

SPECIAL ISSUE INTRODUCTION

HISTORIC AND CONTEMPORARY FACTORS SHAPING TODAY'S KITCHENS AND BATHROOMS

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This special issue of *Housing and Society* focuses on research conducted on kitchen and bath design. The issue is sponsored by the National Kitchen and Bath Association (NKBA) in collaboration with the Housing Education and Research Association (HERA). NKBA is an international, nonprofit trade association with more than 40,000 members. It has led the kitchen and bath industry for 45 years, providing resources for consumers and industry professionals. NKBA owns the world's largest kitchen and bath trade show (K/BIS), offers educational programs, sponsors research projects, and enhances the success of its members by promoting professionalism and ethical business practices. The association also monitors national and state legislation to protect the industry, its members, and consumers.

HERA is a professional association of over 200 members, including libraries. Its aim is to increase the effectiveness of housing education at all levels, expand the outreach of educators and researchers by coordinating efforts among professionals in housing, develop expertise in housing educators and researchers, disseminate information on current developments in housing, and promote recruitment of students to advanced study in housing in order to increase the quality and quantity of professionals in the field. HERA hosts an annual conference, publishes *Housing*

and Society, and recently edited the book *Introduction to Housing* (Merrill, Crull, Tremblay, Tyler, & Carswell, 2006).

An important link between NKBA and HERA is the NKBA's Endorsed College Program. This program was created to serve the professional needs of the industry and ensure consistent, quality education for students who desire to become kitchen/bath design professionals. A college applying for NKBA endorsement must demonstrate that it meets NKBA's educational requirements. These requirements represent the basis of a program the NKBA considers essential for quality education. Each student must complete classroom work and supervised internships, which will enhance and extend the classroom experiences and ensure that they have fulfilled minimum student competencies. A number of HERA members teach in the more than 50 NKBA accredited/supported colleges and universities.

Another link between HERA and NKBA is their collaborative relationship in supporting research on kitchen and bath design. In addition to supporting research at various accredited/supported colleges and universities, NKBA sponsored an earlier special issue of *Housing and Society* in 2005 titled "Trends in Kitchen and Bath Design Research" (Tremblay, Doyle, Emmel, Steggell, & Garvin, 2005). That issue contained articles on kitchen activities, working with artists, guidelines for kitchen storage, greening kitchen and bath cabinets, universal design, supportive kitchen features, and education.

In this special issue, there are eight articles that represent the broad range of kitchen and bath design research that mark another important benchmark in kitchen and bath research. The kitchen, in particular, has been a topic of interest for decades, with guidelines for design ranging from advice by social reformers to outcomes of rigorous scientific inquiry.

Brief History

In colonial America the design of the kitchen received little attention. In grand homes the kitchen was the domain of servants and was often isolated from the main living quarters of the home. In more humble homes cooking was done in the main room of the house. But whether grand or humble, the fire was the central feature of the room, water was carried in, and the primary work surface was a free-standing table. Storage consisted primarily of pegs and open shelves, with limited specialized storage for perishables. Attention to the comfort of the workers was minimal as the goals were to maximize heat and minimize smoke from the fire. When the heat from cooking was not wanted in the living space (e.g., in hot climates or during hot seasons) the kitchen was located in a different building.

The roots of the modern, fitted kitchen can be traced to the mid-1800s and Catherine Beecher, whose self-declared mission was to "elevate the honor and remuneration of domestic employment" (Beecher & Stowe, 1873, p. 3).

Beecher and her sister Harriet Beecher Stowe believed and taught that a well-organized and efficiently managed home was fundamental to a moral family life. In their widely read book *The American Woman's Home*, Beecher and Stowe used drawings and very specific instructions to promote order and efficiency in the work of the home. The idea that with careful planning kitchen work could be conducted with less time and less energy opened a new way of thinking.

At about the same time the land-grant college system was born. Established by the Morrill Act of 1862, the purpose of land-grant colleges was “to teach such branches of learning as are related to agriculture and the mechanic arts” (Nevins, 1962). For farm families the health and well-being of the woman of the home was central to the success of the farm and opened the way to consider household work as an essential contribution. The addition of agricultural experiment stations and cooperative extension programs by the Smith-Lever Act of 1914 (Jellison, 1993) enabled the land-grant universities to engage in scientific research and disseminate new knowledge to farmers and homemakers throughout the states.

