate on the basis of race, color, religion (creed), gender, age, gender expression, national origin (ancestry), disability, marital status, sexual orientation, or military status, in any of its activities or operations. These activities refer to any and all interactions involving our potential or current students and our alumni; these operations include, but are not limited to, hiring and firing of staff, recruiting/selecting of vendors, volunteers, and providers of services. We have been and remain committed to providing an inclusive and welcoming environment for all.

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Seminar Synopsis

Building Biology, or Bau-biologie®, is a specialized branch of Building Science with human health as the central focus. This 5-day seminar explores the inter-relationships between human health, the built environment and planetary ecology. Attendees will learn about building physics, the interaction between air, moisture, toxins and humans within a built environment, and the uniquely holistic Building Biology approach to the built world. Students will learn to apply Building Biology criteria to evaluate building envelopes, and explore a number of alternative systems available in North America. Additionally, students will learn about healthy design strategies for passive heating/cooling, mechanical/electrical systems, and evaluate materials and finishes for their health impact. The instructors are experienced architects and/or builders in the natural building field.

Topics include:

- Introduction
- Building Biology® Principles & philosophy
- Comparative analysis of Building Science and Building Biology
- Building Physics
- Physical aspects of the built environment of unique interest to building biologists
- Best Practice Conventional Construction and Alternative Building Systems
- Alternative mechanical systems

Resources: *IBE Natural, Healthy Building Course* [IBE 101], *Prescriptions for a Healthy House*, by Paula Baker-Laporte, et al.; *Natural Remodeling for the Not-So-Green House: Bringing Your Home into Harmony with Nature*, by Carol Venolia and Kelly Lerner; *Indoor Climate* [IBE 204.2] and *Natural Finishes* [IBE 205.5], *Your Home Technical Manual*, 4th edition; available from: www.yourhome.gov.au/technical/index.html and *Keeping the Heat in*, ISBN: 0-662-36984-X, Natural Resources Canada, 2004, by permission of Minister of Public Works and Government Services Canada, 2008.

Seminar Objectives

1. Gain insight into the dynamic interaction between the climate, the built environment, and the impact of that built environment upon the occupant and the ecosystem.
 - a. Climate effects.
 - b. Building science and Building Biology responses.
 - c. Building envelopes.
 - d. Building systems.
 - e. Building materials and furnishings.
2. Understand building science as it applies to conventional construction as practiced in North American home building.
3. Learn the IBE principles used to build a biological and ecological home.
4. Learn the IBE principles used to remodel a biological and ecological home.
5. Learn how to improve the health supporting nature of the built environment.
 - a. Biologically effective: client receives a healthy living environment.
 - b. Technically sound: available, sustainable, and effective.
 - c. Aesthetically acceptable: well designed, supportive of ecologically sound lifestyle.

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Seminar Schedule

Kanuga Retreat Center
Hendersonville, North Carolina

Day One, Monday, 03 April 2022

IBE INTRO, BUILDING BIOLOGY/BUILDING SCIENCE. BUILDING PHYSICS

- Student introductions
- IBE Introduction
- Building Biology® Principles – A comparison of conventional and natural building
- Building Biology/Building Science
- Building Physics Part 1
- Daily Quiz

Day Two, Tuesday, 04 April 2022

BUILDING PHYSICS CONT'D, INDOOR CLIMATE

- Day One review
- Building Physics Part 2
- Healthy Indoor Climate
- Daily Quiz

Day Three, Wednesday, 05 April 2022

THE BUILDING ENVELOPE: BUILDING BIOLOGY WALL SYSTEMS EVALUATIONS, ALTERNATIVE WALL SYSTEMS, FIELD TRIP

- Day two review
- Introduction to Alternative Wall Systems
- Wall System Evaluation 25 criteria
- Wall systems: Best practice conventional construction.
- Natural alternative wall systems
- Field Trip: Visit to three or four homes of light straw clay, straw bale, log, AAC, pumicecrete or adobe.

Day Four, Thursday, 06 April 2022

BUILDING ENVELOPE CONTINUED

- Day 3 review
- Team exercise: comparative analysis of wall types
- The rest of the building envelope: Best practice conventional and alternatives for foundations, basements, attics and roofs.
- Whole house alternatives to polyfoams.
- Daily Quiz

Day Five, Friday, 07 April 2022

ALTERNATIVE MECHANICAL TECHNOLOGIES, REVIEW & EXAM

- Day 4 review
- Alternative Mechanical technologies for heating, cooling, ventilation and plumbing
- Conclusions
- Final Review
- Final Exam

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Meet The Instructors

IBE 213: Building Physics/Building Biology



Paula Baker-Laporte FAIA was graduated from the University of Toronto, School of Architecture in 1978 and from The International Institute of Bau-Biologie and Ecology in 1995. In 2007, she was elected into the College of Fellows of the American Institute of Architects. She has headed a wide-ranging architectural practice based in Santa Fe, New Mexico since 1986 and now lives and works in Ashland Oregon. Since 1992, Paula has dedicated her practice to the precepts of environmentally sound and health-enhancing architecture and her firm continues to lead in the fields of healthy and natural design and design and consultation for the chemically sensitive. She was selected as one of our nation's top 10 green architects in *Natural Home's* July/August 2005 edition.

