

KITCHEN & BATH SUSTAINABLE DESIGN

Conservation • Materials • Practices



Amanda Davis, NCIDQ, Robin Rigby Fisher, CMKBD, CAPS

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Conservation, Materials, Practices

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Robin Rigby Fisher, CMKBD, CAPS

WILEY



"It's kind of fun to do the impossible."—Walt Disney

Brandon Cole 1984–2014

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About the National Kitchen & Bath Association

The National Kitchen & Bath Association (NKBA) is the only nonprofit trade association dedicated exclusively to the kitchen and bath industry and is the leading source of information and education for professionals in the field. Fifty years after its inception, the NKBA has a membership of more than 55,000 and is the proud owner of the Kitchen & Bath Industry Show (KBIS).

The NKBA's mission is to enhance member success and excellence, promote professionalism and ethical business practices, and provide leadership and direction for the kitchen and bath industry worldwide.

The NKBA has pioneered innovative industry research, developed effective business management tools, and set groundbreaking design standards for safe, functional, and comfortable kitchens and baths.

Recognized as the kitchen and bath industry's leader in learning and professional development, the NKBA offers professionals of all levels of experience essential reference materials, conferences, virtual learning opportunities, marketing assistance, design competitions, consumer referrals, internships, and opportunities to serve in leadership positions.

The NKBA's internationally recognized certification program provides professionals the opportunity to demonstrate knowledge and excellence as Associate Kitchen & Bath Designer (AKBD), Certified Kitchen Designer (CKD), Certified Bath Designer (CBD), and Certified Master Kitchen & Bath Designer (CMKBD).

For students entering the industry, the NKBA offers Accredited and Supported Programs, which provide NKBA-approved curriculum at more than 60 learning institutions throughout the United States and Canada.

For consumers, the NKBA showcases award-winning designs and provides information on remodeling, green design, safety, and more at NKBA.org. The NKBA Pro Search tool helps consumers locate kitchen and bath professionals in their area.

The NKBA offers membership in 11 different industry segments: dealers, designers, manufacturers and suppliers, multibranch retailers and home centers, decorative plumbing and hardware, manufacturer's representatives, builders and remodelers, installers, fabricators, cabinet shops, and distributors. For more information, visit NKBA.org.

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Preface

PROFESSIONALS AS STUDENTS

When the National Kitchen and Bath Association (NKBA) approached us about coauthoring a new volume for the NKBA Professional Resource Library, we were honored and ecstatic. We had been recommended based on our educational work at Portland Community College and specifically for work that had been done thanks to a grant from the National Science Foundation. Our colleague Denise Roy, who teaches in the Architectural Design and Drafting Department, wrote and secured grant monies for the education of educators who teach in the building arts.

The goal of the grant is to provide opportunities for educators to add or increase concepts of sustainability in their curriculum through activities. Rather than conducting research, educators in architectural design and drafting, interior design, and building construction technology went to work for individuals and organizations as interns. The result has been nothing short of phenomenal. All three departments now have a strong focus on sustainable design, and the students can't get enough of it. This mission to educate professionals continues with LOCATE: Technical Education for High Performance summer sustainability conferences. For one week in June, educators in landscape, construction, architectural design, and interior design converge to learn through activities, tours, and from each other.

The goal for this book is similar: educate for applicability. Write about concepts but also discuss implementation and benefits. A sustainable approach to kitchen and bath design

includes touching all parts of a project from construction materials to systems to material choices. A chapter on creating a green office and business approach is included in the book. Sustainable design is about cutting waste and reducing carbon emissions, but it is also about creating more comfortable homes that have reduced operating costs.

Writing this book has been a journey. It has been rewarding to stretch ourselves professionally and to put the knowledge that we share each day with our students into a textbook format. We were given the opportunity to write a textbook that we would want our students to use. It is many an educators' dream.

We have enjoyed both attending and presenting at the LOCATE Summer Sustainability Institutes. We have both presented our teaching of green design at the KBIS Educators' Forums over the years. We both feel that we are always, simultaneously learning, practicing, and teaching.

We hope you enjoy this book.

When the last river has been polluted, the last tree cut down, the last fish has been caught, will we realize we cannot eat the money?

—Native Cree saying

Amanda writes:

I'd like to acknowledge the support and guidance of Johanna Baars, Publications Specialist at the NKBA. I also want to thank Green Hammer Design Build and C. R. Herro at Meritage Homes. Both companies serve as inspiration for green building. I'd like to thank my family for supporting me through this process.