Ellen Richards, a chemist and the first female instructor at MIT, included among her many interests the application of scientific principles to domestic situations such as nutrition, kitchen sanitation, and efficient home management. One of the primary leaders of the new American Home Economics Association (and the organization's first president in 1908), Richards designed model kitchens and used the models to demonstrate scientific principles of kitchen sanitation and efficient household management (Hunt, 1980).

The synergy created by the land-grant colleges, cooperative extension, agricultural experiment stations, and the growing home economics movement placed household work as a legitimate focus of study and generated solid research on the design and management of the home. Household management was an important topic for home economics, and many studies to determine the most efficient arrangement for kitchens were conducted.

Scientific methods for time and motion study were being introduced in industrial settings at this time, and the methods migrated quickly into the study of household work. “Scientific management” was applied, for example, to reduce stooping by adjusting the height of the sink and to reduce the time and energy needed to complete a task by grouping the storage of equipment near its use. Journalist Christine Frederick, writing for the *Ladies' Home Journal* and later in her book *Household Engineering: The Scientific Management of the Home* (1919), gained a wide audience of both homemakers and architects for the new scientific management. Frederick's writing style appealed to ordinary women and embraced the idea that saving a woman's time and energy would result in having more energy to devote to being a more attentive wife and mother (Freeman, 2004).

Another key figure in scientific management and kitchen organization was Lillian Gilbreth. With her husband Frank, Gilbreth was a leading researcher in

industrial time and motion studies. The family business extended to efficiency studies in their own family of 12 children. While Christine Frederick's recommendations were directed to the arrangement of kitchen equipment and the sequence of tasks, Lillian Gilbreth used her connections to industry to recommend changes in the design of the kitchen equipment itself (Gilbreth, 1930; Gilbreth, Thomas, & Clymer, 1954).

While the majority of the research in kitchen design during these decades took place in the U.S., developments in Europe also influenced kitchen design. Several notable kitchen plans were introduced; perhaps the most well-known was the "Frankfurt kitchen." Designed by Margaret Schutte-Lihotsky the fully fitted galley-style kitchen reflected extensive time and motion studies and the work of Christine Frederick. Intended to improve the environment of Germany's post World War I public housing the Frankfurt kitchen was installed in thousands of subsidized apartments (Freeman, 2004). An example of a Frankfurt kitchen is currently on display at the Applied Arts Museum in Vienna, Austria.

The new style kitchens in both the U.S. and Europe were expensive. As explained by Freeman (2004):

One result of this [expensive fitted kitchen] was that the move from an old-style kitchen among the middle classes to what became known as a fitted kitchen often passed through what might be termed the Era of the Commodious Cupboard. (p. 42)

Kitchen Maid in the U.S., Poggenpohl in Germany, and Hygena Cabinets in England were among the many companies that marketed such a cupboard. With specialized compartments for the storage of "brushes and brooms, pots and pans, crockery and cutlery and bagged and bottled foodstuffs" (Freeman, 2004, p. 43), work surfaces and sometimes even an ironing board, the freestanding cupboards offered the look and the organization that marked a "well-managed home."

Led by home economists, applied research to maximize the function and efficiency of the kitchen continued over the decades (e.g., Heiner & McCullough, 1948; Steidl, 1955; Steidl & Bratton, 1968; Wilson, 1938; Wilson, 1939), recommending specific floor plans and establishing definitive recommendations for the design and arrangement of cabinets and continuous work surfaces. The work triangle concept gained wide acceptance with sink and service center, mixing center, and stove center as anchors (Wilson, 1939).

In 1949 when the post-war building boom was well underway, the first comprehensive set of kitchen planning guidelines was introduced by the Small Homes Council (McCullough, 1949 as cited in Parrott, Beamish, & Emmel, 2005). The guidelines were updated in the 1960s (Kapple, 1964; Wanslow, 1965) but were based largely on research conducted much earlier (Parrot et al., 2005). The kitchen planning standards remained credible so long as the equipment function and use patterns remained unchanged. However, new research was needed with

the introduction of new appliances (e.g., separate oven and cooktop) and new work patterns (e.g., dual worker kitchens). For example, Yust and Olson (1987) developed recommendations for the placement of the microwave oven for safety and convenience.