Paula has lectured, taught and published extensively on the topic of healthy and ecological design through out the USA and Canada. She is the primary author of *Prescriptions for a Healthy House*, 1st,-3rd edition, (New Society Publishers 2008) and co-author with husband Robert Laporte, of *EcoNest: Creating Sustainable Sanctuaries of Clay, Straw and Timber*, (Gibbs Smith, 2005). She is a contributing author to several other books.

Together, Paula and her husband Robert, have developed the EcoNest® home concept. EcoNest projects have been built through out North America and featured in several books including *Designing your Natural Home* by David Pearson, *Green by Design* by Angela Dean, *Sustainable Residential Interiors* by Associates III, and *Space Matters* by Katherine Cox as well as nationally published magazines including *Natural Home*, *Fine Homebuilding*, *Residential Architect*, *Organic Style Magazine*, *Yoga Journal*, *Inspired House* and *Ultimate Home*. For photos of Paula's architectural designs, articles, upcoming seminars and lectures and to contact Paula please visit the website: www.econest.com



Stephen Collette is a Certified Building Biology Environmental Consultant, and Principal of Your Healthy House, based out of Lakefield, ON, Canada. Stephen is a retired straw bale builder, having worked on two dozen straw bale structures across Ontario and Quebec, from small cottages to 13,000 sq. ft structures and everything in between. Stephen has an engineering background and became passionate about healthy housing when his family became ill due to exposure to mould. Stephen carries out indoor environmental inspections on houses and other buildings to determine health impactors based on building science and environmental health concerns. Stephen is a LEED AP (Leadership in Energy and Environmental Design Accredited Professional) from Canada Green Building Council. Stephen has a Building Science Certificate from the University of Toronto and is a certified Building Science Specialist of Ontario. As a consultant Stephen helps people make healthier, more environmentally friendlier building choices. Stephen is a published author who writes and lectures across North America on healthy, natural and green buildings. Please visit his website at www.yourhealthyhouse.ca

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Venue

Kanuga Conference & Retreat Center
130 Kanuga Chapel Drive, Hendersonville, NC 28739
([click here to visit the retreat center's website](#))

BBI arranges your lodging and your food via contracts with two separate vendors, and your contract is with BBI, not with its vendors. We must ask that any issues, concerns, or needs you may have regarding your room or your food be addressed to Erik Rosen, our Director of Programs, who will be on-site and available to serve you 24/7, rather than to the venue management or the caterer.

This venue has been vetted thoroughly by longtime BBI alumnus Diana Schultz, BBEC, EMRS, over the course of two, daylong in-person visits to the physical site, with step-by-step guidance from Larry Gust.

The venue's WiFi in and around all lodging and classroom areas will be disabled throughout our time there. The EMR/EMF prevailing levels on the entire property (1,400 peaceful acres in the Blue Ridge Mountains) are very low. The IAQ conditions meet or exceed Building Biology standards. And the venue's staff is and has been working very closely with us to help ensure that these health-supporting conditions prevail.

Overview: Tuition and room & board must be paid in advance, please, to the Building Biology Institute. Payment may be arranged online at BBI's website ([click here](#)), or by check, or by calling BBI's executive director (505-428-0901). To pay by check, please mail your payment to: IBE, P.O. Box 8520, Santa Fe, New Mexico 87504.

We ask you to arrive the day before classes begin (Sunday, 02 April). You may opt to arrive earlier and/or depart later, at an additional cost (to be determined). This is all dependent upon whether the venue can accommodate the extra days. This is a lodging fee only, and includes meal service for the extra days. Check-in begins at 3:00 PM on Sunday; check-out is 10:00 AM Friday, 7 April. To arrange early arrival, or an extended departure date, please contact our Director of Programs Erik Rosen, not the venue: <erik@buildingbiologyinstitute.org>.

Arrival/departure: Kanuga is served by three airports: Asheville, NC, Greenville-Spartanburg, SC, and Charlotte, NC. Asheville (AVL) is closest, and is about 30 minutes from the venue via taxi or Uber.