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INTRODUCTION

Foundations

“A house is a machine for living.”
—Le Corbusier, Vers une architecture

The Lustron Corporation was once the largest and most completely industrialized housing company in the history of the United States. Beginning in 1947, Lustron manufactured porcelain-enameded steel houses in a one-million-square-foot plant on 106 acres of land in Columbus, Ohio. At peak production the plant used more electricity than the entire city of Columbus. Just one year after its incorporation, Lustron’s capital investment exceeded that of the next forty largest housing firms. With nearly $40 million in federal funds and support from the highest levels of government, the company planned to produce 100 houses per day, each neatly arranged on specially designed tractor-trailers for delivery throughout the nation. Though radical in its use of porcelain-enameded steel, the Lustron house—a one-story, gabled-roof ranch with a bay window and side porch—looked much like other postwar-era dwellings. Behind its traditional facade, however, lay hopes and expectations for a new era in American housing.

The unprecedented scale and scope of the company’s operations attracted intense scrutiny. Years of interest and anticipation regarding the industrialization of the house construction process focused attention on Lustron’s strategy, structure, problems, and prospects. At last, the nation would see if a large, highly capitalized firm could usher in a new age of affordable mass-produced housing. The efficiencies of continuous production, integrated manufacturing, and economies of scale promised to lead the American housing industry away from its decentralized, undercapitalized, and inefficient past toward a level of rationalization and organization found in most other sectors of the industrial economy. As Senator Ralph Flanders of Vermont observed in 1947, “if Lustron doesn’t work, let us forever quit talking about the mass produced house.”

Indeed Lustron “didn’t work,” and in 1951 collapsed amidst foreclosure and bankruptcy proceedings. The company had produced only 2,498 houses. Lustron’s brief
and often tumultuous existence reflected the expectations, frustrations, triumphs, and follies of American society in the immediate postwar era. Fresh on the heels of a victory won as much on the production line as on the battlefield, Lustron’s plans to revolutionize the housing industry seemed well within the context of American assumptions about industrial progress and the promise of a prosperous future. Two of the company’s national advertising slogans—“The House America Has Been Waiting For” and “Lustron: A New Standard for Living”—effectively expressed the nation’s expectations for accelerated progress and for the idea of a house as a “just reward” for a successful fight to defend the American way of life. As historian John Morton Blum observed, “the house and all things that went into it, ‘the American home,’ best symbolized of all things material a brave new world of worldly goods.”

While millions of American families realized their dreams of home ownership in the decades after the war, Lustron was able to fulfill only a small fraction of those dreams. Lustron’s founder, Carl Strandlund, intended to become the Henry Ford of housing, yet ended up most often compared with the failed automotive entrepreneur Preston Tucker. Like the Tucker Torpedo, the Lustron house was born of postwar optimism and incorporated innovations that foreshadowed future trends. Lustron was far more significant, however. The company’s failure marked a watershed in the history of the American housing industry. Although people did not “quit talking” about industrialized housing, enthusiasm for its role in the transformation of the housing industry at large markedly waned.

The Lustron saga is interwoven amidst a number of significant threads of the American experience and represents a logical extension of technological, organizational, and architectural trends evident in the housing industry since the late-nineteenth century. Lustron’s product—the single-family house—holds a central place in our culture and over the years has been as much a focus for intellectual construction as in the physical sense. From the beginning Americans have consistently wrestled with how best to think about housing as well as how to build the best house. The nation’s industrial maturity throughout the nineteenth century altered long held conceptions of house, home, and community, forcing issues surrounding the transformation of housing forms and settings to the forefront of social concern. Since then, some of the best and brightest minds in the nation have considered how house, home, and community could be reconstructed in light of a fundamentally changed society. The evolution of the philosophy and practice of American housing is consequently a very messy story, full of economic, political, and social entanglements woven deeply into our institutional fabric as well as into our psyches.

Disentangling the threads is no easy task. The average single-family house represents a complex web of relationships and transactions beginning with the moment of its conception and potentially extending beyond its physical existence. The housing industry
has both reflected and fostered this complexity. A patchwork of small-, medium-, and large-scale enterprise operating under countless local variations and employing a range of modern and ancient methods and materials, it has seemingly defied the forces of industrial progress for more than a century. For those with the means, it offers a level of product customization based on individual tastes and expression that few industries can match. For those without the means to engage it at its best, it has been far less responsive. However, in the period leading up to Lustron’s genesis in the immediate post–World War II period, social, economic, and political forces coalesced to open a number of intriguing possible alternatives for those Americans who found decent housing an elusive prospect.

