

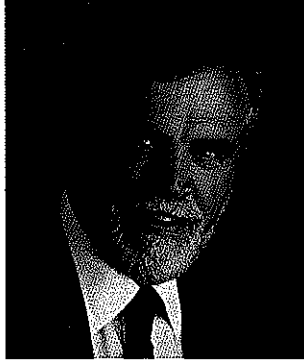


THE JOHN T. DUNLOP LECTURE  
FOR THE JOINT CENTER FOR HOUSING STUDIES  
HARVARD UNIVERSITY, CAMBRIDGE, MASS.

OCTOBER 29, 2001

The Joint Center for Housing Studies is grateful to the National Housing Endowment for its continued support of the John T. Dunlop Lecture. Each year the Dunlop Lecture brings a housing leader to Harvard University to highlight the importance of housing as a policy and research area.

The annual lecture honors the work of Professor John T. Dunlop. John T. Dunlop is Lamont University Professor Emeritus of Harvard University. He was previously Chairman of the Economics Department and Dean of the Faculty of Arts and Sciences. Professor Dunlop was United States Secretary of Labor during the Ford Administration. He has had a lifetime career in mediation, arbitration and dispute resolution. A commitment to the nation's construction industries and housing has also marked his work. He was chairman of the Construction Industry Stabilization Committee, 1971-74. He played a role in the establishment of the National Institute for Building Sciences, and the National Association of Home Builders made him a member of the National Housing Hall of Fame in 1986. He also serves on the board of the National Housing Endowment. In 1971, Professor Dunlop played a key role in establishing the Policy Advisory Board of the Joint Center for Housing Studies.



*Herbert V. Kohler, Jr.  
Chairman, CEO and President, Kohler Co.*

Herbert V. Kohler, Jr. is chairman of the board, CEO and president of Kohler Co., headquartered in the Village of Kohler, Wisconsin. The company is a world leader in products and services for living environments.

Within the Kitchen and Bath Group, it markets plumbing products under the brand name of Kohler worldwide, and regionally under Sterling, Mira, Jacob Delafon and Kallista; in tile under Ann Sacks; in cabinetry under Roborn, Canac and Sanijura.

The Interiors Group creates furniture and accessories under the premier brand names of Baker and McGuire.

The Power Systems Group manufactures engines up to 28 hp primarily for garden tractors, generators from residential stand-by up to 2,000 kilowatts, electrical systems, rental power, and event services all under the brand name of Kohler.

As a fourth major business, the Hospitality and Real Estate Group has developed "Destination Kohler" whose flagship properties include The American Club and Kohler Waters Spa, "one of the top 25 hotels in the world" and "the leading golf resort in the United States" with 72 holes at Blackwolf Run and

Whistling Straits hosting the 2004 PGA Championship; and Riverbend, a private, luxurious mansion on a 40 acre estate for members and their guests.

Mr. Kohler was graduated from Yale University in 1965 with a bachelor of science degree in industrial administration. Prior to that time, he spent his summers working as a laborer or technician in most of the manufacturing divisions of the company. He became a director of the corporation in March 1967, vice president-operations in August 1968, and executive vice president in January 1971. He was elected chairman of the board in June 1972, and president of the company in April, 1974.

The National Kitchen and Bath Hall of Fame inducted Mr. Kohler in its founding year of 1989. He was elected to the National Housing Hall of Fame in 1993, and to the Morgan Horse Hall of Fame in 1996. In 1997 he was a recipient of an Ellis Island Medal of Honor for "exemplifying American ideals and preserving an Austrian heritage." During his career he has received over 200 design and utility patents.

In addition to his executive responsibilities with Kohler Co., Mr. Kohler is a trustee of Outward Bound USA, the National Housing Endowment, Lawrence University, Choate Rosemary Hall, Friendship House, PGA of America Properties, and the National Association of Manufacturers. He chairs the Golf Course Superintendents Foundation, the Kohler Trust for the Arts and Education, and the Kohler Trust for Preservation.

He has three children engaged in the business of the company. Laura is vice president of Human Resources. Rachel is president of the Interiors Group, and David is president of the Kitchen and Bath Group.

His wife, Natalie Black, is senior vice president, general counsel and corporate secretary.

Mr. Kohler is the oldest of three children of the late Herbert V. Kohler, board chairman and chief executive officer of the company from 1940 until his death in 1968, and the late Ruth DeYoung Kohler, historian and former woman's editor of the Chicago Tribune.

Kohler Co. was founded in 1873 by John Michael Kohler, Herbert Kohler's grandfather, who was born in the Bregenzwald of Austria. The company today is one of the oldest and largest privately held companies in the United States.

# “DESIGNING FORM AND FUNCTION IN THE AMERICAN HOME”

BY HERBERT V. KOHLER, JR.

Kohler Co. is a charter member of the PAB, and has had a long and beneficial relationship with the Joint Center. I am honored to deliver the annual John T. Dunlop Lecture on the 30th anniversary of the Policy Advisory Board.

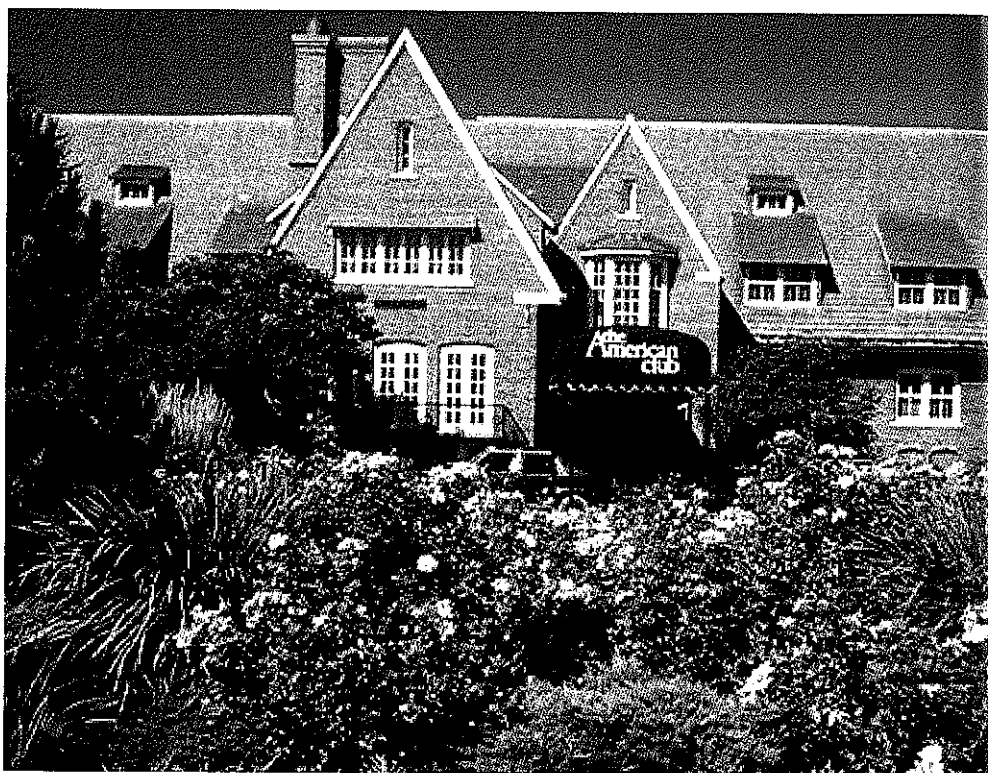
John Dunlop and I have enjoyed a casual acquaintance over these past 30 years. A pillar of wisdom and foresight, I have long admired his contributions to society, to labor relations and to the building industry in particular. Twenty-seven years ago he accepted my invitation to speak to the Sheboygan County Economics Club, just as he was talking with President Ford about becoming his Secretary of Labor. John, that was above and beyond, but it was 27 years ago, and it scarcely required more than a few notes. May I suggest my presentation today obligates you to a return visit.

