

Healthy Housing, Healthy Families

Toward a National Agenda for Affordable Healthy Homes

By Tony Proscio

Made possible by the generous support of the Annie E. Casey Foundation and the Fannie Mae Foundation

The Enterprise Foundation

National Center for Healthy Housing

Cover photography, from left: Photodisk; Ariella Green and Lucy Charlton of Portland, Ore., (photo: Nathan Mandell) and first-time homeowners Nicholas and Judith Rodriguez of Los Angeles, with their three children, Nicholas Jr., Yanelly and Yanira. Center: Photodisk.

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The Enterprise Foundation and the National Center for Healthy Housing are grateful to the community residents, practitioners, developers and others who gave their time and shared their experiences to contribute to this project. Enterprise owes its deepest gratitude to the Annie E. Casey Foundation and the Fannie Mae Foundation for their support and leadership on healthy housing.

About the Author

A former associate editor of the *Miami Herald*, Tony Proscio is a consultant to foundations and civic organizations and a freelance writer on urban affairs. He lives in Brooklyn, N.Y.

About The Enterprise Foundation's Community Development Policy and Communications Center

The mission of The Enterprise Foundation is to see that all low-income people have the opportunity for fit and affordable housing and to move up and out of poverty into the mainstream of American life. In 2004, Enterprise established the Community Development Policy and Communications Center to explore the link between community development and related issues that pose critical implications for low-income families. Health, education and economic opportunity comprise the Center's principal areas of inquiry. Drawing from and furthering collaboration across a wide landscape of disciplines and expertise, the Center sponsors research, convenes symposia and publishes papers to share the knowledge and experience of The Enterprise Foundation and others committed to building stronger communities in which every individual can realize his or her fullest potential. Through its publications and activities, the Center bridges new alliances and encourages coordinated approaches. It provides a neutral national platform for examining the needs and challenges facing low-income communities and ultimately seeks to identify solutions and spur practices and policies that support and implement them.

Foreword

Healthy Housing, Healthy Families: Toward a National Agenda for Affordable Healthy Homes examines emerging trends that point to progress in improving the health prospects of low-income families through practices and policies for providing a decent affordable home.

Public health practitioners and affordable housing providers have long recognized the connections between poor housing conditions and negative health outcomes. In recent years, research advances, market innovations, cross-disciplinary coalition building and community-based advocacy have set the stage for even broader action on this critical issue.

This paper, made possible by the generous support of the Fannie Mae Foundation and the Annie E. Casey Foundation, summarizes some of those developments and suggests specific steps funders, policymakers and practitioners can take to make healthy homes for low-income families a national priority.

The paper makes clear that there remain formidable challenges to achieving this goal, especially research gaps and cost considerations. Yet even more clear, we believe, is that there is much more we can and must do today, even as we wrestle with those and other issues.

For far too long in this country we have had too narrow an understanding of "affordable housing," confined to the intersection of building costs and family incomes. As such, we have neglected the important benefits that affordable housing provides for families — especially healthier children and more sustainable communities. We need to think and work much more holistically, and to consider the broader costs and benefits for families and communities of the places they call home.

Indeed, the United Nations defines "adequate housing" as encompassing legal security of tenure; availability of services, materials, facilities and infrastructure; affordability; habitability; accessibility; location and cultural adequacy. By this sensible standard, untold millions of families in this country lack an adequate home.

We believe there is a pragmatic urgency and a moral imperative to act now. Progress will depend on collaboration and compromise across sectors, professions and interests. The Enterprise Foundation and the National Center for Healthy Housing are committed to helping forge such connections and hope many readers of this paper will join in these efforts.

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Chairman of the Board and CEO
The Enterprise Foundation

Rebecca L. Morley
Executive Director
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Executive Summary

After decades of remarkable progress in eliminating lead-based paint hazards in American homes, nearly half a million children still have blood-lead levels high enough to harm their intelligence, behavior and development, according to the U.S. Centers for Disease Control and Prevention. Despite national alarm over soaring rates of asthma and the unhealthy conditions that cause the disease or trigger its worst effects, the number of diagnoses continues to climb, affecting more than one child in five in many poor neighborhoods. The side effects include 10 million lost school days every year, 2 million emergency room visits a year, and an incalculable loss of learning, physical exercise and healthy development for the affected children.

Lead poisoning and asthma are just two of many chronic health conditions whose roots lie, to a significant degree, in the way housing is designed, built and maintained. More and more research has begun to show not only a clear connection between housing conditions and aggravated disease and injury, but increasingly clear means of remedying the worst residential hazards. There are sound, affordable methods of construction and maintenance that can make housing healthier for those who live there. Yet these methods are not well understood among housing developers and policy experts. And even when they are better understood, many builders and property owners still sometimes overestimate the cost of healthier practices, neglecting to factor in the long-term economies associated with energy efficiency, reduced costs of maintenance and repair, reduced liability and better lives for the residents.

This situation can change, and indeed is changing, albeit slowly. Among the reasons for optimism about healthier housing in the future are four factors that this paper closely examines: the growing national consensus on residential

On June 2, 2004, in Washington, D.C., The Enterprise Foundation, the National Center for Healthy Housing and the Annie E. Casey Foundation sponsored a conference titled, "Healthier Homes, Stronger Families: Public Policy Solutions to Advance Healthy Housing." The daylong discussion included nearly 80 practitioners in public health, housing, the environment and community development. Although this paper is not a summary of that conference, and although it draws on resources and expert opinion not presented there, most of the ideas in these pages grow out of that day's deliberations. The paper is therefore meant as a follow-up to the conference, in the interest of continuing the discussion and adding additional perspective to it.

lead hazards, experiments using market forces to encourage healthier building methods, the increasing activism of grassroots organizations to promote safer and healthier housing, and the gathering of regional and national leaders in public health, housing policy and finance to incorporate health considerations into the way developments are planned and funded. These four trends, among other things, seem to point the way to a more vigorous, effective movement for healthier homes in the United States, both in public policy and in the practices of the housing industry.

For all its successes, the lead poisoning prevention movement has also shown how difficult it can be to introduce new practices that raise the "first cost" of building, renovating or maintaining a home.

