

Course Description

The Resource-Efficient Home: Remodels, Retrofits, Renovations, and New-Home Construction covers the distinguishing characteristics that make a home resource thrifty. The course looks at why consumer demand for these homes is increasing and how both the homes and consumer expectations impact the market. The course prepares real estate professionals to provide advice and sources of information to help homeowners improve the resource efficiency of their homes from low-cost fixes and DIY projects to retrofitting and replacing systems to big -budget remodeling projects. The course also looks at constructing a new, resource-efficient home and the value that real estate professionals can bring to the design and build team.

Learning Objectives

Chapter 1: The Resource-Efficient Home

What is a resource-efficient home and why is consumer demand for these homes increasing?

- Observe the influence of principles of sustainability on consumer attitudes and choices and home values.
- Distinguish between homes with resource-efficient features, smart homes, and certified homes.
- Help clients and customers evaluate the cost-benefit balance of retrofitting, remodeling, or renovating.

Chapter 2: DIY Projects for Improving Resource Efficiency

What can homeowners do on their own to improve the resource efficiency of their homes?

- Help home buyers see the potential in an existing home for resource-efficiency improvements.
- Suggest to homeowners DIY steps and easy upgrades to improve the resource-efficiency of a home.
- Help consumers understand energy-efficiency ratings of appliances.

Chapter 3: Smart Home Technologies

What makes homes smart and what is their impact on the market?

- Describe characteristics of smart home technologies.
- Help homeowners understand the benefits and implementation of smart home technologies.
- Explain how smart home technologies help achieve resource-efficiency goals.

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Chapter 4: Retrofitting and Replacing Systems

What are some of the opportunities for improving the resource-efficiency of an existing home?

- Describe choices for resource-efficient home systems—such as HVAC and water management—and the significance of ratings for home systems and materials.
- Suggest improvements to enhance the resource-efficiency of a home as well as the quality of the indoor environment.
- Show the linkage between high-performance homes and value.

Chapter 5: Remodeling: Big Budget Projects and the Bottom Line

What are some of the possibilities, including alternative energy, when a homeowner can invest more time and money in upgrading a home?

- Advise clients and customers on the potential of various home renovations to increase the value of a home.
- Refer consumers to information sources for planning a remodeling or renovation project.
- Discuss the technologies and methods for alternative energy resources including wind and solar power generation.

Chapter 6: From the Ground Up: New and Custom Construction

What are the steps, opportunities, and choices involved in constructing a new home and how can the real estate professional add value?

- Help consumers evaluate the pros and cons of purchasing a new home with green features versus purchasing and upgrading an existing home.
- Describe the design and construction phases as well as components of resource-efficient new and custom homes.
- Observe the market impact of new, resource-efficient spec homes.

Topic Outline

Introduction

- A. How to Earn the Green Designation**
- B. About the Green Designation Program**
 - 1. A Note About Terminology
- C. Designation Program Structure**
 - 1. What You Will Learn: Course One
 - 2. What You Will Learn: Course Two
- D. Course One: Structure and Learning Objectives**
(see page 1)
- E. Practitioner Perspective Spotlights**

I. The Resource-Efficient Home

- A. What is a Resource-Efficient Home?**
- B. Why Resource-Efficient Homes and Why Now?**
 - 1. Consumer Demand and Awareness
 - 2. Point-of-Sale Regulations
 - 3. Changing Building Standards
 - 4. Incentives
 - 5. Home Certifications
 - 6. Values and Lifestyles
 - 7. Life Events
- C. Resource-Efficiency Improvement Opportunities**
 - 1. No Whole-House Makeover
- D. The Bottom-Line Question for Consumers**
 - 1. The Cost-Benefit Balance
 - 2. Environmentally Friendly Features Considered “Very Important”

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(All Buyers)

3. Recouping Costs on Resale

E. The Bottom-Line Question for Real Estate Professionals

1. Adviser and Consultant
2. Source of the Source

F. Practitioner Perspective

II. DIY Projects for Improving Resource Efficiency

A. Improving Resource Efficiency Matters

B. Establishing a Baseline

1. DIY or Professional Assessment

C. Do-It-Yourself Home Energy Survey Checklist

1. DIY Testing for Air Leaks

D. Preparing for the Energy Survey or Assessment

E. Professional Energy Survey—Clipboard Audit

F. Performance Testing—A Test Drive

1. What Does the Assessor Do?
2. Utility Company Audits
3. Home Energy Performance Testing
4. Home Energy Score
5. Home Energy Rating System (HERS®)
6. Finding an Energy Professional

G. Next Step—Taking Action

1. Sealing Air Leaks—What Is the Best Sealant?

H. Home Appliances

1. Pop Quiz: Making the Right Appliance Choices

I. Energy Star® Appliances

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1. Buyers Should Know...