Two years ago, my friend, Dr. Kent Colton, presented the first John T. Dunlop Lecture. His subject, “Housing at the Millennium,” provided an academic overview of the quality and quantity of housing in America in the past 50 years.

Last year, Barbara Alexander’s scholarly lecture on “The U.S. Homebuilding Industry” took us through the changes that affected home builders in the last half of the 20th century, and what can be expected in the coming years.

I want to build on those two enlightening discussions to examine how sociological and demographic changes over the past three decades have impacted consumer preferences and the design of form and function in the American Home, and to hazard some projections.

But let me put things in perspective. I am not an academic. I am a designer, developer, and hotelier of sorts; more so a manufacturer who tries to live on the leading edge of design and technology in product and process. I lead a company I just happen to love—one that focuses primarily on living environments—from engines for garden tractors and home standby generators, to premier furniture, wood and mirrored cabinetry, decorative tile, and plumbing products. The company has created and operates 385 hotel rooms and is the developer of housing under a second 50-year master plan, all in the Village of Kohler, Wisconsin, population 1900. Both the hotel rooms and the housing serve as for-profit laboratories, a rare phenomenon in the development of living environments. To say that I am beholden to the American home is an understatement.



I am always amazed at the power of really good design in the American marketplace and the corresponding difficulty of growth when design, or lack thereof, doesn't strike a harmonious chord in the American psyche. I could cite any number of examples from personal experience in plumbing products and furniture on both sides of the equation, but I hesitate to do so because of a few of my competitive friends in the audience. So I shall use three other examples you might recognize.

Kohler entered the golf course business in 1988 with an 18-hole design called Blackwolf Run®. From opening day it was priced about 50 percent higher than any other course in Wisconsin, but went on to receive the "Best New Public Course of the Year" award from *Golf Digest*. Within a year, Blackwolf Run was out of capacity so a third nine was added, then a fourth nine. By 1992, they were out of capacity. Searching around for additional land within the vicinity of Kohler and negotiating its purchase took three years, with construction of a second venue called Whistling Straits®, another three years. The Straits course opened in 1998 at a price 70% higher than the Wisconsin market, and within a year it was out of capacity. A fourth course was opened in 2000, and one year later we are approaching our capacity limit. We had been in the golf business a total of 13 years, when this recent spring *Forbes* magazine, along with several other magazines, called us the number one golf resort in the United States. In an industry saturated with more than 15,000 courses, to rise to number one I attribute fundamentally to nothing other than very good design responding to consumer preference. By the way, one of the secrets to a good design was no houses.

Another example: If you were to walk the aisles of any Home Depot, Lowe's, Expo Design Center, Menards or any leading wholesaler, you would be overwhelmed by the number of different faucets from which to choose. Yet there is one faucet family made by Moen called Monticello, certainly not the lowest priced, more like the middle of the mid market, that outstrips all others at a volume level approaching two million units a year. It has no functional attribute better than the rest of us. Its form, however, is special—a transitional design that can fit comfortably in a traditional setting or even one nearly contemporary. I might add that it was designed by an independent designer who received his training at Kohler.

Look at the American automobile industry and ask yourself why so many of us buy European or Japanese cars. Certainly it is not pricing; rather, it is a combination of form, function and consistent quality. I was pleased to see that General Motors recently hired Robert Lutz, a 69-year-old astute maverick and change agent, with the assignment to shake up the design approach of the world's

"IN A DEMOCRACY,  
DEMOGRAPHY IS DESTINY."

George Will

largest automobile manufacturer. GM has been designing vehicles without a differentiated point of view for some years, and the trend of their market share shows it. Lutz told the corporate staffers, "In our business, taking no risk is to accept the certainty of long-term failure. Don't be inhibited in seeking exceptional products. Many of our design criteria prevent us from doing high appeal, exciting, dramatically new products. A salesman won't get very far by saying, 'Did you know that this car satisfies 100% of GM's internal criteria?'"

Three different businesses, three different product arenas, but each share a harmony of point. Good design is good business when it understands and anticipates consumer preference. In turn, consumer preference is determined by the demographic and sociological influences of the time.

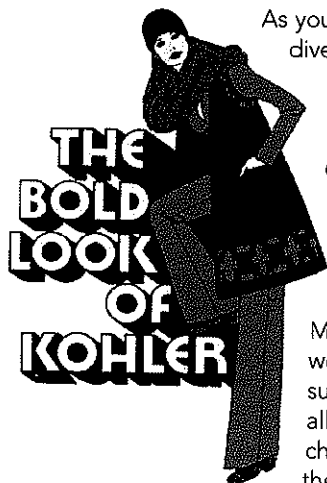
Commentator George Will has said that, "In a democracy, demography is destiny." If true, this would suggest that most of the successful corporate visions, strategies and products of our time have somehow paid homage to the big tsunami...the demographic turn of the second half of the 20th century known as the Baby Boom.

It isn't just the sheer size of this generation born between 1946 and 1964, now age 37 to 55, that has influenced the form and function of home products and, indeed, many other product categories in the last three decades. The Yankelovich Report on Generational Marketing, entitled "Rocking the Ages," suggests that to understand shifts in consumer preferences, a marketer must understand what accounts for them...namely, the age of consumers, the experiences they share as part of a generation, and the current economic and sociological conditions. As these parameters change over time, so do buying power and marketplace behaviors. Let's examine briefly whether history supports this premise.

As the Age of Aquarius came and went, Boomers shed their headbands and bellbottoms, and gradually integrated themselves into the mainstream of American consumers. They bought into The Bold Look of Kohler with its palette of shocking colors overlaid on a background of typically white bathrooms, then went on to harvest gold and avocado.



## THE SEVENTIES



As young adults in the Seventies, they supported equality, diversity and the protection of the environment. They promoted the ideals of self-awareness, self-improvement and self-fulfillment. They believed in jogging, health foods and self-help books like *I'm OK, You're OK* and *Looking Out for Number One*. It's not surprising, then, that their ideals and their changing lifestyles influenced the significant consumer trends in home building and the design of the home products that emerged in the early part of the Seventies.

More women went to work. They demanded equality in the workplace. They brought home paychecks that supplemented the family income and, in many cases, allowed for more discretionary spending. The growth of childcare services helped mothers to work and parent at the same time. Fathers found their role within the traditional family structure changing from sole breadwinner to co-provider and co-nurturer.

The Architectural Barriers Act of 1968, strengthened again in 1973 and 1974, affirmed the rights of disabled persons to the "free and full development of their economic, social and personal potential through the use of man-made environments." Prior to these amendments, manufacturers dealt with the handicapped in simple, obvious ways. The Act started designers, architects and builders thinking seriously about accessible, barrier-free products and services.

Processes that polluted the environment and products that used excessive amounts of limited natural resources like oil and water were suddenly thrust into the mainstream of critical awareness. In response, manufacturers cleaned up their emissions. Detroit focused on smaller, fuel-efficient cars. Engines used on lawnmowers, riding tractors and construction equipment became cleaner and quieter. Plumbing product manufacturers scrambled to develop 3 1/2-gallon flush toilets and showerheads that were restricted to three gallons per minute. Builders and architects examined ways to make new homes more energy efficient. And insulating the attic became the number one do-it-yourself project for homeowners across America.