The first of these, the gathering national consensus on lead, makes for both an inspirational and a cautionary tale. For all its successes, the lead poisoning prevention movement has also shown how difficult it can be to introduce new practices that raise the "first cost" of building, renovating or maintaining a home. "First costs" — the initial expenditures necessary to create sustainably safe housing or to make significant repairs — are the primary criteria that developers and many policymakers use to determine affordability and profitability. But they can be offset, at least in principle, by subsequent savings in home maintenance and repair, reduced liability for developers, an improved quality of life for residents, health and developmental benefits for children, and societal benefits from reducing the physical and behavioral side effects of chronic childhood illnesses. In the case of lead poisoning, this kind of long-term reckoning is becoming increasingly common and public policy has shifted accordingly. The result has been a stunningly swift reduction in levels of childhood lead exposure. Yet even now, after nearly 30 years of advocacy and successful policy development, lead poisoning rates are alarmingly high in many of the country's poorest communities. And disputes over first costs still complicate many efforts at further improvement.

The second trend, the use of market incentives to promote healthier building practices, is best exemplified by the Environmental Protection Agency's (EPA) experimental "Air+" program, which is approaching a national launch as this is written. If successful, Air+ could point the way toward changing building practices without the slow,

sometimes contentious struggle necessary for tightening government regulation. Air+, modeled on the increasingly successful Energy Star program for homes, is a voluntary labeling program for houses built to a high standard of clean indoor air. Like Energy Star, which identifies and promotes products to reduce greenhouse gas emissions, Air+ would give builders a market incentive to meet government-supported standards: Consumers would value the EPA label, which assures them that the air in their homes will be significantly cleaner than under-standard building codes. In that case, both the builder and the buyer would recoup the expense of earning the label through the increased market value of a healthier home.

Reuniting public health and housing policy in the 21st century is less a matter of breaking new ground than of restoring a lost balance and renewing a once-common vocabulary of residential and environmental health.

The third example of a strengthening movement for healthy homes has been in the mobilization of community-based organizations around a combined agenda of health and housing. Though still recent and comparatively small, the grassroots healthy housing movement is showing potential on two fronts: First, nonprofit housing development organizations have begun to demonstrate the appeal and affordability of housing specifically designed for a healthier indoor and outdoor environment. And second, leaders of community-based organizations have become more adept at ensuring that housing and code enforcement agencies enact and enforce health and safety regulations, and at advocating for clearer and stronger regulations where needed.

The fourth promising trend has been the formation of national and regional groups of policymakers in health and housing. Although still quite rare, these groups show real potential to influence the way public and private money is allocated in the development of housing — especially affordable housing in the low-income communities where residential health risks are greatest. For instance, the Asthma Regional Council, a New England group, has developed detailed guidelines for healthy construction in cooperation with the building industry. The guidelines have increasingly become part of the eligibility criteria for the allocation of public housing dollars in New England. At the national level,

the National Center for Healthy Housing and the Alliance for Healthy Homes are advancing the healthy housing agenda through research, evaluation, policy innovation and advocacy. The Enterprise Foundation is promoting the use of healthy housing building practices through its newly launched Green Communities initiative.

The idea of bringing public health and housing policy into closer alignment is neither radical nor even particularly new. Substandard housing became a subject of government concern in the United States largely as a result of alarm over unsanitary housing conditions and high rates of disease in 19th-century slums. Reuniting public health and housing policy in the 21st century is less a matter of breaking new ground than of restoring a lost balance and renewing a once-common vocabulary of residential and environmental health. For that goal, several key tasks are already in progress: pursuing stronger regulations and better regulatory enforcement, forging coalitions like those in New England and at the national level, raising awareness among community organizations and developers, engaging market forces for change, and focusing further research and advocacy on effective, achievable public policy. Strengthening and widening these efforts is an urgent matter, too long delayed. But the course is increasingly clear and well mapped, and the rallying of key participants is now underway.

Introduction: Diverging Priorities

FOR MANY DECADES, from the mid-19th century until well into the 20th, the movement for housing reform in the United States flourished mainly as a branch of public health. Alarm over crumbling tenements, overcrowding and housing shortages — an alarm that eventually led to a whole new field of housing policy, with its own dedicated funding streams and government agencies — had its earliest roots in 19th-century outrage over unhealthy conditions in urban dwellings. In fact, the first prominent American advocate for municipal housing codes may well have been a public-health physician. When Dr. John H. Griscom was hired by the city of New York in 1845 to report on mortality and disease among the poor, he responded with the unprecedented recommendation that the city set and enforce standards of decent housing.[1] Within 50 years, health advocates all over the country were reaching similar conclusions.

The umbilical connection between the fields of public health and affordable housing was cut sometime in the first half of the 20th century. The growth of housing as an independent field eventually led, perhaps inevitably, to a greater preeminence of housing disciplines such as architecture, construction, finance and maintenance over those of public health. As affordability, supply and structural soundness came to dominate housing policy debates, matters expressly related to illness and injury tended to recede. This was not so much the result of a lack of interest in health — witness near-universal code requirements for light, ventilation and fire safety — as of a steady rise of economic, structural and urban-planning concerns that eventually took center stage. By the mid-20th century, once the New Deal and the Great Society had established affordable housing as a distinct, prominent national priority, the separation of housing from public health was all but complete. For many years, interaction between the two fields, whether in government deliberations or in academic colloquia, tended to be relegated to a kind of interdisciplinary niche status, where the occasional symposium or public hearing might draw a committed core of advocates or scholars, but not anything resembling a national movement.

In the process, the two fields even found themselves intermittently at odds. The growth of an affordable housing industry, with financial and regulatory regimens aimed mainly at minimizing production and management costs, rents and sales prices, sometimes created a tension between health and housing considerations. To the extent that a genuinely healthy home would require higher up-front outlays for construction or increased expenditure on maintenance, some developers and landlords argued that too much attention to health and safety within the home could undermine affordability. And unaffordable housing can easily lead to harmful health consequences of its own — homelessness, transiency, overcrowding and stress, among the most obvious. The tension between the two points of view persists, at least in some quarters, to this day.

Rediscovering Common Ground

THE UNHEALTHY HOUSING CONDITIONS that first drew the attention of public health reformers 150 years ago have not all been eliminated, though some of the worst have been alleviated by housing codes, health regulations and other public and private action. Yet for all that progress, issues that affect the quality and affordability of housing today remain crucial to public health — and vice versa. Unsanitary dwellings, overcrowding, poor ventilation, crumbling structures, inadequate child safety, fire hazards — in fact, most of the hardships emblematic of poor urban and rural communities — remain, at their core, threats to residents' health and safety. A growing body of research has persuasively linked substandard housing conditions with illness and injury. The greatest risks arise from conditions such as cold, moisture, mold, poor indoor air quality, residential application of pesticides, the presence of allergens, vermin, dust and other conditions that contribute to asthma and structural or design flaws that raise the risk of injury.