Lustron’s “magnificent failure” reveals frustrations as well as opportunities created by the housing industry’s distinctive evolutionary path. The realization in the late-nineteenth and early-twentieth centuries that the housing industry would not follow a typical pattern of rationalization, consolidation, and technical innovation in service of the mass market generated widespread concern in both the public and private sectors. Considerable intellectual and practical talent was marshaled to address a series of housing crises that initially focused on the working classes and eventually expanded to include a broad segment of the American population. Frustrations with an industry so disorganized and unresponsive to the housing needs of a modern industrial society gave rise to a reform impulse that initiated an important national discussion about housing and eventually drew the federal government into the equation.

Like the industry itself, governmental involvement was often neither rational nor well organized. A patchwork of engagement and disengagement, cooperation and compromise, rhetoric and genuine reform, federal housing policy both provided opportunities and raised obstacles for the housing industry. The relationship is particularly intriguing, for it demonstrates the interdependency of the public and private sectors as policy makers and capitalists attempted to create a coherent structure that would enable greater numbers of Americans access to the best that the housing industry could offer. Lustron was one place where public and private interests intersected in the late 1940s, and it remains an excellent example of the complex character of interactions between public policy and private industry in the pursuit of social improvement. The relationship paralleled in microcosm the range of emotions and actions evident in the national debate over housing policy and practice in the decades prior to Lustron’s founding.

Reconciling a deep-seated belief in the sanctity of private property, free enterprise, and the ideal of home ownership with the reality of a housing system that failed to extend the benefits of decent shelter to millions of American families has confounded generations of the nation’s best thinkers. The intricate character of product, process, and setting has made comprehensive reform difficult. Indeed, it is hard to ask a
simple question about housing. Questions such as “Where do you live?” or “Where do you want to live?” can contain volumes of meaning for both the questioner and the respondent. In the late 1940s the Lustron Corporation asked America where it lived and whether it would like to live in a new kind of house, one made of porcelain-enameded steel and produced in one of the largest factories in the nation. Millions answered yes—but only several thousand actually live in one today. What happened? To answer that question with any satisfaction requires some entanglement in economic, political, and social discussions surrounding the development of the American housing system during the first half of the twentieth century.

An examination of the physical provenance of Lustron’s product, particularly interest in applying industrial methods to its construction and deployment, provides an opportunity to unite the multifaceted dimensions of housing reform with political and market realities. A number of possible technical and productive paths lay before the housing industry in the early decades of the century, one of which was the manufacture of an entire house in a factory setting. Factory-made housing involved shifting as many elements of housing construction as possible from the building site to the factory. The benefits of this approach seemed to hold the answer to a number of vexing problems. Although conventional builders sometimes employed systematic production techniques in the construction process, the house itself was still largely “manufactured” on-site. Even the “mail order” houses found in the catalogs of Sears, Roebuck & Co. and Montgomery Ward in the early-twentieth century required conventional fabrication and assembly methods to construct the house on a lot. In contrast, the factory approach implied a total restructuring of the American housing industry. Applying economies of scale to housing production meant increased affordability, better quality through precision engineering and manufacture, continual production regardless of weather conditions, and the flexibility to introduce new innovations and amenities in a short period of time.

The idea of factory-produced housing also satisfied frustrations with the industry’s seemingly disorganized and irrational structure and held the promise of aligning the industry with the productive ideal of other “modern” industries. The prospect of houses produced as readily and affordably as automobiles was a seductive vision, and it attracted proponents and evangelists from far and wide. For architects the allure was based in part on the intellectual and creative challenges inherent in understanding the dimensions of a complex integrated system with transformational social potential. But it was not merely the dream of a small segment of the architectural profession. The industrialization of housing captured the imagination of engineers, manufacturers large and small, industrial designers, construction firms, real estate developers, venture capitalists, labor leaders, government policy makers, newspaper editors, and the American public. Widespread calls for a factory
solution for “the industry that capitalism forgot” became an early-twentieth-century corollary to the hand wringing of the post–Apollo era when many Americans asked If we can put a man on the moon, why can’t we meet other social, political, and economic challenges? It seemed unbelievable that Americans could not find a way to apply sophisticated mass production methods to the housing industry to create, in Henry Ford’s words, “a productive organization that delivers in quantities a useful commodity of standard material, workmanship and design at a minimum cost.”