With more women spending more time at work away from their families, it was not surprising that architects and interior designers responded to this major lifestyle shift by creating more "togetherness" in the home of the Seventies. They accomplished this by taking down walls, creating open spaces, and adding the colors of nature. Today such "great rooms" or family rooms are commonplace. But then, builders faced the challenges of



# Kohler saves water

Toilets, showerheads, faucets  
reduce normal water  
use 30 to 50%. Efficiently.

Profit by selling the most attractive  
water-saving features in the industry:  
Water-Guard toilets plus flow-control  
showerheads and faucets.

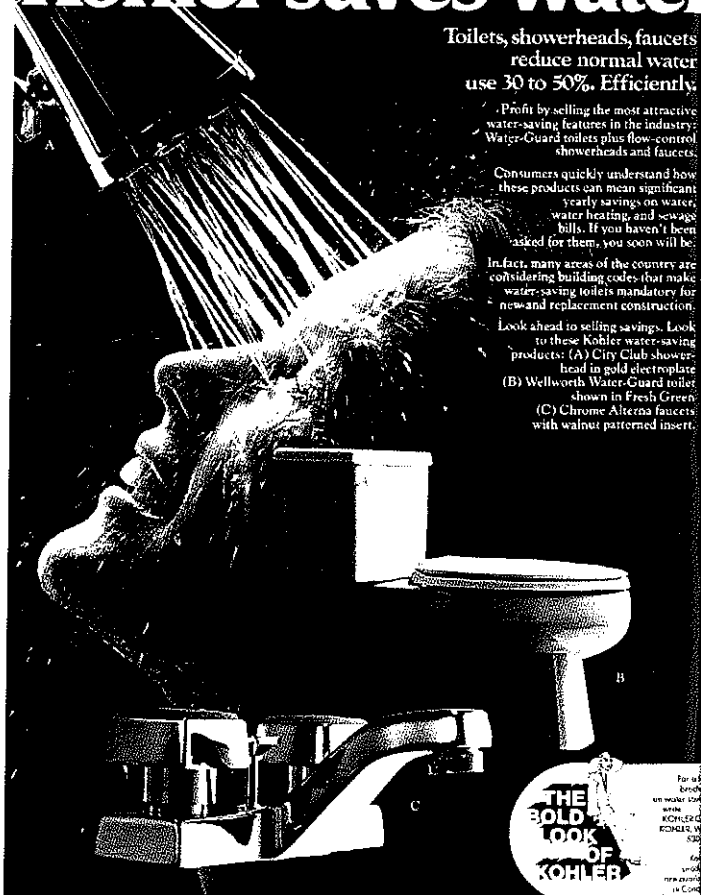
Consumers quickly understand how  
these products can mean significant  
yearly savings on water,  
water heating, and sewage  
bills. If you haven't been  
asked for them, you soon will be.

In fact, many areas of the country are  
considering building codes that make  
water-saving toilets mandatory for  
new and replacement construction.

Look ahead to selling savings. Look  
to these Kohler water-saving  
products: (A) City Club shower-  
head in gold electroplate  
(B) Wellworth Water-Guard toilet  
shown in Fresh Green  
(C) Chrome Alterna faucets  
with walnut patterned insert.



5 Gallon Flush



eliminating load-bearing, space-dividing walls and opening up rooms to sunlight and the outdoors.

The new family room changed the traditional kitchen more than any other room in the house. The kitchen had always been a place for the family to gather, but it had generally been off-limits to guests. In the Seventies, however, with walls disappearing, floor plans changing, and entertaining at home becoming more relaxed, the kitchen became a more integral part of the home. As such, it required multi-functional spaces and creatively designed products—products that both looked good and worked efficiently. Microwave ovens, ice-dispensing refrigerators, larger kitchen sinks and even additional entertainment sinks in island countertops played a major role in the design, color and convenience of new and remodeled kitchens.

Kohler had entered the Seventies with a “making what I myself would buy” philosophy—a committed, quality statement of a hands-on practitioner marketing plumbing products in the Fifties and Sixties. In the heyday of the mass market, this was a very successful point of view. After all, if I make what I would buy and I represent the values and preferences of a majority of consumers, then how can product designed for me fail?

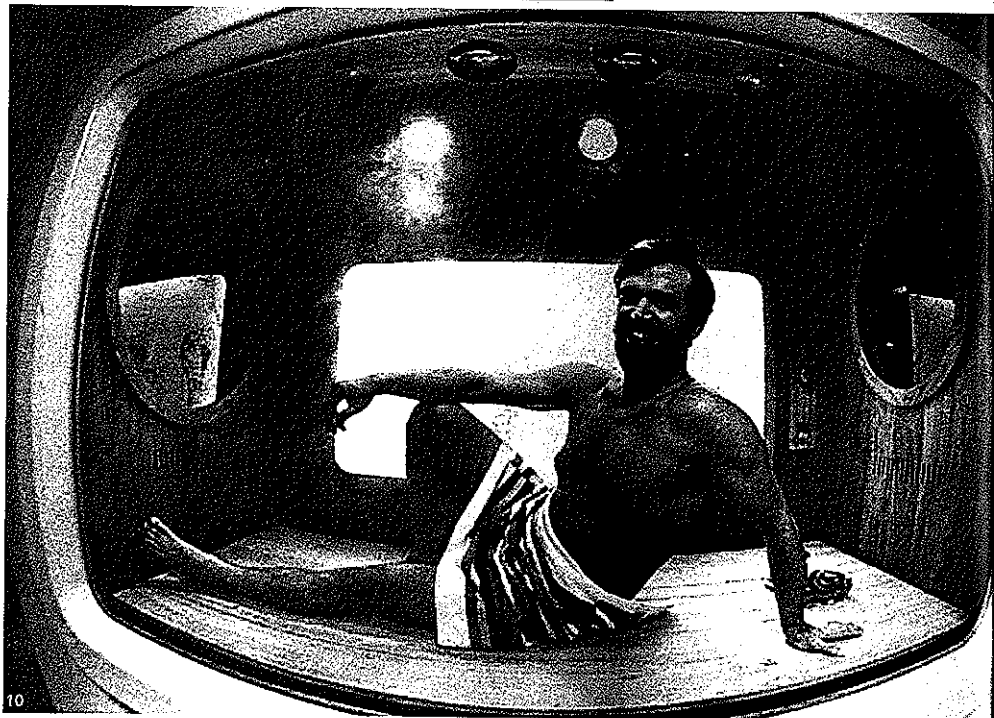
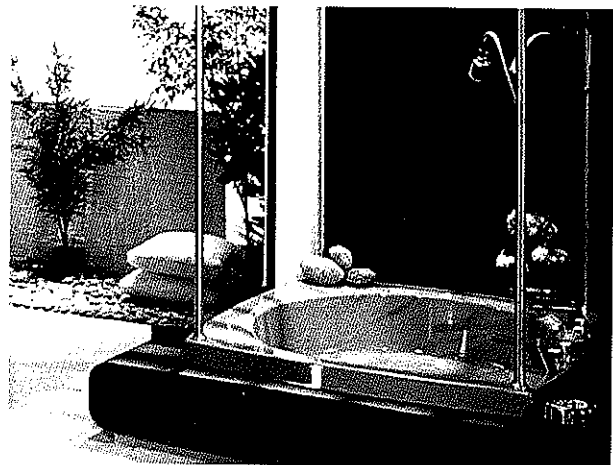
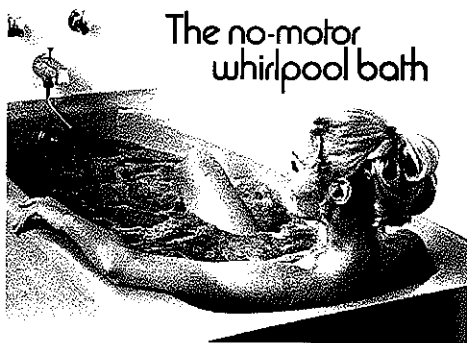
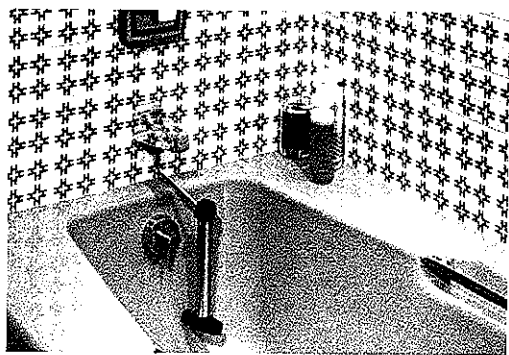
In the 1970's, however, the Boomers heady sense of the “Me” Generation was beginning to fracture the mass market. Standardized products, designed for generic, mass consumer appeal simply would not sell. The design philosophy was out of touch with the consumer, out of touch with the values and preferences of the vast emerging marketplace. So, just as home building form and function responded to the changing demands of the market place, so did suppliers, with a classic product differentiation strategy.