Leadership for kitchen planning guidelines was eventually taken over by NKBA with the publication of the *Kitchen Industry Technical Manual* (Jones & Kapple, 1975). Further development of the NKBA Guidelines was traced by Parrott et al. (2005) in an earlier special issue of *Housing and Society*, including the continual reviews of the guidelines and the development of a kitchen design scoring system. The most recent revision of the NKBA guidelines

...reflect[s] a composite of the historical review, current industry environment, future trends, consumer lifestyles, new research, new building codes, and current industry practices.... (National Kitchen and Bath Association, 2007, p. 2)

NKBA also has published nine books that establish the foundation for both kitchen and bath design and business:

Bath Planning

Design Principles

Kitchen & Bath Business Management

Kitchen & Bath Drawing

Kitchen & Bath Products

Kitchen & Bath Project Management

Kitchen & Bath Systems

Kitchen Planning

Residential Construction

The primary focus of kitchen design research has been ergonomics and efficiency based on the assumption that the kitchen is predominantly a center of work. However, this assumption may no longer be valid. At last count, the majority of American women were working outside the home (Spraggins, 2003) and they were cooking less.

...[G]rocery-industry figures show that stores that sold an average of 7,000 products in 1969 offered 50,000 in 2004...[even though] Americans actually cook less and less. On average, we make only about a third of our dinner entrees, including sandwiches, from scratch. One in four of the meals we eat at home is frozen or pre-prepared; sales of hot foods made by supermarkets are up 40 percent since 1997. The typical American ordered 118 take-out meals in 2002, which is a 64 percent increase from 1984. (Gallagher, 2006, pp. 84-85)

Nonetheless, Americans spend a great deal of time and money on their kitchens. In fact, the kitchen is the most frequently remodeled room in the home—and the most expensive. According to an annual construction cost survey by *Remodeling*

Magazine (Alfano, 2006), the mid-range for a major kitchen remodel is \$50,860 to \$59,716 with an upscale remodel running over \$100,000.

Another recent phenomenon in kitchen design is the emergence of satellite kitchens. No longer a cliché from a 1950s-era wet bar in the “rumpus room,” mini-kitchens are showing up in master bedrooms and home offices. In addition, full sized outdoor kitchens are becoming the centerpiece of up-scale entertaining (Horwitz, 2004).

Why has the kitchen remained such an important room in the home? According to Cornell historian Joan Jacobs Brumberg, “a lot of women professionals...now use domesticity as a form of relaxation. The enormous growth of the cookbook industry and the interest in comfort food are all about this phenomenon” (Adler, 2004 as cited in Gallagher, 2006, p. 88).

Not only has cooking become a leisure activity but it has become a form of entertainment as well. Rather than sharing a meal in a formal dining room, today’s dinner guests may watch the hosts prepare dinner in an open-plan kitchen or may even participate in making the meal. “The kitchen has become a theater and cooking a performance” (Cromley, 1996 as cited in Gallagher, 2006, p. 83).

No longer the hidden work center of the home, the kitchen is now an integral part of the home’s public space. Like the parlor and formal dining room in earlier decades, the new superkitchen has become a statement of success and status. Costly materials, European fittings, and “commercial-grade” appliances have become essential symbols of social position.

The 2009 Kitchen/Bath Industry Show and Conference (K/BIS) theme is “Heart of the Home.” Although the design and purpose of the American kitchen has undergone major changes since colonial times, kitchens are still seen as the heart of the home and “homeowners are spending more time and money making this the place where family and friends gather most often” (K/BIS, 2008). The design, use, and meanings of the kitchen should continue to be a central focus for housing research.

Articles in the Special Issue

The first article in this special issue is the “Evolution of Domestic Kitchen Design” by Dana Moody and Michelle Vineyard. This interdisciplinary study analyzed how domestic kitchen design was influenced by concerns for public health, the changing role of women, and Victorian disease theory during the early stages of the Industrial Revolution. Public health officials advised housewives on the best ways to maintain family health and viewed the healthy home as a means to prevent the spread of disease. No room saw more change to improve health than the kitchen. These changes were seen in overall kitchen design, furnishings, and finishes.