Yet a productive realignment of the housing industry was far more complicated than first imagined. Such a transformation assumed major technological advances and a shift in complex economic relationships in the housing market. The decentralized character of the industry made any type of unifying vision extremely difficult to conceptualize, let alone implement. Diverse and parochial, insular and hidebound, the industry was nevertheless politically, socially, and economically connected to American life in fundamental ways. Indeed, the nature of its structure had defined and reflected particularly American values throughout its existence. This provided a tremendous reserve of practical power and philosophical protection to forestall those who would attempt to impose an alternative vision for the industry on any grounds other than its own economic self-interest.

However, the appeal of factory-produced housing on grounds of economic efficiency and political expediency was undeniable in the early part of the century. It fit well within the progressive impulse for rationalization and systematization in economic and social life. Early in the century, architects and manufacturers viewed prefabrication as a method to improve the efficiency of the traditional house construction process by supplying standardized components at a reduced cost. As the technology matured, the industry could then begin to compete with conventional construction by offering affordable and higher-quality houses to the “entry level” market segment. Finally, building on manufacturing and marketing savvy, prefabricated housing firms could eventually reinvent the entire housing industry by rationalizing the production of houses just as American business had done in other economic sectors.

To a federal government increasingly drawn into housing reform by the inability of the housing industry to serve the needs of an expanding industrial society, mass production of housing in a factory setting seemed worthy of serious consideration as a policy objective. The allure of “dramatic” technology, especially one based on rational organization, was understandable. It was a high-profile idea, easily explained via the automotive analogy, and it seemed so wonderfully modern. The factory was a powerful metaphor for modern life and a key to the promise of a more prosperous future based on increased material consumption. Just as factories provided new and exciting products for Americans to display in and around their houses, why not subject the house itself to the same consumptive paradigm?
Although the process of housing construction seemed amenable to industrialization, the setting proved far less adaptable. Concern over setting—how a house fits into its physical and social surroundings—emerged in the early part of the century as a key component of reform ideology. Housing reformers came to embrace the community development model, an approach that emphasized the totality of community, including streets, parks, shopping, religious life, and additional social amenities as essential elements for a suitable living environment. The locus and form of the communitarian ideal were inherently suburban, and in the early decades of the twentieth century, economic forces, federal policy, and social influences coalesced to encourage the expansion of suburban development and identified the ownership of a single-family house in a suburban setting as an American ideal.

Although suburbs had existed nearly as long as cities themselves, the prospect of uniting the benefits of the suburban lifestyle with an expanding middle-class mass market offered an intriguing solution to America’s housing dilemma. As the federal government became more involved in housing reform after the start of World War I, it pursued policies that established suburbia as the preferred locus of all things American. Despite significant direct involvement during the war, however, the return to normalcy in the 1920s meant that it would be left to the private housing market to populate suburbia with affordable housing. When this did not materialize, interest in an industrialized approach increased. While it was easy to envisage the mass production of well-conceived and affordable housing for the mass market, it was unclear how such ventures would be financed and organized, which materials would best lend themselves to mass production, how consumers would finance the purchase of a factory-made house, and how such housing could be suitably situated in communities, as well as hundreds of other unknown questions and considerations.

By the time Lustron emerged on the scene, the housing industry had taken significant steps toward industrialization, though its progress was not readily apparent to the average American homebuyer. The industry had not been static, but it had yet to achieve the productive potential and resulting affordability necessary to serve a budding suburban mass market. Aided by public and private initiative, industrial advancement had progressed along several parallel fronts. A steady convergence of technologies and processes was underway, and as the evolution progressed the federal government grew increasingly interested in a production-oriented solution to the nation’s persistent housing problem.

The industrialization of housing component production represented the “hidden rationality” of the industry. From the mass production of nails and glass to the increasingly sophisticated prefabrication of moldings, doors, staircases, wall units, and plumbing stacks, efficiencies and cost savings inherent in this type of productive refinement benefited the entire housing industry. Additionally, the use of industri-
alized processes at the construction site became increasingly prevalent. Site prefabrication, as it came to be known, applied organized systems of production to an entire housing development. Creating an “outdoor factory” where teams of workers focused on one task across the site promised to increase production, reduce labor costs, and enable builders to purchase materials in large quantities. Site prefabrication provided a powerful model of industrialization that held great potential in serving a mass market with quality housing and affordable cost.

Yet even site prefabrication seemed too provincial an approach to the industrialization of the American housing system. Certain that the housing industry should follow the automotive industry’s path of centralized development, proponents of factory-built housing argued that only large, highly capitalized firms with sufficient leverage over raw material costs and tremendous productive capacity could provide decent and affordable single-family housing to the American mass market. The nation needed high volume production from coast to coast, and only factory-built housing could solve a pressing social need by bringing organization and rationality to the field of residential construction. Beginning with a small chorus of voices in the early-twentieth century, calls for a productive realignment of the American housing system increased dramatically in the following decades, finally to reach a crescendo in the post–World War II era.