The health risks associated with poor housing go beyond those directly caused by the design, construction and maintenance of houses and apartments. In fact, matters that might seem purely economic, such as the supply and affordability of housing in any given locality, are also in significant part health issues: Inability to afford adequate housing drives many families into overcrowded units, frequent evictions or changes of address and episodes of homelessness, all of which have consequences for the families' health, both mental and physical. When families pay half their incomes or more for rent,[2] as 13 percent of U.S. households now do, the budget for all other necessities, including health and nutrition, suffers. Stress stemming from living in dilapidated housing, from fear of eviction or homelessness and from a generally unhealthy environment has been strongly linked to physical illness, depression and other long-term emotional distress.[3]

The long-range consequences of unhealthy buildings aren't limited just to the well-being of residents and their increased need for health care. The costs of unhealthy dwellings are also borne by the surrounding neighborhood and the wider public. One example is a link between childhood lead poisoning and crime: Research by neuropsychologist Kim Dietrich of the University of Cincinnati, among others, has shown that lead exposure in childhood is strongly associated with serious delinquent and criminal behavior later in life.[4] Yet the societal costs of illness, blight and attendant social problems are hardly ever reckoned together in a way that would give a complete picture of the full consequences of untreated health risks in housing.

Part of the reason these calculations remain separated is that public health analysis tends to follow conditions over time, gauging progress in increments of many years. Housing producers, by contrast, tend to emphasize "first costs": the amounts initially needed to produce or renovate a house or apartment, or the current cost of renting or maintaining that unit for a year at a time. If limiting those costs means using less healthy or less durable materials, equipment or procedures — that is, if today's savings could lead to tomorrow's problems in health or maintenance or both — the negative consequences aren't typically captured in a project's cost analysis.

"In the world of housing," says Don Ryan, executive director of the advocacy and policy organization Alliance for Healthy Homes, "virtually all decisions are made on the

basis of first cost. Somehow, we have got to get beyond that, to calculating and managing life-cycle costs. We need, for example, to change the way we set operating-reserve requirements in apartment developments, so they don't shortchange maintenance in the long run." Sam Rashkin, national director of the Environmental Protection Agency's Energy Star program for homes, puts it more bluntly: "If you're not building homes that are energy efficient, with a full set of measures for indoor air quality, it's not affordable. You're not building affordable housing. You're putting a roof over people's heads, but you're imposing thousands of dollars of costs of owning that home — costs for the utility bills, costs of maintenance — which low-income families can't handle and won't keep up with, which means the value of their assets will decline or not grow as fast as it should, and the houses won't have as much value when they come to sell them. That's not affordable."

'If you're not building homes that are energy efficient, with a full set of measures for indoor air quality, it's not affordable.'

Nonetheless, developers' concerns about first costs are neither wholly misguided nor irrelevant to public health. Some techniques of healthy construction may not only increase first costs, but do so steeply — and there is not always good evidence, at least so far, that owners or developers can ever fully recoup these costs. When that is true, it isn't just the developer or landlord who suffers. If higher construction or maintenance costs lead to higher rents, residents can end up at even greater risk of financial crisis, eviction, homelessness, transiency and other conditions that threaten their health.

The gulf between short- and long-term cost calculations, like many of the differences separating the fields of health and affordable housing in recent years, has begun to narrow. The natural links between these fields — including their common interest in low-income people and neighborhoods and their shared long-term stake in residents' health and safety — are evident, though not widely embedded in conventional wisdom. But the level of policy attention directed at the intersection of health and housing, and the number of voices for cooperation and common strategy in both camps, are clearly growing.

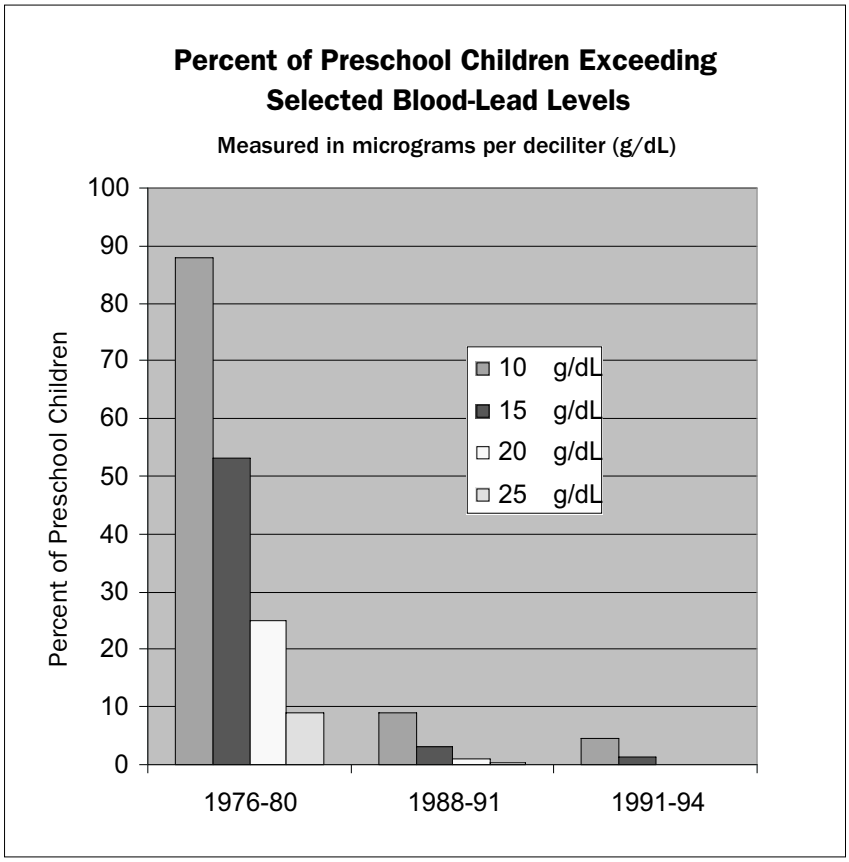
From the environmental-health perspective, the U.S. Centers for Disease Control and Prevention and the U.S. EPA's rising attention to housing is among the most visible signs of this increased interaction. From the housing side, evidence includes the healthy homes program operated by the federal Department of Housing and Urban Development (HUD). At the national level, the National Center for Healthy Housing and the Alliance for Healthy Homes promote research, evaluation, policy innovation and advocacy to advance the healthy housing agenda. The Alliance, which develops and advocates for better public policy, and The Enterprise Foundation, a national intermediary dedicated to the development of low-income communities and affordable housing, founded the National Center as a scientific and technical organization in 1992, with support from the Fannie Mae Foundation. These organizations, funders and sponsors collectively represent a broad cross-section of leadership institutions in both public health and affordable housing — a fact that makes joint deliberations between the two fields both more frequent and more productive.