Robin writes:

Writing a book on sustainable design was a longtime goal of mine and has been challenging and exciting. It could not have been done without the help of many people. I'd like to thank Johanna Baars at the NKBA for her patience and prodding; my teaching partner, Dorothy Payton, for her knowledge and insights; my assistant, Brandon Cole, for his project management and Photoshop skills; Bernhard Masterson for his energy, knowledge, and love of mud; Richard and Anna DeWolf for their insights; Nancy Foster for her vast knowledge of toilets; Rhonda Knoche for her support; Tracey Stephens; Green Depot (Portland, OR); Joel Fraley CKD; Janel Campbell, CKD,CBD; Corey Klassen, CKD, CBD; and Hannah Mizar, illustrator extraordinaire! Last, I want to thank my family for their patience and support during this journey.

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Karen Richmond, CMKBD

Teresa Slye, NCIDQ, LEED

1

Understanding the Need for Sustainable Design

On my first Boy Scout trip, in the mid-1950s, I learned the basic environmental principle that we should leave the campsite as we found it. We were told that the next group of hikers deserved no less and that in fact we should clean the site up if those before us had been careless. I did not as a child understand that the campsite would be global or that the next hikers would include unborn generations.

—John Sitter

Learning Objective 1: Discuss the concept of designing for benefit rather than austerity.

Learning Objective 2: Apply sustainable design concepts to kitchen and bath projects.

Learning Objective 3: Identify the basic needs for applying sustainable practices.

Our world is in dire straits; human impact on the earth is affecting the future of the planet (see [Figure 1.1](#)). Consider these facts:

1. The average temperature of the earth has risen by more than 1.4° F over the last century.¹
2. Oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising.² From 1880 to 2011, the average sea level rise was 0.07 inches per year, but from 1993 to 2011, the sea level rise was between 0.11 and 0.13 inches per year.³

3. Emissions of greenhouse gases (carbon dioxide [CO₂], methane, nitrous oxide, and fluorinated gases) have increased due to human activities such as:
- The burning of fossil fuels.
 - Anaerobic decay of organic waste in landfills due to industry processes and commercial and household chemicals (see [Figure 1.2](#))