The triple crises of depression, war, and the veterans’ housing shortage of the immediate postwar era provided political legitimacy and economic refuge for the idea of factory-produced housing. These disruptions exposed the inefficiencies and shortcomings of the traditional housing industry for all to see and led Americans for the first time to call for an activist federal role in seeking alternatives to the status quo. From restructuring the home finance credit system, to seeding the private construction market through government entities such as the Reconstruction Finance Corporation, to building communities for low-income citizens or housing for defense workers, federal involvement in the housing market during the 1930s and 1940s shook the housing industry to its core and provided a window of opportunity for alternative approaches to residential construction. Included among the range of responses of the federal government was an increasing interest in industrialized housing and related technologies. Throughout the 1930s and especially during the war, federal housing programs supported the growth and development of what was popularly known as the prefabricated housing industry.

A desire for stability and predictability in the midst of social and political chaos perhaps made the idea of prefabrication more palatable. In the search for an “architecture of order,” the prefabricated system provided a logical paradigm that affirmed the power of industry, the advancement of technology, and the democratic benefits of market capitalism. Initially a loose conglomeration of enterprising individuals, startup firms, and grant-funded researchers, prefabrication moved from what
one observer termed “a state of mind” in the early 1930s to a “movement” by the end of the decade that had garnered significant commercial and governmental interest. The energies expended on prefabrication were indeed impressive. Architect and educator John Ely Burchard commented on the scope of effort: “Here is a galaxy of well-known names; here are the fruits of incalculable hours of thought and research by able men; here are ideas that cover in principle almost everything that a human being might conceive in the field of redesign of house structure.” The well-known names who tackled prefabrication during the 1930s included eminent architects such as Wright, Gropius, Le Corbusier, Neutra, and Fuller; prominent industrialists such as Owen Young, Foster Gunnison, and Howard Fisher; corporations such as U.S. Steel, Johns-Manville, General Electric, and Celotex; nonprofit organizations such as the Russell Sage Foundation and the John B. Pierce Foundation; universities such as Purdue and the Massachusetts Institute of Technology; and government agencies such as the U.S. Forest Products Laboratories, the National Bureau of Standards, the Federal Housing Administration, and the Tennessee Valley Authority.

The combination of crisis and reaction in government and the prospect of commercialization presented an unprecedented opportunity for an alignment of interest between government and industry. Through depression and war, interest in prefabrication in particular and the industrialization of housing construction in general moved gradually to a more central position within federal housing policy. After the war, the acceptance of the idea that production technologies could solve the perpetual American housing crisis as surely as it won the war is well reflected in the federal government’s support of the Lustron Corporation as an exemplar of the factory-built approach. The concentration of such a large amount of support and anticipation around Lustron makes it a useful vantage point from which to assess the interplay of technological and social forces, the influence of economic and political processes, and particularly the role of the federal government in the search for housing solutions.

Interest and support of housing technologies during this period seemed to represent the brief emergence of a “middle tier” of federal housing policy. Between the indirect but essential support for the housing industry through the home finance credit system on one hand, and direct involvement in the construction of housing on the other, funding the development of production-oriented housing technologies represented an alternate path. Neither of the two tiers proved entirely satisfactory. Traditional builders welcomed indirect support but bristled at the idea of government competition—even if the government intended to serve markets they had abandoned. On the other hand, housing reformers welcomed direct federal involvement in community building, especially for low-income Americans, but realized that the government credit guarantees still left a decent house beyond the reach of a great many American families.
Government support for industrialized housing might at once provide incentives for private industry but direct its development in ways beneficial to all citizens. Improved productive technologies might bridge the housing gap by lowering the total costs of housing in all market segments. This addressed better housing issues on a wholesale level and held the promise of gradually lessening the federal government’s direct role in the housing industry by improving the private sector’s ability to serve broad markets. Federal support for new housing technologies promised to reduce total housing costs for entire classes and groups of citizens further down the economic scale. This represented a course somewhere between commercial and social Keynesianism and assumed that the incubation of promising housing firms would advance specific public policy interests as well as generally encourage the expansion of one of America’s core industries.