Significantly, both the Alliance for Healthy Homes and the National Center for Healthy Housing started life as lead-poisoning prevention groups. It was the prevalence of lead poisoning, especially among children and particularly from exposure to lead in the home, that first began to draw practitioners in housing and health back to a common table in search of common solutions.

The Lessons of Lead: From Evidence to Action to Results

IT TOOK MORE THAN HALF A CENTURY for housing policy in the United States to catch up with the science surrounding the harmful consequences of lead exposure in the home. As early as the 1920s, an American pediatrics textbook cited poisoning from lead-based paint as a possible cause of convulsions in young children[5], and later research cited lead exposure from water pipes and lead dust. Yet it was not until 1978 that lead paint was banned for residential use. That ban, together with the removal of lead from gasoline a few years later, brought about swift and dramatic reductions in the rate of elevated lead levels in children's blood (see graph, left).

Thanks in large part to the anti-lead advocacy of both public health and housing organizations, public policy on lead has progressed steadily since then, with increasing recognition of the harmful effects even of levels of lead exposure that were once considered safe. "In the 1960s," reports environmental health expert Bruce P. Lanphear, "there were hundreds of children admitted to hospitals every year in the major cities suffering from lead encephalopathy. Anywhere from 25 percent to 50 percent of those children died. If they survived, it was thought at the time that generally they returned to normal living. But then several studies … began to recognize that more than 20 percent were found to be mentally retarded. At lower and lower levels of exposure, children were observed to have either I.Q. deficits or mental health or behavioral problems.[6] As a result of numerous studies like that, [definitions of safe] blood-lead levels have been lowered over the past 30 to 40 years, most recently in 1991."



Data provided by Bruce Lanphear, M.D., from J.L. Pirkle et al., "Exposure of the U.S. Population to Lead: 1991-94," *Environmental Health Perspectives*, 106:11 (November 1998), 745-750.

Along with the greater scientific awareness of the neurological, learning, intelligence and behavioral consequences of lead exposure has come a gradual tightening of code requirements and increasingly strict rules on lead safety in government housing programs. The broadest expression of this gathering consensus has been the enactment in 1992 of Title X of the Housing and Community Development Act. In that law, Congress embraced and extended lead-safe housing principles, making assignments to EPA, CDC and HUD to advance lead-safe housing in their various spheres of control.

A rate of one child in five suffering from lead poisoning — a common finding of such studies in many inner cities — remains a problem of epidemic proportions.

Yet even now, the results of all this effort still leave wide room for concern and improvement. In one case, for example, Dr. Lanphear found that in several of the poorest neighborhoods of Rochester, N.Y., close to half the children continued to have elevated blood-lead levels well into the 1990s. By the end of the decade, the rate in those neighborhoods was down to 20 percent. Yet Dr. Lanphear and his colleagues warned that while the trend was encouraging, the end result was not. A rate of one child in five suffering from lead poisoning — a common finding of such studies in many inner cities — remains a problem of epidemic proportions.

The experience of forming a consensus around lead-safe housing — slow, protracted and unfinished as that has been — provides one encouraging example of what can happen when a health issue is treated not as a challenge to the housing industry, but as a fundamental part of what constitutes good practice in housing. Yet the achievements thus far remain far from sufficient, even on the single issue of lead poisoning. And when the discussion broadens to asthma, injuries or other health hazards rooted in housing conditions, or to illness rooted in stress and anxiety from unstable housing, workable solutions recede even farther out on the horizon.

Building Consensus: Evidence and Standards for Healthy Housing

PEDIATRICIAN and environmental health expert Megan Sandel, writing with a team of colleagues in 2004, compiled research showing that substandard housing conditions are "intimately linked" with "three of the leading pediatric public health concerns": lead poisoning, asthma and household injuries.[7] For asthma and injuries, Dr. Sandel writes, the health-and-housing nexus is similar to that for lead. The cause of illness or injury, or a key precipitating factor, is very often found in the home and is a result of how the home is designed, built or maintained. Yet the prospect of broadening the lead discussion to these other two issues tends to provoke some of the same political and psychological reactions that stalled action on lead for five decades.

"People point to the magnitude of the problem as the reason for the lack of response," says Rebecca Morley, executive director of the National Center for Healthy Housing. "Add to this that healthy housing does not fit neatly under the auspices of health, housing or environment and you have a recipe for inaction. With 6 million substandard units and strong evidence of the deleterious effects of substandard housing on health, we must find a 'meeting place' for affordable housing and public health."

To make a fusion of public health and housing issues a functioning reality, two things are necessary: establishing with reasonable scientific confidence that poor housing conditions contribute significantly and consistently to poor health for the occupants, and demonstrating (especially to the satisfaction of the housing industry) that rectifying these conditions is feasible, affordable and, in the best case, beneficial to the industry itself.

The first requirement — for research to prove the link between housing and disease, disability and injury — is relatively uncontroversial in concept, although many people disagree about how long action should be delayed in the interest of gathering more research. On one hand, it can be nearly impossible to create new laws or regulations, much less to negotiate voluntary change in industry practices, without convincing evidence that the changes address a real, pressing problem and will work. On the other hand, research takes considerable time and money, and the number of questions that need answering isn't small. How long should problems go untreated while experts design studies and collect data?

By now, as Dr. Sandel and her co-authors have shown, considerable research already exists on the housing-related causes of lead poisoning, asthma and injuries. But demonstrating the effectiveness of any given remedy — that is, that it not only removes the hazard but actually leads to improved health — remains a subject of vigorous and still not-always-conclusive scientific inquiry.

"The most rigorous and reliable kind of test is the randomized controlled trial," says Dr. Sandel, "because it tells you whether the things you are recommending are really as beneficial as you think, and beneficial to whom. But randomized controlled trials are expensive, difficult to conduct and very slow." Not only is it hard to raise money to conduct randomized tests on every theoretical improvement in healthy housing technology, but insisting on such tests could mean waiting years for the results before making any actual improvements in housing practice. "Not everything," she cautions, "has to wait for a randomized controlled trial."