I have to show you Kohler's first whirlpool. The company's plant manager and I designed it one afternoon and it really worked quite well, if you were satisfied with a single jet at your toes.

More serious whirlpool baths were then developed with sophisticated harnesses, multiple jets, electric pumps and motors. Bathtubs became longer, deeper and larger as bathers looked for opportunities to soak away their cares. Lavatories changed in form and even function. This multi-functional lav not only offered shampooing convenience, but was also big enough for a baby's bath.

The Boomers call for self-fulfillment and the advancement of electronics also led to a most unusual product. I called it the Environment. In a seven-foot long cocoon of teak, one could enjoy relaxing automatic cycles of sun, steam, warm spring rains, cooling showers and drying winds—all while reclining on a cushioned deck listening to the recorded sounds of nature or one's favorite aria.

The no-motor  
whirlpool bath



Environment® was an impact product—a technological breakthrough, certainly in the bathroom. It married water delivery systems traditionally associated with plumbing, to the emerging power of sophisticated electronic controls. Today we take microprocessors and computer chips for granted. But in the Seventies, they were cutting edge. The Environment brought “experience” and “escape” into the home, and consumers found they could personalize it each time they used it, choosing elements of nature in any pattern to match their desires for relaxation and rejuvenation.

The Baby Boom generation developed new tastes, new interests and new lifestyles in the Seventies, as they became both more affluent and more diverse. Interior designs and the form and function of products for the home reflected this diversity. The decade had opened in a recession. Single family home starts totaled a mere 813,000 in 1970. But housing starts through the rest of the decade, as the suburbs started to explode, averaged 45 percent above 1970, and builders and suppliers scrambled to keep up with the demand.

The size of the average new single family home increased by some 200 square feet through the Seventies. Larger family rooms drove the increase in size, as did larger bathrooms. Those bathrooms were designed to accommodate bolder colors like Black Black™, Pink Champagne, Swiss Chocolate™, and Country™ Grey. They grew by 14 square feet over the course of the decade to a final average of 84 square feet. The number of new single family homes with two bathrooms increased to 48 percent in 1979. The number of those homes with 2+ baths or more jumped to 26 percent in the same period.

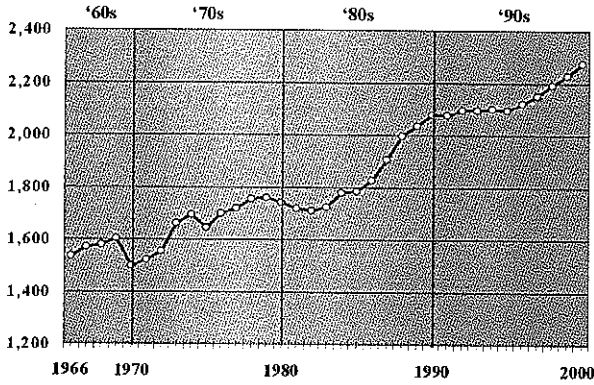
#### THE EIGHTIES

Like the Seventies, the 1980s also opened ominously. Americans faced double-digit inflation and declining productivity. Single family housing starts in the first three years of the decade were almost 55 percent below similar starts in the last three years of the Seventies. By 1982, housing starts had reached their lowest level in 35 years.

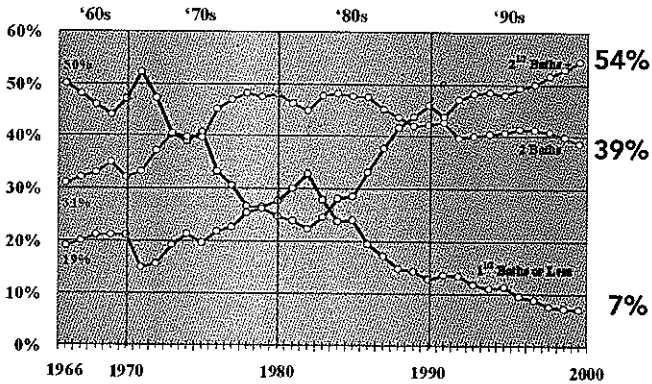
But by 1983, an economic recovery was under way. The stock market began its climb to nearly triple its pre-Eighties levels and even survived a crash in 1987. The Eighties was a decade populated with conservative Yuppies, techie entrepreneurs and Wall Street financiers in grey flannel suits.

The “Me” Generation of the Seventies took on a new persona in the changing work and play ethic of the Eighties. Business schools, investment banks and Wall Street law firms overflowed with hopeful Baby Boomers whose motivation was the

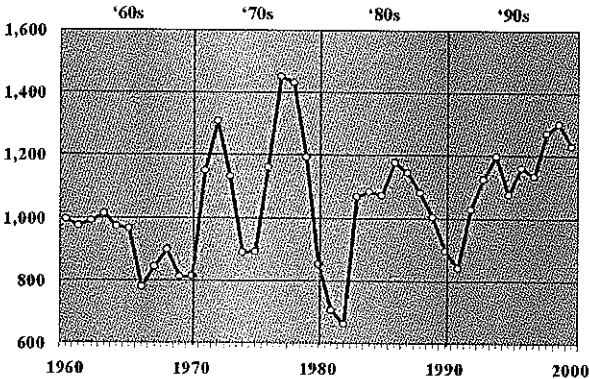
## Average New Single Family Home Size (Sq. Ft.)



## Percentage of New Single Family Homes by Number of Bathrooms



## U.S. Housing Starts (000s of units) Single Family



accumulation of wealth. They placed great emphasis on gourmet cuisine, trendy health clubs, high-performance cars and designer-decorated homes. They tended to earn college and even advanced degrees, and then establish themselves professionally before marriage. Two-income families became even more common. Compared with their parents, this generation was generally better educated, married later, brought more wealth to the union, had fewer children, and lived without the memory of war or the threat of a major conflict.