Kathleen Parrott, Julia Beamish, JoAnn Emmel, and Sung-Jin Lee wrote “Kitchen Remodeling: Exploring the Dream Kitchen Projects.” In this article the faculty of the Center for Real Life Kitchen Design at Virginia Tech responded to a growing interest in kitchen remodeling with the *Explore Your Dream Kitchen* workshop to educate consumers on working with a designer and comparing the multitude of products available to the consumer planning a new kitchen. This article reported results of a survey of participants in 13 of the workshops who actually remodeled or built a home with a new kitchen. Findings included project cost, reasons for remodeling, professional assistance, choice of design features and products, and satisfaction with the remodeling process and product choices. Analysis of the reasons for product choice showed appearance to be an important factor, while durability and cost were less important. Following their remodeling a high level of satisfaction with the quality of their new kitchen and its contents was reported. We now know that a majority of the consumers interested in this type of workshop for remodeling a kitchen are more interested in appearance and features rather than cost. From their responses it is evident we need to focus on materials, the quality of products, and the design layout of the kitchen space. Professionals wishing to offer a similar workshop should think about who will be attending their workshops to best meet the needs of participants.

The third article is “Residential Kitchen Preferences of Generation Y” by Yaprak Savut and Marina Alexander. The purpose of this study was to understand residential kitchen preferences of the Generation Y (Gen Y) consumer group who will make up 34% of the U.S. population by 2010. Two surveys were reported. It was found that this group of consumers bought kitchen appliances based on features and not on brand names. The majority of respondents preferred a “warm contemporary” feel for their kitchen and said that they would like to purchase customized appliances. It was also found that Gen Y is interested in green/sustainable products in terms of countertops, energy efficient appliances, lighting systems, and wood products supplied by environmentally responsible sources.

Russell James, in “Investing in Housing Characteristics that Count,” examined how bathrooms (and half-bathrooms) were associated with the self-reported satisfaction of residents in comparison to bedrooms, other rooms, overall size, and the presence of such amenities as a dishwasher, disposal, fireplace, balcony/patio, and garage. Analyses of data from the 2005 American Housing Survey demonstrated a particularly strong positive relationship between residential satisfaction and the number of bathrooms, greater than any other housing characteristic measured. A before and after longitudinal analysis of homes with remodeling occurring between 1997 and 2005 also revealed a significant positive impact of bathroom additions on the satisfaction of residents. These results appear consistent with housing theory suggesting that privacy and control are major components of residential satisfaction.

“Kitchen Space Planning in Small-Scale Houses” by Mira Ahn, Kathleen Parrott, Julia Beamish, and JoAnn Emmel discussed the desirability of small-scale houses and focused on kitchen space planning as critical to well-designed housing. People live in small-scale homes for a variety of reasons, some by necessity and some by choice. Designers and builders of small-scale housing need to offer different options in kitchen design to meet the variety of needs of these households. Kitchens in small-scale housing should not necessarily be just a smaller version of a large kitchen in a large house. A well-designed small-scale house needs to recognize how Americans use—or do not use—their kitchens. Small-scale housing, perhaps more than larger housing, needs well-planned kitchen storage, including pantries, drawers, and interior cabinet storage devices. Recognizing how a kitchen is actually used for food preparation and beyond, offers flexibility in designing small-scale housing adapted to different lifestyles. Successful kitchen space planning in small-scale houses is not achieved just by making the room smaller. It needs a rethinking of how residential spaces are conceived.

The sixth article is “Kitchens as Cultural Mediums: The Food Experiences of Mexican Immigrants in Minnesota.” Tasoulla Hadjiyanni and Kristin Helle delved into the role of kitchens in the adjustment process of immigrant groups. Drawing from 25 in-home interviews with Mexican immigrants and Mexican-Americans living in Minnesota, this article investigated their kitchen needs as a way to more fully understand the role of domestic interiors in immigrants’ attempts to navigate life in displacement. There was great value placed on Mexican food in constructing and nourishing the Mexican sense of *difference*. As kitchens were found to act as cultural mediums supporting and/or suppressing food practices to delineate the direction of cultural change, the article concluded with culturally sensitive design solutions and future research suggestions.