With prefabrication economically nurtured and politically legitimized, support for a factory-produced housing venture such as the Lustron Corporation seemed a logical approach to meet the challenge of an acute housing shortage following the demobilization of the armed forces during 1945 and 1946. Optimism surrounding prefabrication appeared well placed. Prefabricated housing firms built approximately 200,000 units during World War II—nearly all, however, were demountable, or impermanent, structures for government housing projects adjacent to defense plants and installations. Although far from ideal, the industry had shown promise, and many articles in business and architectural publications during the war predicted a rosy future as the industry developed more sophisticated products and more efficient production processes. The technological allure of prefabricated housing laid the foundation for its prospective economic and political benefits. With the promise of continued federal assistance in obtaining capital, raw material, and markets, a revolution in housing appeared imminent.8

Lustron first intersected with federal housing policy as the Truman administration wrestled with a shortage of “decent” housing for veterans returning from World War II. Veterans’ organizations led a politically powerful lobby that resonated throughout the country and put tremendous pressure on the federal government. The administration responded with the Veterans’ Emergency Housing Act (VEHA), which provided numerous financial incentives for manufacturers of prefabricated housing. Born out of the aims of the VEHA and stoked with capital from the Reconstruction Finance Corporation (RFC), Lustron ultimately received nearly $40 million in government loans to pursue the production of factory-made houses—far more federal assistance than any other prefabricated housing firm of the era.

On one level, the willingness of the federal government to support Lustron reflected a continuation of wartime industrial policy. The veterans’ housing crisis was fundamentally a production issue, and the government possessed many effective, war-proven
mechanisms to spur industrial production. However, while there was little doubt that the economy would eventually accomplish the task, the political pressures and social forces of the immediate postwar era heightened interest in more dramatic technological solutions. The cause of homeless veterans mobilized a wide range of political interests whose representatives descended on the Truman administration with significant force. The connection between home ownership for America’s heroes and the maintenance of the American way of life was clear. The media trumpeted the cause with great vigor and even raised the specter of homeless veterans agitating for social upheaval as in Europe after the Great War. While policymakers did not anticipate a revolution, they felt intense pressure to respond to the crisis and quickly embraced an approach that combined “socialistic” elements of direct federal aid for housing but tempered within the context of wartime industrial planning.

But who would receive the economic bounty of crisis? Conventional builders were too slow and wedded to an old-fashioned production system. The attraction to prefabricated housing nurtured during the war now turned more serious and set the stage for a new partnership. Lustron’s appearance reflects a combination of technological innovation and engineering expertise driven to the marketplace by entrepreneurial and organizational talent. It also provides a window into an area of entrepreneurship that relies on an activist government to create opportunities for industries, firms, and individuals in the furtherance of public policy goals. Historians in recent years have demonstrated the powerful and often overlooked significance of this type of commercial relationship. Successful partnerships between government and industry to serve national goals became a fundamental part of federal strategies to lift the nation out of the Great Depression and win the Second World War. Infrastructure improvements such as dam and road building during the depression, and the unprecedented alliance between government and industry in the prosecution of the war, evidenced the power and potential of government entrepreneurship.

The housing industry entered into partnerships with the government to serve the need for housing in a number of New Deal programs, but when the federal government assumed a major role in providing housing to support an unprecedented internal migration that accompanied military mobilization, interest in housing technologies increased dramatically. The benefits of government entrepreneurship resonated within the prefabricated housing industry. The industry hoped that government capital, market guarantees, and other forms of federal largesse would transform prefabrication from a peripheral commercial development into a major force in the rationalization of the housing industry.

Lustron’s origins reflect an alignment of interests between a company with an innovative housing technology and the emerging policy goal of providing housing
to a greater number of Americans by promoting the productive capacity of the nation. As industrialist Henry Kaiser capitalized on the federal government’s infrastructure and defense needs during war and depression, so Lustron intended to capitalize on the acute postwar housing crisis. In 1946 and 1947, providing affordable housing to returning veterans became the goal to which Lustron attached its commercial aspirations. Though reticent to publicly criticize efforts to provide housing for veterans, many policy makers questioned whether the nascent prefabricated housing industry could deliver on its promise of mass-produced housing without extraordinary levels of government support. In times of economic and political crisis, federal support for firms building infrastructure or the weapons of war seemed logical and necessary. Yet how far could the relationship be extended?

Connections between the public and the private sector characteristic of government entrepreneurship often prove mutually beneficial, especially when accepted by the public as a reasonable strategy for the implementation of desirable policy goals. For example, government loans to business through the Reconstruction Finance Corporation had aided economic recovery during the depression and financed a significant portion of America’s war production effort. However, the question remained whether the nation would accept the same structure in peacetime to fight the “war” for affordable housing, especially for returning veterans. The experience of the Lustron Corporation in particular and the prefabricated housing industry in general reflects the boundaries of midcentury government entrepreneurship. In contrast to the defense and infrastructure industries, connections to the public interest proved less concrete and far more susceptible to controversy when a more general social need such as housing became the focus of governmental efforts.