They also tended to build large, two-story detached homes in the suburbs or "edge cities." Planned communities and gated communities complete with roving private security guards dotted the landscape. Such communities were meant to provide homeowners with protection from crime and other harsh realities of the world.

This was the beginning of a trend to cocooning, the stay-at-home phenomenon defined by a strong desire to build what trend sociologist Faith Popcorn called "soft and cozy nests." Homes in the latter Eighties became escapes from the stresses of long hours at work, long commutes to and from work, not enough time with children and family, and all the other time constraints on daily life. In the process, the "rec" room of the Seventies became the "fitness" room of the Eighties. Increasingly, Americans wanted to entrench themselves in living environments that made them feel secure, comfortable and fulfilled.

The trend to safe, cozy homes did not necessarily mean small or modest size houses. As they accumulated wealth in the booming Eighties, many Americans tended to view their homes as showcases. They wanted better interiors, better collections of furniture, and lots of accessories—the latest electronic toys and gadgets, if you will—that complemented the "if you've got it, flaunt it" philosophy of the times. The home, by their standards, should be personal and expressive, reflecting the owners' interests, social status and—without coming right out and saying it—their wealth.

The home cocoons of the Eighties might have been cozy in the eyes of their owners, but they were also well designed. These open concept homes included such features as island kitchens, cathedral ceilings, skylights, expansive decks, and spas or hot tubs both inside and outside the house. The master bedroom was often a suite that included walk-in closets, separate dressing rooms and a spacious master bath. Designers even flirted with the idea of recreating the bathroom. They proposed a free-flowing space without doors. Vanities, bathtub surrounds and even the finish on the faucets and accessories in the bathing area would match the fine furniture of the bedroom suite to tie the space together.



FOR FLIGHTS OF FANCY...A BATH WORTH THE TRIP

It's necessary to have a good bath to relax after a long day of work. A bath that is both relaxing and relaxing is the best. A bath that is both relaxing and relaxing is the best. A bath that is both relaxing and relaxing is the best.

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**KOHLER**





Homeowners wanted their bathrooms transformed into havens for personal comfort and retreat, fitted with a whirlpool bath, separate shower with a massaging showerhead, and twin lavatories so that both adults, refreshed, could prepare for work or social functions at the same time.

When they selected whirlpool baths for their new or remodeled homes, the likelihood was that they would be whirlpools for two like Kohler's Infinity<sup>∞</sup>Bath™, the first mass-produced two-person whirlpool bath in 1981 that offered luxury for one, yet comfort, fun and communication for two. Remember, this was an era of fulfillment. And they didn't want to travel to the heart-shaped tubs of the Poconos or the oceanside hot tubs of California to enjoy such bathing. Whirlpool baths for two in the home offered sensuous bathing combined with mainstream respectability.

I'll never forget, though, the initial editorial shock. Since I was the designer of the Infinity<sup>∞</sup>Bath, I had to handle the interviews. Queen and king beds were common, but the idea of a bath or whirlpool for two from a respectable supplier to mainstream America was just too much for some editors and dealers to handle.

At the end of the Eighties, Americans were offered the first combination whirlpool bath and shower as separate functions within a single fixture. The bathroom of the Eighties had become a refuge as well as a place of refreshment where form and function were equally important.

Homeowners in the Eighties took every opportunity to personalize their homes. One room in which this phenomenon was especially true was the powder room, where a bit of extravagance was not unusual. There, a decorative lavatory could grace a piece of fine period furniture. Plumbing fixtures could be artistic creations—lavatories, toilets, tiles and accessories in unique colors, patterns and surface textures, complemented by a variety of equally artistic faucet styles.

Colors in the Eighties further allowed consumers to personalize their living spaces. They still sought out colors that had "personality." But at the same time, they began pulling away from the brighter, bolder colors of the seventies and shifting to a more subtle, natural look of earthtones like Almond, French Vanilla, and Tender™ Grey, with just a sprinkling of stronger accents like Evergreen™, Lemon Twist and Raspberry Puree™.

Some manufacturers even tried bathroom fixtures in exotic materials like teak, although the cost of the product and the maintenance required over time eventually killed the process.

More resilient were the latest in electronic and telemetry conveniences. Americans wanted systems like an Autofill™ that

“WHERE BETTER TO EXPERIENCE SENSUAL,  
TACTILE BLISS THAN IN THE NEW  
PRODUCTS FOR THE BATHROOM?”

could start filling a bathtub at a pre-set time, or if they telephoned it when they were 15 minutes from home. They installed systems that unlocked doors, turned on lights and started cooking dinner.

To accommodate all these luxuries, the size of the average new single family home grew 16 percent just in the Eighties, from 1,595 square feet to 1,850 square feet. Part of that growth was the increase in the size and number of bathrooms. While the square footage of second bathrooms and powder rooms remained fairly constant, the master bath grew from an average of 84 square feet to 106 square feet. The number of new single family homes with 2+ baths increased from 22 percent in 1982 to 44 percent in 1989, a remarkable change propelled by personal income.

#### THE NINETIES

The inevitable aging of the Baby Boomers, combined with their ever-present “Me” generation attitude and the economic prosperity of the Eighties, accelerated the requirement for SKU proliferation as designers and home builders struggled to design products for the splintered mass markets. To ensure continued growth, corporate strategy and indeed the design franchise itself were required to make a philosophical shift from product to consumer. Suddenly, there was pressure to design many more customized and differentiated products as well as a more comprehensive set of products for the way narrow groups of people live. “Lifestyle” became the buzzword of the marketing profession.

More women than ever were in the workforce, a phenomenon that was the most significant societal change to take place in the United States in the last 30 years of the century. But now it took two incomes for most families to maintain or at least come close to a middle class lifestyle. The 80-hour work week began taking its toll on families. Writing about the phenomenon, Faith Popcorn notes: “If there’s a national plague, it’s fatigue.” Many Americans, she suggested, just wanted to hide away after work, shut out the world, and cocoon in their homes.

But even while they were cocooning, they wanted their homes to be recognized as extensions of themselves. They were turned on by the idea that “this is my space...my house is me...it is a visible expression of who I am, and I demand products designed to meet my individual needs.” Regardless of wealth or income,

consumers were infatuated with the luxurious, the sensual, and the tactile bliss that new home products offered. They wanted to feel good about themselves, and their homes provided that venue.

Where better to experience sensual, tactile bliss than in the new products for the bathroom? The whirlpool bath of the Eighties witnessed improvements in the Nineties that made it even more sensuous. Designers added neck jets, back jets, foot jets, pulsating jets, waterproof pillows and contoured body-hugging designs allowing consumers more opportunity for customization.

The function of the whirlpool bath changed significantly when designers essentially turned it on end and pumped 80 gallons of water per minute through its vertical jets to create a total body massage, and in the process, created a new class of products called BodySpa™.