“Contemporary Kitchen Design in Urban Multifamily Housing in Korea” by Suk-Kyung Kim, Mira Ahn, and Kenneth Tremblay reflected the importance of international research. Since the first modern multifamily housing appeared in the 1960s in Korea, kitchen and dining space design has tremendously changed. In the early 1970s the kitchen mainly functioned for cooking-related activities. However, Korean society has been constantly developing since then and kitchen design has also evolved to accommodate various needs for this space. Floor plans and interior design images of 207 multifamily housing unit types were collected from Web-based marketing catalogs provided by construction companies. Results revealed that the strong drives for new kitchen design in Korea were the increasing awareness of environments and healthy life styles, desires to fully utilize advanced technology and products for safety and convenience, and the dramatic growth of women in the labor force. These factors were all interrelated with each other and influenced new design trends.

The final article is “Development and Use of the Supportive Bathroom Features Checklist in Homes Designed for Retired Persons” by Glenda Gilmore Andes and Julia Beamish. Their research was based on the notion that older persons often need supportive home environments to live independently. The bathroom is one of the most critical spaces in the home that should be designed to facilitate the needs of an older person, since falls and accidents are likely to occur in this space. This study reported on an extensive review of research and recommendations for bathrooms for older persons from the past 40 years that was used to develop a Supportive Bathroom Features Checklist. Full bathrooms in 60 homes in 23 active adult retirement communities in four states were assessed. The checklist included 10 categories of features and points were assigned to each feature. These categories of features were lighting; electrical controls; flooring; thresholds; doors, doorways, locks, and handles; cabinetry and storage; faucets; medicine cabinets and mirrors; lavatory and vanity; toilet; and grab bars. Additional checklists were developed to be used if the bathroom had a bathtub or a separate shower. Overall the bathrooms did not receive high scores. Potential design issues for seniors wishing to age-in-place in the homes studied included narrow doors, low light levels, glare, limited clear space in front of fixtures, and limited storage.

Trends

Each year the latest kitchen and bath design trends, products, materials, finishes, and colors are showcased at NKBA’s Kitchen and Bath Industry Show and Conference (K/BIS). Companies from around the world involved in the kitchen and bath industry display products to be viewed by thousands of attendees at the show. Tremblay and Ahn (2007) provided a summary of trends that they identified in the 2007 show revolving around green design, health and wellness, universal design, high-tech appliances, and aesthetics. In 2008 K/BIS was attended by 40,000 industry professionals in addition to exhibition personnel and the national press such as HGTV.

One kitchen product category that continually offers new design features and innovations is kitchen appliances. Domestic manufacturers develop new styles and features to expand on the current favorites, and many companies are adding new product categories to their offerings. Companies that once only manufactured cooking products or microwave ovens are now adding refrigeration products or other types of cooking appliances. There are also a greater number of international companies coming to the U.S. market, especially with lines of cooking products.

In addition to improving energy and water efficiency, manufacturers are designing appliances that are easier to use and care for. Among the new appliance trends is the increased use of the drawer concept. Beginning with drawer refrigeration, there are now drawers for dishwashing, wine cooling, keeping

food warm, and microwave cooking. Bottom freezer drawers on refrigeration appliances are back and very popular due to the convenient location of the fresh food compartment. Some manufacturers are including two drawers instead of one for an “armoire” style. High tech refrigeration systems keep foods at the proper temperature and humidity level.

A few manufacturers are offering colors as a change to the popular stainless steel with one company displaying 71 different color options. And, some finishes are designed to resemble stainless steel. Electronic controls allow the user many more features on appliances, and the newest controls disappear into the front of an appliance and reappear with the touch of a finger.

Cooking appliances now come in a large variety of sizes, styles, and “power” options with many gas ranges including very high Btu burners, up to 22,000 Btus on one model. The question is: Is bigger always better for the average cook? On the electric side, numerous manufacturers are offering induction cooking in a variety of styles. Other new cooking appliance offerings include multi-level cooking surfaces, adjustable hoods, a wall oven with a drop down oven floor, and double ovens that fit in the place of a single oven, to name a few. There will certainly be more new innovations on the horizon.

The kitchen and bath industry constantly changes, and research is needed to document these changes as well as to provide information on future trends as desired by consumers. The articles in this special issue contribute to these goals.

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