Unlike conventional construction where builders could enter the market with little up-front capital, prefabricators needed a large initial investment for plant and equipment as well as for financing and distribution systems. Private investors frequently balked at providing the capital necessary to realize the benefits of mass production. The infancy of the industry, the scale and complexity of the production process, and uncertainties surrounding marketing and distribution discouraged many venture capitalists. Further, fears that new technologies, methods, and materials might destroy much of the value of an initial investment in one type of production system accentuated financial barriers to entry.

Yet the reluctance of private investors failed to discourage supporters of prefabrication in the Truman administration. The limits of government entrepreneurship in the social realm fostered a lively debate within the administration and in society at large. The controversy mirrored the larger tensions surrounding continued governmental activism and centralized economic control that undergirded broad political divisions in postwar society. Supporters argued that the successful production
and marketing of factory-made houses deserved federal support because it served a desirable social goal. The reluctance of risk-sensitive private capital markets to provide sufficient resources to this capital-intensive industry demanded that the government step in and fill the gap. Advocates claimed that governmental support of Lustron would “jump start” the entire industry, which could then turn to the private market for its subsequent capital requirements. It might also further the cause of industrialization across the entire housing industry and thus benefit all Americans.

Opponents of federal support for the prefabricated housing industry immediately expressed a number of reservations. Foremost, they questioned the wisdom of providing large amounts of public funds to an unproven industry and argued that federal capital allocation to industry during peacetime undermined the free market and stifled entrepreneurship. While the RFC had served a useful purpose during depression and war, its continued existence promoted a “creeping socialism” in American life. In their view, support for prefabricated housing, especially the large amount of government capital invested in Lustron, reflected a de facto government “takeover” of the industry. Lifting the mantle of free competition, conventional builders and smaller producers of prefabricated housing fervently objected to high-level governmental support for Lustron. Many asked how any other firm could compete against Lustron when the government had subsidized its huge productive capacity and national marketing campaign. These groups also expressed fears that the government would protect its investment in the company by granting it allocations of scarce materials or favoring the company for military and defense housing contracts.

The ongoing controversy and constant pressure of the political spotlight compressed Lustron’s window of opportunity and heightened expectations for immediate success. The company made many mistakes and miscalculations typical of a new firm in a young industry, yet none proved so damaging as the belief that the government would maintain its support until the company outgrew its initial difficulties. As criticism mounted and political pressure became too great, the government abandoned Lustron as quickly as it had embraced it. Unable to compensate for the withdrawal of government backing, the company soon collapsed. This study argues that Lustron failed because it exceeded the acceptable limits of government sponsorship during the immediate postwar era by extending the business-government partnership to serve a peacetime social need, a goal the American public ultimately failed to support.

Lustron, then, was a stillborn enterprise. It began with the goal of providing affordable single-family dwellings for wage earners—the mass market for mass production. Initially unable to provide a house that most wage earners could afford, critics of government policy were quick to declare the company a failure. Lustron survived the embryonic stage of development only to be abandoned as it was discovering how to access the market segment that rationalized large-scale manufacture. Its associa-
tion with the administrative problems and political entanglements surrounding the RFC hastened its demise. Ironically, by 1950 Lustron had proposed creative solutions to many of its startup problems and stood ready to offer a new range of houses for a broad market segment. But the window of opportunity had disappeared in the face of mounting political pressures and the ability of conventional builders to increase production. In the wake of Lustron’s failure, the government’s interest in a middle-tier policy based on technological and commercial cultivation of industrialized housing all but disappeared.

The web of political controversy enveloping Lustron tended to accentuate its mistakes and mask its substantial accomplishments. For a brief moment, the company reflected the can-do optimism and spirit of accomplishment of wartime America extended into the postwar future. It appeared at the right time with a ripe idea—and with an engaging person to lead the revolution. Carl Strandlund, Lustron’s founder and president, was a brilliant engineer with numerous patents to his name and awards for innovations in war production. Strandlund worked for the Chicago Vitreous Enamel Products Company, a leading manufacturer of enameling products and a pioneer in the use of porcelain-enameled steel panels for commercial construction. Mr. Strandlund went to Washington in 1946 in search of steel, a tightly controlled commodity, to facilitate expansion of his firm’s enameled-steel building division. Officials at the Civilian Production Administration, the peacetime successor to the War Production Board, literally laughed at his request. However, when Strandlund suggested that the same technology could be used to mass-produce houses, government interest rapidly increased.

