Green from the Ground Up
Residential Green Building Principles and Practices

To schedule a training or for more information, contact:
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Course Overview

Green Builders are Working
Even during challenging economic times, green builders are staying busy. Why?

Today’s consumers want comfortable homes, lower energy bills, healthy air for their children to breathe and the peace of mind that comes with knowing their home will last a lifetime. Trained green building professionals are uniquely positioned to deliver on homeowners’ desires.

Thinking Green
In this two-day course, master trainer David Johnston teaches participants how to approach a home from the green building mindset. Instead of seeing the house just as a conglomeration of parts, participants learn to view a home in terms of interrelated systems. From foundations to flooring, from roofs to HVAC systems, students learn that all aspects of design and construction must function together in order to build a green home.

The Green Building Tripod guides every design decision and construction detail.

The Tripod consists of:
- Energy-Efficiency
- Resource Conservation
- Indoor Air Quality

Participants learn how to achieve all three goals while building beautiful, durable, affordable homes.

Who Should Attend?
The course is geared toward anyone involved in the building industry including those in involved both in new construction and remodeling.

The course attracts trades people, general contractors, production home builders, architects, interior designers, suppliers and manufacturers, and real estate professionals. Homeowners, too, find the course helpful for jumpstarting their DIY projects.

Practical Information You Can Use Immediately
This course is designed to provide students with useful information that can be applied on the jobsite or in the home right away. Participants leave the class armed with real-world, affordable solutions they can implement "Monday morning."

Green Advantage Certification
The Green from the Ground Up course prepares professionals to take the Green Advantage Certification exam.

Course Instructor
David Johnston has been at the center of the green building movement for more than three decades. In the 1970s and 80s Johnston established himself as a leader in passive solar design and construction. In
1980 Johnston founded the Passive Solar Industries Council and consulted with the US Department of Energy. For ten years his award-winning Lightworks Construction led the DC market in solar design and construction.

In the early 90s, Johnston founded his international green building consulting and training firm, What’s Working. Johnston’s innovative theories about how to catalyze the transformation of the building industry became the blueprints for the Denver Built Green and California Build It Green programs. Particularly adept at generating green building guidelines, Johnston’s work has guided master planned communities in Denver, Boulder, Sacramento, San Diego, Phoenix, and Durango, CO.


**Green Advantage® Certification**

Green Advantage ([www.greenadvantage.org](http://www.greenadvantage.org)) is the only national-recognized, third-party, non-profit entity offering green building certification. A joint venture of the US Environmental Protection Agency and the Nature Conservancy, the Green Advantage program’s mission is to accelerate the dissemination of credible green building information to professionals.

**Benefits of Certification**

Upon passage of the Green Advantage certification exam, professionals will be listed in the Green Advantage Certified Professionals online directory ([http://www.greenadvantage.org/property-locate.php](http://www.greenadvantage.org/property-locate.php)). The directory connects homeowners with professionals who have demonstrated their knowledge of green building practices.

**Becoming Certified**

In order to become certified, builders and other industry professionals attend an authorized Green Advantage training then sit for the appropriate examination.

David Johnston’s firm, What’s Working, is the official provider of the Green Advantage residential training. Johnston’s course, Green from the Ground Up, prepares students to take the exam administered by Green Advantage.

**The Certification Exam: Fees and Passing**

Green Advantage® Certification requires that professionals demonstrate a basic knowledge of green construction concepts, materials, and practices by passing the Green Advantage® Exam with a score of 75% or higher.

Certification is based on an established set of standards, and is overseen and judged by a board of experts who make up the Green Advantage® Certification Board.

The Certification Exam Fee is $125 if taking the Exam at a session scheduled as a part of an authorized Green Advantage® training. If unable to attend the exam following the authorized training, it is possible to arrange for the exam to be administered at a different location for an additional fee.
Green From the Ground Up Course Syllabus

Unit One: Context, Planning and Design

Why Green Building?
Environmental Context
Economic Context
Benefits to the Homeowner

The Green Building Tripod
Energy-Efficiency
Resource Conservation
Indoor Air Quality

Building Science
Thermodynamics
Hydrodynamics

Whole Systems Design
Working with Site and Climate
Passive Solar
The Design Charette

Unit Two Building the House

Foundations
Insulating the Foundation
Fly-Ash Concrete
Controlling Moisture
Crawspaces

Framing
Advanced Framing Techniques
FSC Certified Lumber
Engineered Lumber
Structurally Insulated Panels (SIPS)

Roofs and Attics
Attic Insulation and Ductwork
Sheathing and Roof Membranes
Roofing Materials

Windows and Doors
Window Frames
Glazing: Low-E, Super Windows
Skylights, Light Tubes
Doors

Plumbing
Reducing Standby Losses
On-Demand Circulation Systems
Tankless/Instantaneous Water Heaters
High-Efficiency Boilers
Water-Saving Fixtures and Appliances

Heating, Ventilation and Air Conditioning
Sizing HVAC Systems
Efficiency Testing and Upgrades
Radiant Heating Systems
Geothermal Systems
Ventilation

Electrical
Ambient and Task Lighting
Compact Fluorescents, LEDs
Energy-Efficient Appliances

Insulation
Loose-fill, Spray-in and Rigid-foam Insulation
Radiant Barriers
Siding and Decking
  Siding Materials
  Decking Materials

Solar Energy
  Photovoltaics
  Solar Hot Water

Indoor Air Quality
  Volatile Organic Compounds
  Formaldehyde
  Mold

Interior Finishes
  Paints, finishes, adhesives
  Cabinets
  Countertops
  Flooring

Site Management and Landscaping
  Construction and Demolition Recycling
  Minimizing Construction Impact
  Climate-Appropriate Landscaping

Unit Three Putting It All Together

Green Programs and Certifications
  Green Advantage
  ENERGY STAR
  Green Label
  LEED for Homes
  NAHB Green Building Program

Marketing Yourself as a Green Builder
  Market Research
  Strategies

Next Steps
  Integrating Green Practices on Monday Morning