The other broad area of necessary research — on the econometrics of costs and benefits — tends to resonate more with housing providers than with practitioners in public health. Frontline medical and social workers who have seen, firsthand, the ill effects of what they believe are housing-related hazards can grow impatient with abstractly quantitative calculations of housing, medical and social costs and benefits. Some argue, in fact, that tenants and home buyers have a right to reasonably sanitary conditions, and that landlords, builders and sellers should not have to be persuaded to honor that right, but ought to be compelled to do so.

With 6 million substandard units and strong evidence of the deleterious effects of substandard housing on health, we must find a 'meeting place' for affordable housing and public health.

"It's great to prove [the benefits of prevention and remediation] down to the third decimal place," a community leader said recently at a gathering of healthy-housing advocates. "But when you look at the data on asthma triggers — moisture, pests, dust — it seems like a pretty strong correlation.

"If common sense tells us that it's bad to live in wet buildings that are going to rot, and residents hate pests and dust — it certainly affects their stress, if nothing else, to be around cockroaches and dust — don't we know enough to basically say 'Hey, you should not let people live in places that are moldy and moist and have tons of pests!' Are we balancing that thought against the desire to prove everything with dotted i's and crossed t's?"

Yet people engaged in housing and public policy point out that almost any change in housing practice entails some cost, at least initially, and that cost will typically have to be offset by cuts or savings somewhere else — or by higher rents and sales prices. Not only will developers and landlords resist paying such costs if they believe there is no offsetting benefit, but they will have strong grounds for resisting attempts to impose those costs coercively. Regulation can — and, many argue, should — impose practices on industry where public health is at stake, and where market forces alone would not lead to sufficient public protections. But regulations require a degree of political consensus to enact, particularly when the regulated industry remains unpersuaded yet politically powerful. Without evidence that the benefits of a given reform are compelling and that its costs can be offset, "Every new standard becomes an object of resistance and litigation, and you have to prove your case on each one, one at a time," as EPA's Sam Rashkin puts it.

In November 2002, the National Center for Healthy Housing convened a two-day workshop to review the state of knowledge in the field and to help promote health as a prime consideration in housing development. Among the global research gaps and policy issues that participants identified were:

- Research that links particular interventions to expected health improvements. Rigorous, long-term studies will be necessary to determine the efficacy of particular interventions.
- An engaged, broader coalition of researchers, policymakers, funders and advocates to fill data gaps, support needed research and pursue policy change.

Despite the importance of filling these gaps — including raising financial support for the research and allowing time for data to be collected and analyzed — it is still possible to make progress in the meantime, even without conclusive proof behind every desirable change in practice. Some have argued, for example, that the housing industry could be persuaded to adopt more healthy practices voluntarily. Rashkin's program at EPA, called Energy Star for Homes, has made progress in bringing

voluntary change to the housing industry for the sake of energy efficiency, and he is now helping to develop a new, related EPA program aimed at improving indoor air quality. The U.S. Green Building Council, a private industry group, has a similar program aimed at certifying and promoting "environmentally responsible, profitable and healthy practices" in design and construction.[8] This process of voluntary, market-driven change may, together with regulatory action where appropriate, hold one key to changing practices in the housing industry even before the last i's are dotted.

Harnessing Market Forces: The Example of Air+

ENERGY STAR, the EPA's seal of approval for energy-efficient products, started in 1992 with labels on computers and monitors, then quickly broadened to other office products, residential heating and cooling equipment, and major appliances.[9] The next logical step, beginning in the mid-1990s, was energy-efficient housing. The Energy Star label is purely voluntary; companies are free to produce products that don't meet EPA's efficiency criteria, but consumers increasingly value the label and seek out products and homes that feature it. As a result, pressure to meet high standards of energy efficiency now comes directly from market forces. Companies willingly meet consumer demand by seeking and qualifying for the Energy Star label, whose strictest criteria would have been politically difficult or impossible to impose through law or regulation.

The success of Energy Star for Homes soon raised a logical challenge for EPA: If a voluntary labeling system can be effective for raising energy efficiency and improving the outdoor environment, shouldn't something similar be applied to the indoor environment — specifically the quality of indoor air? Given that the most common health problems associated with housing are respiratory conditions,[10] a program that promotes cleaner indoor air would be an important step in incorporating health considerations into the practices of designers and builders.

In 2003, EPA began designing a new product label, to be called Air+. The new label, available through the same market mechanisms as Energy Star, would promote building practices that ensure cleaner indoor air, including techniques that limit moisture, radon and pests; installation of efficient, tight heating and cooling systems; safe ventilation of combustion equipment; and use of nontoxic building materials.

A prototype "Air+" label is to be piloted in a few demonstration sites in late 2004 or 2005, with evaluation and refinements after the first year and a nationwide rollout in 2006. For housing developers, the benefits of the new label will include not only a symbol of quality likely to appeal to consumers, but a reduction in the builders' liability risks from subsequent problems like moisture, basement flooding, mold, and other comfort and quality issues that can cause legal hassles after a sale.

For the affordable housing market, and particularly for older, low-income neighborhoods where the most unhealthy housing is concentrated, the Energy Star/Air+ approach is far from a short-term solution. Not only is the plan some years away from broad application, but like Energy Star, Air+ is most likely to have its first effects on large national builders who are rarely involved in affordable housing projects. Even so, promoting clean indoor air as a standard of quality among high-end builders may well affect the definition of quality throughout the industry, including in lower-cost housing.

Developer John Abrams, whose South Mountain Company produces design-built housing on Martha's Vineyard in Massachusetts, believes that influencing voluntary building practices is actually the best way to achieve smart regulation that eventually affects the whole industry. "In building," Abrams says, "the way regulation happens is that accepted practices gradually — sometimes with coaxing, sometimes without, but always slowly — become codified over time. No matter how hard new ideas are pushed, new regulations lag at least five years behind the actual methods of leading practitioners. So to get the best results, education [of practitioners] and incentives to innovate are far better, especially in the early stages of new practices."

South Mountain Company builds affordable housing as well as more upscale homes, Abrams says, but its health and environmental standards are the same for both kinds of products. The reason is that the company believes these standards contribute to consumer confidence in the company and the quality of its product, as well as a better place to live. Over time, he believes, higher standards of quality in up-market construction come to be accepted by developers — and eventually formalized in building codes — as desirable practices for all price levels.

Companies willingly meet consumer demand by seeking and qualifying for EPA's Energy Star label, whose strictest criteria would have been politically difficult or impossible to impose through law or regulation.