J. How to Read an EnergyGuide Label

1. CFL versus Incandescent Bulbs
2. Does One Light Bulb Make a Difference?
3. Light Emitting Diode (LED) Bulbs

K. Lighting

L. Light Bulb Ban?

M. Lawn and Garden Makeover

N. Practitioner Perspective

III. Smart Home Technologies

A. Converging Technologies

1. The Internet of Things (IoT)

B. The Basics

C. What Does a Smart Home Do?

D. Smart Home = Resource-Efficient Home

1. Energy Efficiency First

E. Market Impact of Smart Homes

F. Practitioner Perspective: The Iterative Smart Home

G. Getting Started with Smart-Home Technology

1. Five Easy Steps
2. Check out These Sites

H. REALTOR® Information Resources—Smart and Green

I. Practitioner Perspective

IV. Retrofitting and Replacing Systems

A. Why Upgrade an Existing Home?

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- B. Sell the Benefit, Know the Science**
- C. Retrofitting Challenges**
- D. Right Sizing HVAC Systems**
 - 1. Heating and Cooling System Ratings
- E. Replacing a Furnace**
 - 1. Time to Replace?
 - 2. Do the Math
- F. Replacing an Air Conditioning Unit**
 - 1. Time to Replace?
- G. Ventilation**
- H. Water Heaters**
 - 1. Time to Replace?
 - 2. Resource-Efficient Choices for Water Heating
 - 3. Make the Right Water Heater Choice
 - 4. Solar Water Heating
- I. Windows and Doors**
 - 1. Entry Door Replacement—100% Payback
 - 2. Low-e Windows
- J. Indoor Air Quality (IAQ)**
 - 1. Tine Nose Knows
- K. IAQ Issues, Diagnosis, and Solutions**
- L. Maintaining the Resource-Efficient Home**
- M. Practitioner Perspective**
- N. Exercise: Sell the Benefit, Know the Science**

V. Remodeling: Big Budget Projects and the Bottom Line

- A. Home Improvement Online Strategy Generators**

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B. Eight Steps for a Perfect Home Improvement Project

C. Kitchen Remodeling—A Green Makeover

D. Deep Energy Retrofit

E. Adding Insulation—How Much and Where?

1. Recommended Insulation by ZIP Code

F. The Net Zero Energy Home

1. Net Metering
2. Avoided-Cost Pricing
3. Insurance Coverage
4. Back-Up Systems
5. What You Need to Know

G. Power Off the Grid: Solar Photovoltaic (PV) Systems

1. How Do Solar Photovoltaic (PV) Systems Work?
2. Solar PV in Brief

H. Growth of Solar PV

1. Do the Cost Comparison
2. Buying a Solar PV system
3. Leasing and Power Purchase Agreements (PPA)
4. Three Issues to Watch
5. Comparing Solar PV Leasing, PPAs, and Prepaid

I. Power Off the Grid: Wind Power

1. How Wind Turbines Work
2. Local Regulations
3. Certified Products and Installers
4. Information Sources

J. Geothermal Heating and Cooling

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K. Practitioner Perspective

VI. From the Ground Up: New and Custom Construction

A. The Green Production Home

B. The Green Design Team

1. The Real Estate Professional's Role

C. Best-Practice Design—Four Phases

1. Site Selection
2. Home Design
3. Building Materials
4. The Specs

D. The Building Envelope

1. Below Grade
2. Framing and Walls
3. Windows and Doors
4. Daylighting
5. Roofs
 - a) Cool Roofs
 - b) Green Roofs

E. Topping Out the Building Envelope

F. Building the Certified Home

1. State and Regional Certifications

G. Three National Home Certifications

1. Energy Star
2. Leadership in Energy & Environmental Design (LEED)
3. National Green Building Standard Green Certification

H. Practitioner Perspective

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VII. Resources

- A. Building Material Certifications and Ratings**
- B. Websites**
- C. Glossary**
- D. Energy Star® Product Categories (Residential)**
- E. Checklists for Greening a Home**