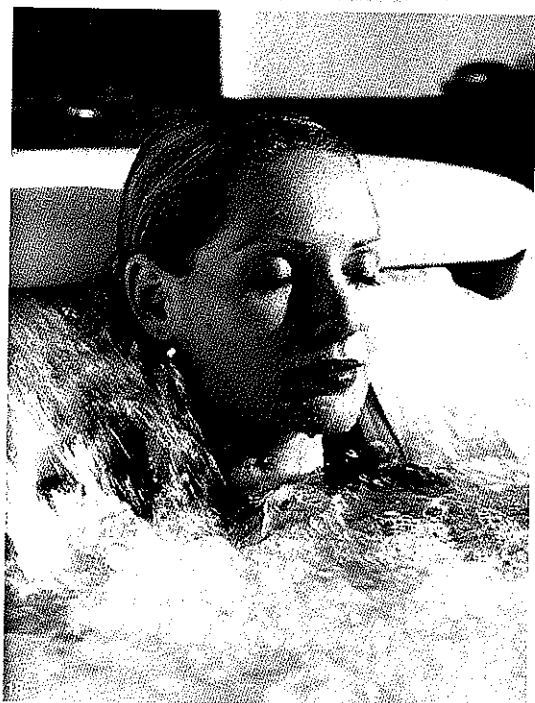
In their search for personal expression, homeowners decorated their baths and powder rooms with console table lavatories, above-the-counter vessels (throwbacks to the first portable wash basin), and even high fashion stainless steel. Faucets evolved into works of art, some with handles forged by blacksmiths. Processes were developed that enabled a variety of metallic finishes, even "gold" and "brass," to last a "lifetime" tarnish free. Under the exotic shapes and rich durable finishes, state-of-the-art ceramic valves controlled the flow of water without drips.

Putting all these products together in a coordinated fashion was sometimes more of a challenge than consumers wanted. Packaging products into suites helped them explore design themes, focus their choices and create a total look among all the fixtures and faucets in the bathroom.

Designers did not limit changes in form and function to the bath alone. They redefined kitchen design and the function of the kitchen sink with the introduction of multi-task cook-sinks and high-arch faucets that combine cleaning and cooking techniques into one.

No phenomenon is tied more closely to the Nineties than the Internet. The Internet offers global access to a glut of information...everything from catalogs to installation aids, product reviews and buyers' comments in online chat rooms. At the same time, television satellite systems provide hundreds of channels that pound out the latest news and commentary along with ads for new products.

The savvy consumer, armed with product information across a range of brands, has taken more control of his or her purchasing power. But for many weary consumers, the information bombardment is often more disconcerting than comforting. Take clean drinking water, for example. The media and Internet



Web sites increasingly reported that E-coli, cryptosporidium, lead, pesticides, herbicides and other toxins could be found in the nation's water supply. As a defense, homeowners began adding water filtration systems and dedicated beverage faucets to their bathrooms and kitchens.

During this same period, consumers were bothered by the inability to remove solid waste from their new toilets with a single clean flush. Water scarcity drove the industry to reduce the amount of water toilets used per flush from five gallons to 3.5 gallons in the 1970's. Then in 1994, Federal legislation required further reduction to 1.6 gallons. This was the most bothersome change in the function of the American home from the Seventies to the end of the century. It took manufacturers at least four generations of toilets to engineer a 1.6 toilet that cleaned the bowl as well as or better than 3.5 gallon toilets.

Looking for alternatives to address the obvious need for clean and thoroughly flushed performance, designers came up with a pressure flush, a water delivery system that relied on a pressure vessel in the toilet tank. It provided a thorough, fairly clean flush when compared with the second generation of gravity flush toilets, but it was noisy and the pressure vessels were often troublesome.

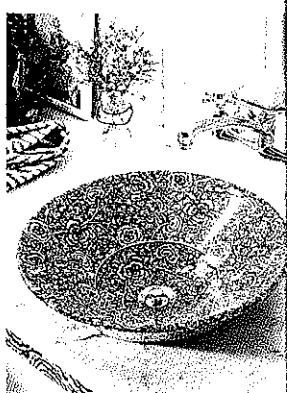
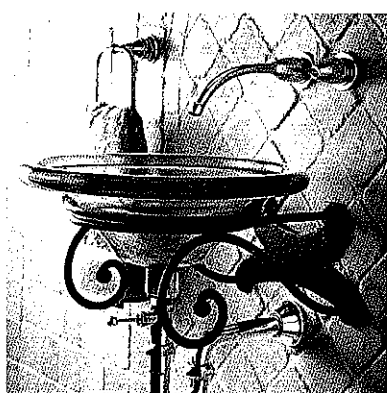
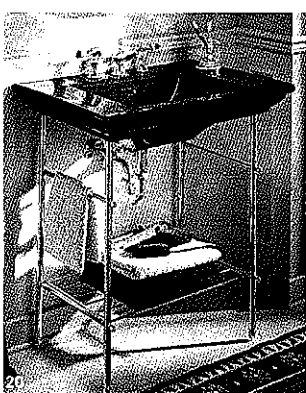
A further step in the assisted flush system was called Power-Lite™. Kohler brought low-voltage electricity to the toilet to power a small pump, and in so doing could evacuate waste rapidly, quietly and completely; with a dual flush no less—0.6 gallons of water for light waste, 1.6 gallons for heavy waste.

There was nothing that plagued homebuilders more than the evolution of the 1.6 toilet because, until engineers understood the science of fluid dynamics, often through trial and error, and finally perfected the product, the callbacks were continual and the requests for toilets that circumvented the code were endless.

Builders now have gravity flush toilets that cause few problems in either residential or commercial installations, as well as the option for more expensive Power-Lite toilets.

The final chapter of this story, by bringing electricity to the toilet, a variety of gadgets could be added like a heated seat. The Japanese have tried to bring something called the bidet seat, enormously popular in Japan homes, which could wash with warm water and dry with warm air, avoiding toilet paper altogether, but its reception in the American home has been minimal. For dietary and genetic reasons, the Japanese are much more tender. Without a clear perceived need, regardless how fascinating the function, Americans won't pay the price.

By the end of the century, the American master bath had nearly doubled in size over the last 30 years from an average of



71 square feet to 138 square feet. This growth was primarily driven by the bathroom changing from a sanitary place to a place of psychological refreshment and well-being. Twenty percent of new single family homes now had three or more bathrooms, a statistic that was not even considered viable 20 years ago. And 54 percent had at least 2+ baths, more than doubling the percentage recorded at the end of the Seventies.

Housing starts for single family homes in the Nineties hit a low of 840,000 units in 1991, then started a climb that peaked at more than 1.3 million in 1999.

#### TWENTY-FIRST CENTURY

As America entered the millennium, we realized that our computer systems weren't going to implode, Baby Boomers' parents were still around and getting older, and life was good. The dot-com demise aside, the Census Bureau reported the number of upper-income households had increased over 40% since 1990, despite a decade of corporate downsizing and an economy transformed from being primarily manufacturing-based to one founded on service providers.

However, while we are a wealthy nation, we are plagued by insecurity about our personal financials and the rising cost of education and health care. Too many Americans feel like they are running faster to fall further behind. We are a nation of over 102 million households as diverse in structure as the household of the Fifties was homogeneous. We are a nation of over 265 million people experiencing dramatic shifts in the mix of racial and ethnic societies.

Against this anomalous backdrop, let's examine the demographic and sociological profile of this 21st century America to see what might predict future marketplace behaviors, and how home building and home products can respond.

Unlike the prior 30 years, this decade is likely to be influenced less by the values and experiences of the Baby Boomers than by the confluence of their aging, the vastly different values of the 45 million members of Generation X, the compelling immediacy of the net, and the horrific events of September 11.

Certainly a phenomenon of the Nineties that cannot be overlooked in this decade is the graying of America. The Joint Center's recent study, "Housing America's Seniors," concludes that seniors are healthier, wealthier and wiser than ever. They have the highest home ownership rate of any age group, and they prefer to stay in their own homes. During the first decade of this century, the fastest rising age group will be the 55-64 year olds, our familiar Boomers. As a group, their numbers are expected to double to nearly 70 million by the year 2030. The potential market is vast even as it is somewhat unpredictable.