In fact, Rashkin believes that the economic and health benefits of Air+ standards could actually be greater in the renovation of older, lower-priced buildings than in the construction of new homes. "In an older home," he explains, "you have ducts that are leaky to begin with, and older windows that are probably losing more heat and cooling, even compared with a new home that doesn't meet Energy Star and Air+ standards. So installing tight ducts and high-quality windows in that older home will have a much greater total impact [on utility and maintenance costs and on health]. If you're refinancing an existing property and adding the cost of these improvements to the mortgage, you might be increasing the mortgage payments by $10 or $20 a month. But the repair will be making money every month. So the savings will be at least as good, and probably much greater, than in new construction."

Nonetheless, for organizations financing, renovating and building affordable housing today, the slow process of building market awareness and changing practices — much like the equally slow processes of research and regulation — offers a distant solution at best. Those concerned about the health and well-being of low-income families and the physical condition of their neighborhoods reasonably ask whether something could be done sooner to improve healthy practices in affordable housing. Answers to that question are still partial and evolving. But a few have come into greater focus in the last several years — starting, notably, with a fast-growing experiment in New England.

Following the Money: Forming Coalitions for Voluntary Change

SINCE MAY 2000, affordable housing development in New England has been increasingly influenced by an unusual coalition of local, state and federal agencies working in health, the environment, education and affordable housing. The Asthma Regional Council, or ARC, headquartered in Boston, includes some three dozen agencies and organizations, all coordinating their various approaches to controlling and preventing asthma. Among many other things, their efforts have focused on reducing the residential and environmental triggers that cause or exacerbate the disease. As a result, one early and pervasive effect of ARC's work has been to focus more and more of the funding and regulatory decisions of these agencies on residential safety and health, broadly defined. And that is exactly what its organizers had hoped it would do.

Among the coalition's initial 12 objectives was to "create and disseminate guidance for the design, renovation and maintenance of asthma-safe homes." That challenge was met within two years, with the publication of "Building Guidance for Healthy Homes,"[11] an eight-page summary of home-construction and renovation practices that address not only asthma triggers but respiratory health in general. "Building Guidance" covers prevention of moisture and dust, improvement of ventilation, expulsion of combustion byproducts like carbon monoxide and elimination of pests and toxic chemicals. The document was based on a longer booklet for housing professionals called, "Read This Before You Design, Build, or Renovate," which provides explicit instructions for contractors and architects.[12]

These two documents are by themselves an important achievement. Together, they constitute a succinct summary of what it means for housing conditions to be healthy, at least from the perspective of clean air and respiratory health. And they reflect the thought and guidance of some 250 affordable housing practitioners who took part in a series of seminars where healthy-housing principles were outlined and discussed in detail. Yet the greater significance of the documents derives from the fact that they are embraced and promoted by ARC, a group whose members include virtually all the major public funders of housing in the region — particularly HUD, state housing finance agencies, and state and local housing authorities and community development departments.

The ARC strategy, in effect, involves funders of health and affordable housing (among other things) collaborating on a set of healthy construction standards and then incorporating those standards into their own funding decisions. Ellen Tohn, who serves as senior adviser to the council as well as to the National Center for Healthy Housing and other clients, considers the crucial achievement to be moving beyond the usual corps of "true believers" — healthy-housing experts, analysts and advocates — and engaging the people who control the public purse. The strategy, she says, amounts to "following the money."

"The big levers," says Laurie Stillman, ARC's executive director, "are with those who hold the purse strings. If they want a change made in construction standards or the final plans, they can demand it and ensure that it happens. It's only going to happen if someone is willing to fund it or finance it. Where public money is involved, it's possible to go to maybe two to four key people and change their thinking, and then they can champion the issue in their agency. Ultimately, this strategy can affect an awful lot of housing units."

Thanks to a persistent, agency-to-agency marketing campaign by Tohn, Stillman and a dedicated group of state-level affordable housing finance professionals, awareness of the guidelines has grown dramatically. As of mid-2004, just two years since the publication of "Building Guidance," 14,000 units in New England are now in compliance with most or all of its precepts. Another 1,000 units now under development will be in compliance with the guidelines.

For the Asthma Regional Council, success has meant moving beyond the usual corps of 'true believers' and engaging the people who control the public purse.

Another example of influential funders and trade groups collaborating to promote healthier building practices is the half-billion-dollar Green Communities initiative, a landmark investment program to develop more than 8,500 homes according to detailed health, environmental and economic guidelines. Green Communities is sponsored by The Enterprise Foundation, its affiliated Enterprise Social Investment Corporation and the National Resources Defense Council, along with the American Institute of Architects, the American Planning Association and a long list of prominent corporate, financial and philanthropic organizations. The point of the effort is not just to develop a large number of healthy, affordable and environmentally responsible homes, but as Enterprise describes it, to "transform the way Americans think about, locate, design and build affordable housing."

As with other consortia of funders and building officials, the long-range purpose of Green Communities is to change the rules and assumptions by which housing is normally planned and financed. Besides the $550 million it will invest directly — an amount expected to leverage at least as much from other sources — the project will provide training and technical assistance to help developers meet its quality standards and encourage government agencies at the local, state and federal level to "green" their affordable housing programs. In short, like ARC and other such consortia, its aim is to cultivate a body of experience, a record of success and a growing circle of committed funders to pull what Laurie Stillman describes as "the big levers" of housing finance, regulation and policy.

Healthy Housing at the Grassroots

FOR THE PROMOTION OF HEALTHY affordable housing, the involvement of community-based organizations will be indispensable for at least two reasons. First, in many low-income communities, community groups are the most persistent and committed force for affordable housing. In places where depressed housing markets offer little opportunity for profit, community-based nonprofit developers are often the primary source (and sometimes the only source) of new construction and rehabilitation. Second, because they are often organized and led by residents of their communities, grassroots organizations tend to be especially responsive to the needs of local families, including those living in substandard, unhealthy conditions. The typical community group — whether or not it is involved in housing development — is likely to be alert to residents' health problems and the condition of their housing. So even when these organizations aren't aware of the opportunities for dealing with housing and health issues in tandem, they can often be among the most receptive and responsive participants in a healthy-housing discussion. And given that many community-based organizations have become influential in state and local policy discussions, their support can be a key element in raising the profile of healthy housing in public debate and government deliberations.

One example of a community organization acting directly to create healthy housing is Baltimoreans United in Leadership Development, known as BUILD, which is pursuing a huge 1,000-unit development on 50 square blocks in the Oliver neighborhood in East Central Baltimore. Besides replacing a sprawling area of derelict buildings and empty lots, BUILD intends for the development to observe fundamental principles of healthy construction, especially with respect to controlling asthma triggers, and to help residents continue the battle against asthma and other health problems in their homes, in neighborhood clinics and in the schools.