Strandlund seemed well suited for the role of government entrepreneur. He was in a unique position to introduce a promising idea with a sound technological base into the entrepreneurial climate created by the federal government’s interest in housing production. Although initially a political neophyte, Strandlund learned quickly and used his dynamic personality to elicit support from the administration, Congress, veterans’ organizations, and, perhaps most significantly, the national press. Strandlund possessed traits that made successful government entrepreneurs: the ability to work outside formal bureaucracy, a strong “public friendly” personality, and the skill to cultivate positive media attention. The linkage of personal skills, technological feasibility, and public policy goals put the Lustron Corporation in business.

The company faced the same challenges of manufacturing and marketing that had confounded earlier attempts at mass production of affordable housing. However, Lustron made significant progress toward the alleviation of a number of traditional barriers
facing the industry. Factors of scale and scope alone demonstrate the company’s significance to the history of the American prefabricated housing industry. The scale of Lustron’s operations far exceeded any previous, or subsequent, prefabricated housing venture. At a target production level of 100 houses per day, the company would easily have been the largest producer of housing in the nation. In 1947 only 854,600 single-family (nonfarm) dwellings were produced. That one firm could potentially provide such a large percentage of the nation’s housing output indeed evidenced the dawn of a new era in the housing industry.

Lustron’s large capital resources and resulting financial power also represented a significant departure from previous patterns of development in the prefabricated housing industry. Before Lustron, most firms were either small, undercapitalized, entrepreneurial ventures, or peripheral divisions of large companies that sought to develop housing applications for their core products. Contemporary observers most frequently cited undercapitalization as the major barrier to success in the industry. Albert Farwell Bemis, an industrialist, author, and prominent evangelist for prefabrication during the 1930s, noted that large capital investment in mass-production technology had revolutionized all major industries and would certainly do the same for housing.

Lustron’s significant financial resources, like those of other large manufacturers, enabled it to “start big” and exploit all the advantages that size brings to the marketplace. The use of steel as a construction material also facilitated the attainment of economies of scale. Lustron introduced mass-production machinery such as presses, punches, welding apparatus, and enameling ovens to the housing industry. The company’s application of proven commercial building technologies to the production of single-family dwellings also represented a key element of its competitive strategy. The technology and manufacturing expertise employed by Lustron evolved from Chicago Vitreous’s production of porcelain-enameded “art deco” building facades popular in the 1930s, and from the porcelain-enameded steel architectural system developed for the construction of gasoline service stations.

Lustron’s commitment to integrated manufacturing and large investment in production technology reflected its desire to implement a “countrywide production line,” where rationalization and organization of the house construction process extended from raw material handling to the final processes of on-site assembly. The company introduced a number of innovations to achieve that goal. Lustron’s factory was a model of efficiency and automation and took full advantage of advancements in the machine tool and material handling industries during World War II. With the assistance of a prominent industrial engineering firm, Lustron created what Fortune magazine called “a marvel of American manufacturing ingenuity.” Continuous-process steel fabrication, multilevel welding operations, and ovens capable of processing 12,000 square feet of enameded steel per hour enabled a synchronization of production that
reduced the need for warehousing raw materials. In fact, Lustron’s operation was much like the just-in-time inventory control strategy currently employed by many manufacturers. Lustron also integrated its distribution system into the production process. With the assistance of a transportation firm, the company designed a new type of tractor-trailer that transported the completed house from the factory to the erection site. In the last phase of production, the trailer became part of the material handling process as completed parts moved from various assembly lines directly onto the trailers in reverse order of their need at the assembly site.

Another important aspect of Lustron’s production strategy was its relationship with organized labor. Represented by the American Federation of Labor (AFL), the building trades had long been suspicious of prefabrication because it appeared to threaten local autonomy and control of the house construction process. From the beginning, however, Lustron cultivated a close relationship with the national leadership of the AFL. Consequently, the company and the AFL negotiated a comprehensive labor pact that guaranteed the exclusive use of union labor at the factory and at erection sites. The Lustron/AFL agreement became a model for the prefabricated housing industry and demonstrated labor’s willingness to support new approaches to housing construction.

Lustron’s strategies to meet the challenges of producing factory-made houses represented only one element of success. Technological innovation and manufacturing expertise put mass production within reach, but did little to address the impact of prefabrication beyond the shipping dock of the factory. The relationship between firms and their social environment, particularly in the interplay of technology and the marketplace, is aptly demonstrated by the experience of the Lustron Corporation and the prefabricated housing industry. The technologies that promised to solve the housing crisis and rationalize a “backward” industry proved incredibly alluring, yet they raised many issues that spoke directly to American assumptions about housing—assumptions nurtured by decades of tradition.