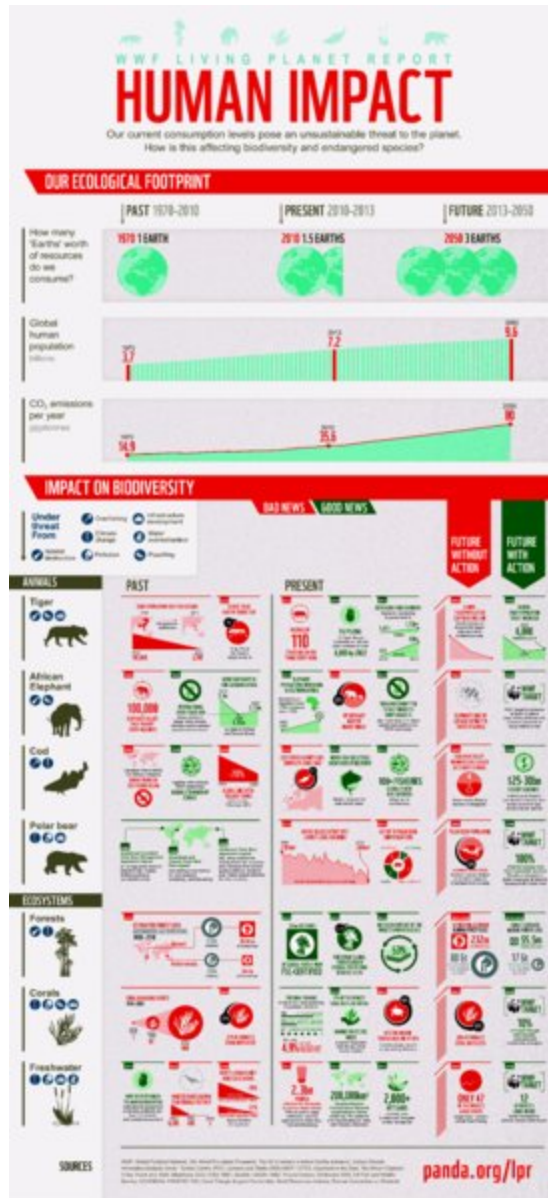


Figure 1.1 World Wildlife Fund Living Planet Report © 2014

World Wildlife Fund, www.panda.org

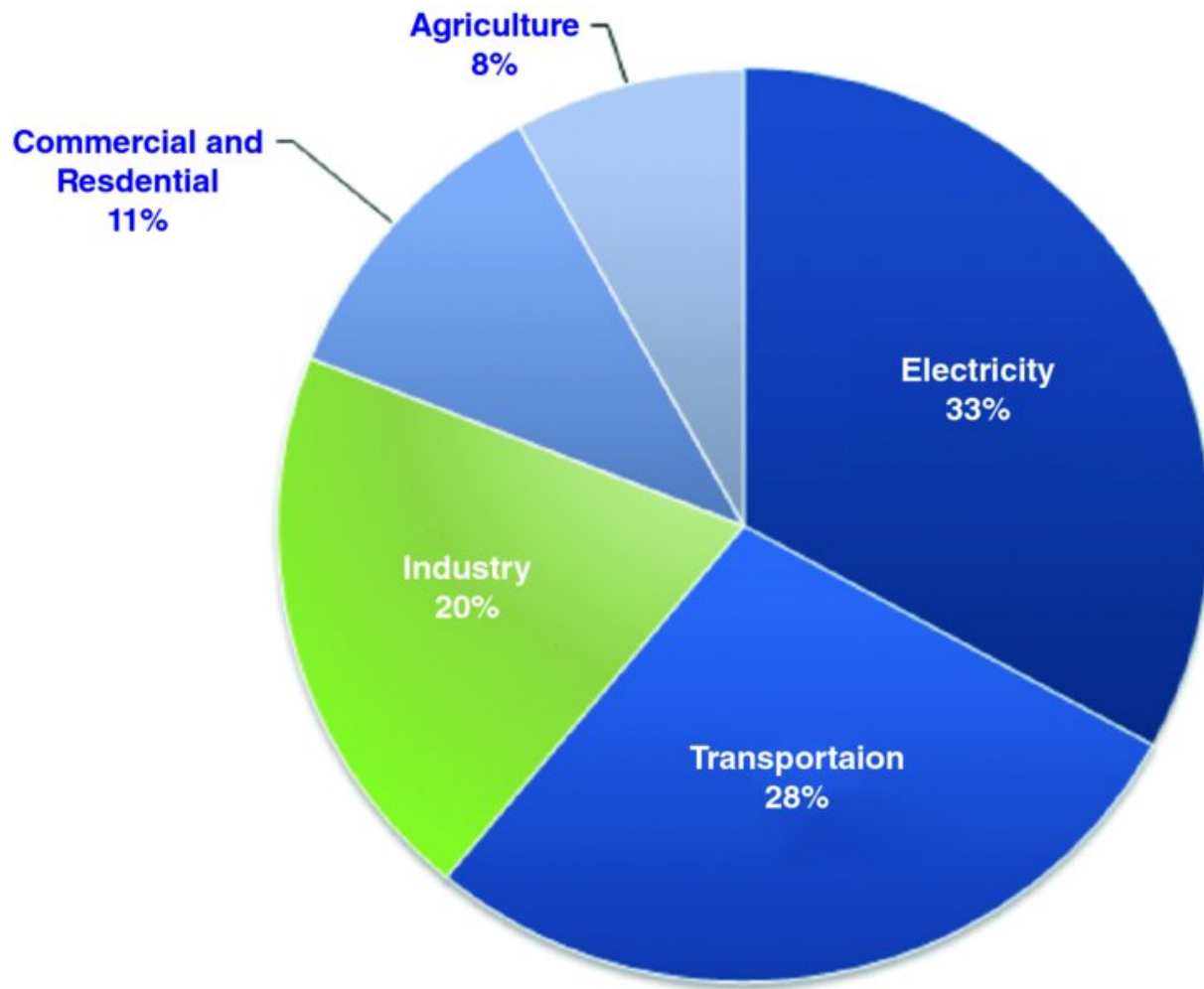


Figure 1.2 Total US Greenhouse Gas Emissions by Economic Sector in 2011

www.epa.gov/climatechange/ghgemissions/usinventoryreport.html

Global warming or climate change occurs when the greenhouse gases redirect too much radiation toward the earth. Radiant energy, in the form of heat, comes from the sun. In a most amazing natural cycle, unnecessary (and potentially harmful) radiant energy is sent out of the earth's atmosphere into space. With the exponential increase in the amount of greenhouse gases in the earth's atmosphere over the last 150 years, this process is being interrupted. The gases are trapping the energy as heat (see [Figure 1.3](#)).