For BUILD, the question of health, and particularly of asthma, was not solely one of philosophical conviction. It is a practical matter of some urgency in Oliver, where one child in five suffers from asthma, a rate roughly triple the national average. "And virtually no one in the public-health field here," *The New York Times* reported in 2004, "doubts that the epidemic is largely caused by such 'triggers' as cockroach droppings, rodent urine and mold, all of which proliferate amid Oliver's decrepit and abandoned row houses." In BUILD's view, the challenges of health and physical redevelopment are inextricable. And both are intimately connected with the performance of the neighborhood school, Harris Elementary. At Harris, where extracurricular activities include an asthma club, no gym class can begin until all the asthmatic students show they have their inhalers in hand.

"So, as the school year ended last week in Baltimore and Harris graduated its fifth graders," the *Times* reported, "the activists in BUILD started going door-to-door throughout Oliver, conducting an asthma census and urging parents to join the campaign" for the new housing development. "If the school system is failing and it's not because of the schools but our children's health," a local minister told the *Times*, "then we have to give our kids a way to do as well as kids who are healthy."[13]

Community organizations can also be among the most effective forces in helping residents address health and safety conditions in their current housing — even when

that housing is not scheduled for extensive remodeling or rehabilitation. One example of this is an effort in Greater Cleveland, where funding and inspections for energy efficiency (carried out under the federal weatherization program) were combined, at little additional cost, with those for asthma triggers and lead hazards. The result was a single plan for improving both a home's energy efficiency and its respiratory and lead safety.

"You can't repair a furnace with lead funds," says Stu Greenberg, executive director of Cleveland's Environmental Health Watch. "And you can't address lead with weatherization funds. But at the time you're in the house for weatherization — it's the same house, same kids and similar kinds of interventions — you can look for asthma triggers, too. And if you combine lead funding, you can use the same inspection to test for lead. We now have a weatherization-plus-lead project, where we take the weatherization inspection and add on health observations by a health department inspector, so the weatherization process is enlarged into health interventions."

At Baltimore's Harris Elementary School, no gym class can begin until all the students with asthma show they have their inhalers in hand.

Another example of community-based solutions for existing housing is a partnership in South Central Los Angeles involving three organizations: Esperanza Community Housing Corporation, Strategic Actions for a Just Economy and St. John's Well Child and Family Center. The three groups have formed the Los Angeles Healthy Homes Outreach Project, focused on a single census tract that L.A. County has designated a "hot zone" for lead poisoning. Of the 1,700 low-income minority households in the tract, the Outreach Project had already reached 1,000 in its first five years, conducting home inspections and health surveys, documenting environmental hazards and delivering information, referrals and recommendations on preventive steps that residents and owners can take to correct health problems. Where conditions violate health or building codes, the Outreach Project works with residents to pressure owners and regulatory agencies into prompt action to correct the problems.

The program works through a network of *promotores de salud*, or community health advocates — residents who have been specially trained in environmental health and housing-related hazards. The *promotores* bring into residents' homes a combination of the science of healthy housing and a tactical understanding of how to get problems fixed. "They do a kind of oral health history with each family," explains Linda Kite, coordinator of L.A.'s Healthy Homes Collaborative. "But in addition to that, there's a second person in the room, taking a dust wipe, paint and soil samples if relevant, measuring moisture with a moisture meter, setting out roach traps and measuring the level of infestation, measuring carbon monoxide levels, and so on. They then correlate all that information with the family's oral health history. We also explain what lead is, the right and wrong way to do repairs, and explain how certain housekeeping techniques and hand washing will help. The family gets a lot of education in about two hours."

The work of the *promotores* not only helps individual families one by one, but provides valuable frontline reconnaissance for policy and advocacy that benefits residents across the city and state. One example was the passage of California Senate Bill 460 in 2002, which authorizes a wide range of state and local authorities to enforce lead-safe building and maintenance practices. The new law grew out of observations by many *promotores* and other community activists that housing and building departments were reluctant to enforce lead-safety laws, even when violations were clearly documented. Many of

these agencies mistakenly believed that they lacked authority over lead, and that protection from lead poisoning was the sole province of health departments. Health authorities, meanwhile, seemed to believe that they, too, lacked authority to intervene unless a resident was actually diagnosed with lead poisoning. Even then, many health officials believed they could intervene only in the particular apartment with a sick resident, not in the rest of the building.

"Everybody was completely confused and thought they didn't have authority," Kite recalls. So with a concerted advocacy effort, backed by a wide alliance of legal, technical and grassroots organizations, "We got them the authority. Actually, they had it all along. But SB 460 made it explicit, so there would now be no questions and no exceptions."

To be certain that the new authority is used effectively, the Healthy Homes Collaborative won funding from HUD to train and deploy "community-based investigators" in a few target neighborhoods. The investigators advise tenants on how to get problems corrected and in some cases, they even examine alleged violations alongside government inspectors. Sometimes, when enforcement agencies are slow or reluctant to act, the community investigators will conduct their own inspections and then present their findings to government agencies to accelerate the enforcement process. Their evidence is technically and legally sound, partly because they have been trained to follow carefully researched assessment protocols developed by the Community Environmental Health Resource Center, a national initiative launched by the Alliance for Healthy Homes.

Meanwhile, the frontline reconnaissance continues. Information on residential health hazards from various sources, including the *promotores*' home visits, is increasingly flowing into a growing Distressed Neighborhood Database, from which information for future intervention and healthy-housing advocacy can be drawn. To help remedy the conditions that *promotores* and others uncover, the Healthy Homes Outreach Project has also begun to train residents for jobs in industries related to health and housing, including work in lead abatement and residential cleaning.

Conclusion: The Challenges Ahead

THE IDEA THAT HOUSING should promote health is among the founding principles of American housing policy and a crucial tenet of the public health movement — though one that has been partly forgotten in later years. That this emphasis now needs restoring is a challenge that calls for adjustment and correction. But it is not, or should not be, a matter of fundamental historical or philosophical conflict for either field. Even many of the economic questions surrounding development and maintenance costs, which do pose some complex choices, have nonetheless proven less intractable than they might seem on the surface. And an honest grappling with costs, both front-end and long-term, can sometimes lead to new ways of both working and thinking that benefit both fields.