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Some seniors are as fit as marathon runners, some are barely able to remain in their own homes. They make up a diverse market that is difficult to define and even harder to serve well.

To make things even more difficult, the home building model we generally work from today is based on designs created for the post-war building boom of some 50 years ago. Electrical outlets are close to the floor. We assume everyone in the house can bend down that far. Light switches are 54 inches up from the floor. We assume everyone can reach that high. Countertops in the kitchen are 36 inches high. Does one size fit all? Conventional doorways and hallways are too narrow for wheelchairs. Bathrooms are seldom wheelchair accessible. Bathtubs have aprons that assume agility and balance to access safely. Grab bars are seldom installed because they have some sort of stigma attached to them. The cost of a few grab bars, however, pales in comparison to the \$33,000 dollar average cost of treating a broken hip.

More and more manufacturers are designing accessibility into their products. In the kitchen, for example, a sink with shallower bowls allows wheelchair access. A tastefully designed shroud conceals the drain and garbage disposal. In the bathroom, extra-height toilets, accessible lavs, roll-in showers, pressure-controlling shower valves, electronic faucets, grab bars that look more like towel bars, and even a bathtub with a door demonstrate that it is possible to combine style and function with universal design. Creative installations of conventional products will also allow seniors and those with disabilities to live in their homes longer and with greater security.

As the Boomers become a seniors group, not only will they demand universal functionality, but they will also continue their eternal quest for products that express their individuality. Well-designed houses and home products that don't look like they belong in hospitals or senior citizens housing, but which function like they do, will resonate with the aging Baby Boomer population. It's a market segment that offers a growth opportunity.

A second market phenomenon driven by the aging affluent Boomers is the potential increase for second home ownership. A recent article by Peter Francese, founder of American Demographics, predicts that the growth in this first decade for second homes may increase by 60 percent to 9.8 million, rivaling the growth rate of the 1980's.



The U.S. Census Bureau stated that at the turn of the century, household size, in other words the number of people in a household, was at an all-time low, while household income was at an all-time high. These factors, coupled with new ways of working from remote locations and favorable tax and mortgage rate incentives, converge to create an anticipated high growth of demographic segments most likely to buy a second home.

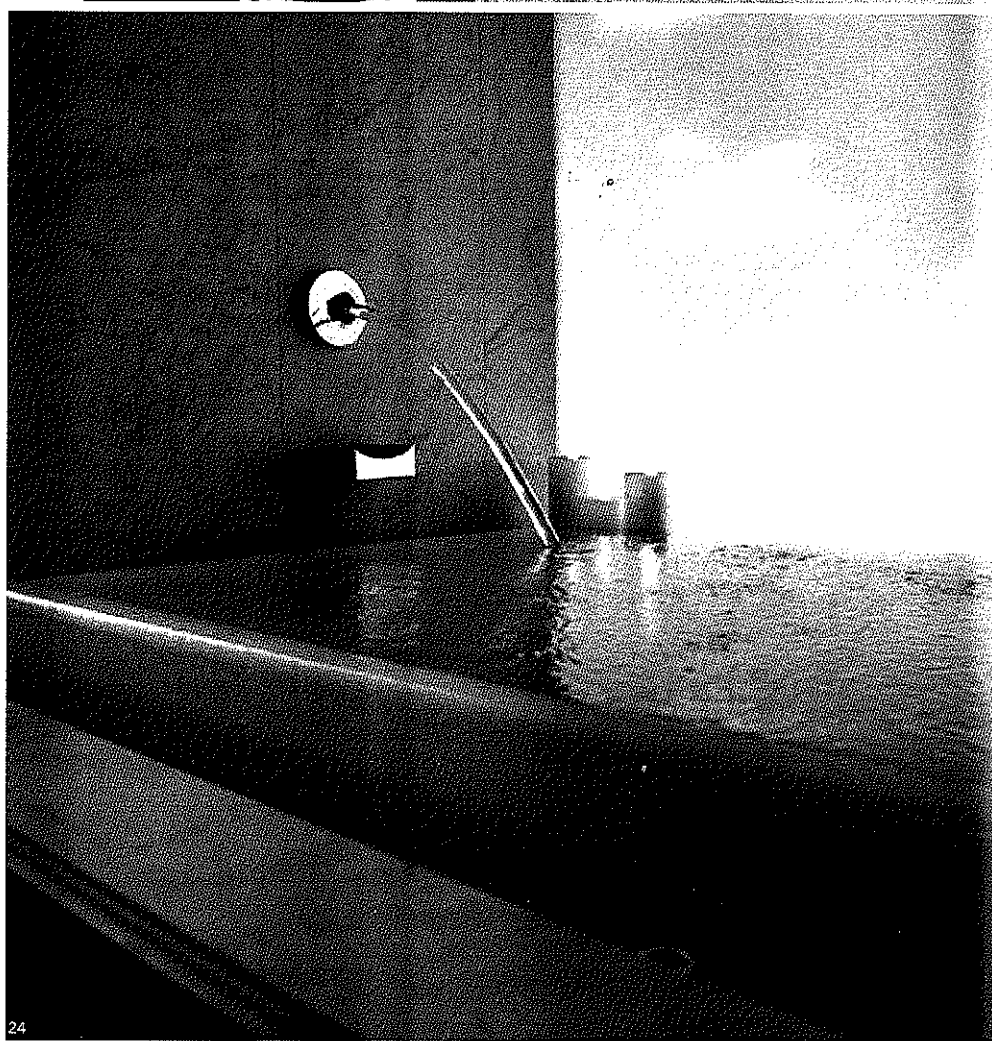
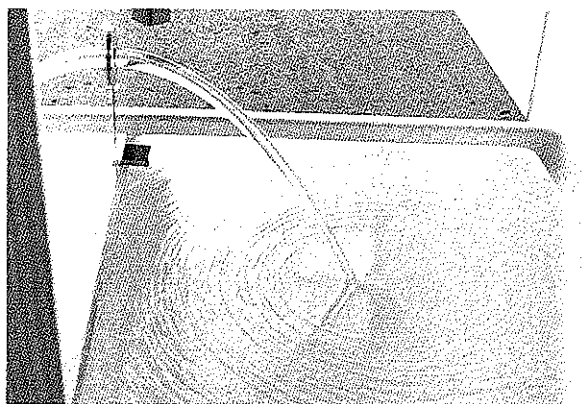
Designing for second homes and multiple home ownership will require builders and manufacturers to think in terms of scale, quality and simplicity. Floor plans will take into consideration diverse living arrangements as Boomers make room for aging parents and grandchildren. Products will be fun and easy to use, with water delivery as a main focus.

Here are examples of what you will find. Ceramic faucets, not just ceramic valving, open a whole new world of water delivery. Adjustable telescoping shower towers and adjustable body sprays so two people—husband and wife, mother and child—or one person standing under two or more showerheads can enjoy the moment. Solid streams of water that don't splash. An overflowing soaking tub, not a strong massaging whirlpool, with effervescent bubbles and chromatherapy to touch every sense of one's being.