Some of that new thinking and collaborative work is now underway. Although the agenda for future action is still evolving, discussions within and between the two fields have now progressed far enough to identify a set of common themes for policy change. These issues include the following:

1. Laws and regulations need to promote cross-pollination and shared priorities between housing and health agencies.

As the experience of L.A.'s Healthy Homes Outreach Project illustrates, public officials in housing and in health often know too little about how each other's issues affect the outcomes of their own work, or even about how each sector's responsibilities intersect with those of the other. Federal, state and local laws, both in health and housing, should clarify and strengthen these interrelationships, require collaboration where appropriate, define healthy housing standards in terms that apply to both systems, and establish the standards as a common priority for both fields. Developers of affordable housing need to be involved, alongside regulators and health practitioners, in establishing sound practice and setting standards. As developer John Abrams puts it, "If we regulate prematurely and poorly, people's creative energy will be devoted to circumvention rather than compliance. Effective change, including effective regulation, comes from communities of interest that start with the innovators, and they in turn interest others." As standards are developed, care also needs to be taken to ensure that additional attention to healthy construction and maintenance does not result in a net loss of affordable housing, whether by raising costs unreasonably, by discouraging production, or both. These are complex considerations, but not unmanageable ones. It is clear, in any case, that lawmakers and executive officials could do much more to focus the attention of both fields on a common problem.

2. Market forces should be tapped wherever possible to encourage healthier practices in housing construction and management.

The launching of EPA's Air+ label presents a first-ever opportunity to market a whole list of healthy-housing practices to private industry in a single package — a process that advocates should follow closely and support where possible. The Energy Star model, on which Air+ is based, has proven to be popular with both industry and consumers, and the promise of a better, more efficient home with measurable long-term energy savings has turned out to be a highly effective sales proposition. But it is not yet

clear whether a similar promise of clean indoor air will catch on as quickly or appeal as strongly to builders and residents. The U.S. Green Building Council has had some success with a similar rating system, called Leadership in Energy and Environmental Design (LEED), which aims at similar goals but with industry practitioners leading the charge. For healthy-housing advocates, the record of LEED and the rollout of Air+ offer an opportunity to track market reaction, learn what key players value about respiratory health in housing, show how investments in healthier housing can result in financial as well as health returns on those investments, and identify barriers of skepticism or resistance that the idea may encounter along the way. In addition, to supplement standards for new housing, a related set of specifications must be developed to address the millions of units that are renovated and remodeled every year.

3. Coalitions of experts and practitioners in health, housing, the environment and economics should be formed in more places and at more levels.

The model of New England's Asthma Regional Council, along with similar groups like the Greater Cleveland Asthma Coalition, suggests that such interdisciplinary efforts can have a marked effect on how health principles are incorporated into regional housing policy, design and construction. At the national level, the Green Communities initiative offers a national model for linking national funders, environmentalists and industry groups around direct investment in healthy, environmentally sound affordable housing. The Alliance for Healthy Homes and the National Center for Healthy Housing represent seminal nationwide collaborations on research, practice, policy and advocacy. Interdepartmental consultation among federal agencies is also gaining strength, but is still tentative in many respects. To make it easier for these various kinds of cross-disciplinary conversations to jell and for joint efforts to proceed, the National Center for Healthy Housing recently created the National Healthy Homes Training Center and Network with funding from HUD and the CDC. Besides creating a forum for cross-training and professional exchange among the participants, the center promotes the ongoing introduction of new research findings into public health training and practice. Leaders of all these organizations point out that spurring collaborations and making them effective call for more than just organizing and diplomacy. An effective working group needs funding to get started: money for staff to recruit members and organize meetings, for technical consultants to present issues in writing and point discussions toward effective solutions, and eventually for an expanded budget for a full organization. Translating the group's deliberations into adopted public policy and real frontline practice is not part-time work, and in the long run it cannot be done by a single staffer or occasional consultant.

4. Nonprofit development organizations and intermediaries can do considerably more to develop and advocate for healthy housing.

Mounting evidence suggests that residential health requires many kinds of interventions at once, including new construction, rehabilitation, more targeted repair programs, improved property maintenance, information and training for residents and coordination with health care providers. The experiences of BUILD, Environmental Health Watch and the Healthy Homes Outreach Project, among others, demonstrate how effective local and regional nonprofit groups can be in blending and delivering these forms of assistance. But few such organizations are yet mobilized around healthy-housing goals, and many continue to share the reservations of private industry about the first costs of healthier practices, fearing that those costs may drive up rents or sales prices. National intermediaries in community development, as well as other funders and

sponsors of nonprofit housing and health organizations, can play a leadership role (and perhaps provide some funding stimulus) to help advance the discussion, address the economic concerns and establish standards of healthy practice among this key constituency.

5. More research is needed into current healthy housing efforts to determine which construction and maintenance techniques are the most cost-effective.

Although much recent research has strengthened the scientific connection between housing conditions and health, there is still much to learn about what methods for correcting housing-related hazards are the most effective and the most affordable. Such research will be critical for advocates seeking new laws and regulation, for coalitions trying to forge a common agenda among health and housing agencies, and for housing professionals in designing and building new or renovated units. In studying ways that housing affects health, researchers will need to examine both the direct effects, involving the material condition of the home and its affordability, and indirect effects like proximity to work and services, the condition of the neighborhood and its environment, the sense of community and shared values, and so on.

6. Action on healthy housing need not wait for extensive new research; enough is known for many kinds of discussions and new practices to proceed.

Research has already solidly reinforced a number of core principles, most particularly that a healthy home is one that's dry, well-ventilated, comfortable, energy-efficient, free of pests and physical hazards, and safe from harmful levels of toxics, allergens, dangerous gases and other contaminants. While scientists continue to examine the implications of those standards and to determine the most effective, efficient and affordable ways of achieving them, action should still progress on promising activity now underway. That includes models described in this report, all of which would benefit from wider replication, even as researchers continue to study their effects.

The prospect of a reunion between the forces of affordable housing and those of public health is no longer as remote or as theoretical as it seemed in the 1960s and '70s, before anti-lead advocates began scoring their first major victories. Although disputes over lead poisoning and prevention still flare from time to time, progress on that issue, and increasing discussion on related issues of asthma, indoor air quality and residential safety, now engage the attention and interest of policymakers more readily, with a rising prospect for further action. But to make that prospect real, concerted effort among housing and health practitioners and researchers will need to escalate at the national, state, local and neighborhood level. In the meantime, builders, regulators and community organizations still have much more to do to put into wider practice the already-established principles of healthy housing that have taken nearly a century to emerge.

Endnotes

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13. All *New York Times* quotations in this section are from Samuel G. Freedman, "Beyond Public Health: Asthma, Like Poor Housing, Becomes an Issue in the Schools," *The New York Times*, June 30, 2004, B-8.

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