What is most interesting at my stage in life is this next demographic wave of Generation X, those now in their twenties and early thirties. While not as hungry for material things, and perhaps a bit disdainful of their elders for their personal indulgences, this is a generation that perceives itself to have inherited a world of difficult and uncertain prospects. This is a group that has no idea what is meant by the phrase "sounds like a broken record." That has never known life without color television, faxes, cell phones and cyberspace. They are on overload with technology and pray at the altar of simplicity. It is this generation that understands and indeed demands the opportunity to work electronically in a place-less society.

What this means for builders and manufacturers is a renewed emphasis on community and family and the home office. Unlike the Boomer family where both adults left home for work each day, this generation of working men and women are just as likely to work from home. In 1970, 43% of women worked outside the house, a number that rose rapidly then tapered to 60% at the end of the century. This Generation X is a generation whose values now look suspiciously close to those of their grandparents in the Fifties.

If we understand that, then we can understand the interest in "back to basics"—classic products that are simple but universal for use by all ages, where design marries form and technology to create a home and home product for the family and their



neighbors. This is a homebody group—a generation just as likely to remodel a vintage home than build a larger one. Recognizing these trends allows us to design and market products that hearken back to the designs of the Forties and earlier, but which capture the technology in materials and functions as they evolve in the 21st century.

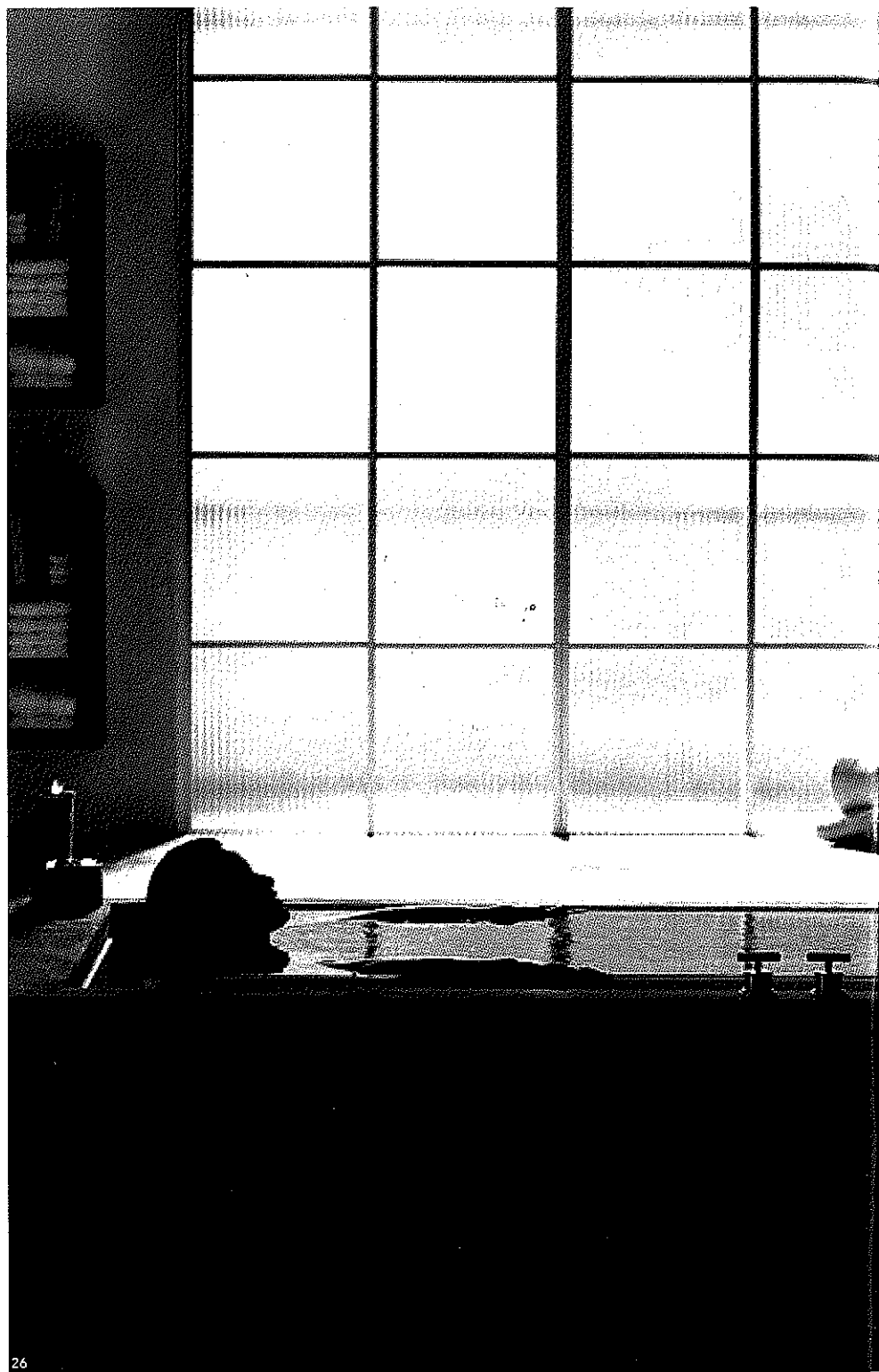
We are presently in a period of history unlike any heretofore. It is still too early to forecast with certainty what affect the terrorist attacks of September 11 will have on the American home.

What will happen to sales of high-rise condos, apartments and office space in major metropolitan areas? Will homeowners flee to rural areas or even remote areas that they see as safe havens? Will companies move to those areas to find workers? Will telecommuting become a more common business practice? Will the next generation of homes become even more secure cocoons in more secure, isolated communities? Or is the reverse a possibility? Will residents of communities bond together and emerge from this crisis with a deeper sense of knowing and caring for each other? Will cities be sustained as “the engines of innovation” suggested by Michael Porter of the Harvard Business School because they can provide effective security for clusters of smart people at handshake distances? Perhaps all of the above are true!

In designing form and function for the American home in a post-September 11 culture, I believe that American home ownership will continue to rise at a steady pace beyond 72 million, and that Americans will continue to view their homes not only as places of refuge but also as creative shelters and extensions of their personalities and dreams. The home replenishes and rejuvenates on many levels. People take pride in their homes because their homes speak to who they are and what they represent.

And, while we may develop more sophisticated air and water purification systems for our homes, and security systems that identify voice, retina or handprint, I reject the idea that we will design our homes and home products to function more as fortresses than as havens.

At Kohler, we will continue to concentrate on developing advanced product that molds the technology of function with the grace and beauty of the well-crafted form. Where people live, and to a great extent how they live, will continue to rest with those of us who lead the home building industry...the community planners, developers, architects, builders, landscape architects, interior designers, industrial designers and manufacturers. The impact we have will depend substantially on if we can work together more effectively advancing the quality of our environment and the gracious living and free spirit of its inhabitants.



We in the home building industry have partnered through a host of sociological and demographic change and challenge over the past 30 years. The greatest challenge we face is to provide for a growing population with expanding expectations. Our products must be more technically innovative, artistic, energy saving, recyclable, universally designed, and available at price points to serve as diverse a group of consumers as this nation has ever known. Working closely together, the power of our design will sustain the average American home at the pinnacle of value even as expectations and values continue to change.

Good design is, at its essence, the proportionate melding of form to function. Good design, to be good business, is a form and function response to the values and aspirations of a given consumer landscape. To understand, then, home building in the 21st century, is to become a student of demographic and societal trends. I encourage you to watch MTV as much as you watch CNN. Read *Wired* as much as the *Wall Street Journal*. And listen to Britney Spears as well as Vivaldi, for these are examples of the factors that will influence the home building and home furnishing preferences of my grandchildren. ♦

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