As the industry moved from component prefabrication toward the production of an entire house in a factory, the process gradually began to separate the house from its environment. A singular focus on prefabrication as an industrial process within a factory precluded consideration of its effects on such key issues as marketing, distribution, financing, public acceptance, and the placement of prefabricated houses in neighborhood and community settings. Integrating both the process and the consequences of prefabrication proved a difficult task, for it revealed a key tension between the need for standardization to accommodate mass production and the forces impeding standardization in the marketplace. Lustron’s responses to the challenges created by mass production and mass marketing of its house provide insight into the interplay of economic and social forces.
The company’s recognition of and relation to the major postwar trend of suburban development demonstrates tensions that frequently arise between technological innovation and its subsequent social application. From the outset, Lustron envisioned its house within a suburban context. The company focused considerable attention on the integration of its marketing plans with emerging patterns of suburban development. Lustron’s recognition of the importance of environmental factors, such as site and neighborhood planning, reveal a commitment to address issues beyond the mere process of prefabrication. Indeed, the company devised detailed plans for the “proper” placement of its houses in neighborhood and community settings.

Proper community development demanded that the economic and social needs of residents figure prominently in the planning process. Without these elements residents would be susceptible to social disorganization and neighborhood deterioration. Federal housing strategies were deeply influenced by the communitarian approach. The desire to provide affordable single-family dwellings in suitably designed neighborhood physical and social environments is reflected in the Housing Act of 1949, which expressed the goal of providing “a decent home and a suitable living environment for every American family.” The reference to “a decent home and a suitable living environment” in the Act demonstrated the acceptance of the idea of community as an essential component of good housing policy. However, the desire to make all housing community housing raised an important issue for manufacturers of prefabricated houses. By separating the house from its environment, prefabrication represented a potential threat to the communitarian ideal.

Indeed, throughout its history the prefabricated housing industry had demonstrated a profound disregard for environmental issues and focused primarily on the process of manufacture and technological or design innovations. The “F.O.B.” pricing policies of the industry offer telling evidence of its lack of concern beyond the shipping dock of the factory. F.O.B. is a common abbreviation of “free on board,” a purchasing arrangement in which the customer assumes the cost of shipping a product from the factory to the delivery site. In essence, once the sale had been made, the industry considered its task complete. Urban planners and architects advocating the community development model frequently criticized the prefabricated housing industry for its “process” focus. The Architectural Record cautioned that firms that “expect to reach the top by inventing the one perfect standardized panel are foredoomed to bitter disappointment. . . . People everlastingly buy neighborhoods, not mere houses. Houses dumped en masse with no further responsibility . . . can only foul the nest.” And The American City observed that “the picture of an area crowded with . . . factory-produced houses . . . is not a pleasant one to contemplate.”

The industry faced a key problem of integrating its product into prevailing assumptions about housing and the community ideal. Lustron’s response to the commu-
nity issue encompassed a number of strategies. The company developed the Planning Guide, which outlined specific instructions for the proper integration of the house into community environments. The introduction to the Guide reflected a holistic view by asserting that the company’s product was “essentially a house, lot, and its environment.” Under the slogan “good planning is good Lustron business,” the Guide offered a view of the ideal “Lustron community.”

The Planning Guide reflected the influence of what Marc A. Weiss has called the “community builders”—the creators of the modern residential subdivision. Weiss identified a “revolution in community building by the 1940s” that witnessed the merging of communitarian impulses with the rise of suburban development. Subdividers became “private planners” who created and implemented concepts and forms that “came to be accepted as good planning.” These included street design and layout, cul-de-sacs, planting strips, consideration of topography, the arrangement of the house on the lot, setback lines and separation parameters, and the integration of community elements such as recreational facilities, schools, and shopping centers. Lustron’s Planning Guide addressed each of these topics in great detail, and the company credited the Federal Housing Administration’s 1940 publication Successful Subdivisions as the basis for the Guide’s suggestions, the same publication now quoted by historians as evidence of how the community building approach was “fully incorporated as public values to be standardized and emulated.”

Lustron’s association with community building was a significant step for a manufacturer of factory-made housing. Community building came easier for firms incorporating only certain elements of prefabrication in the building process. William Levitt and Sons, for example, used “site prefabrication,” a process that took advantage of economies of scale in raw material purchase and employed an effective system of labor rotation. Under Levitt’s system, the house remained a part of its environment from the beginning of the construction process. A manufacturer of factory-made housing, though, faced greater difficulties in assuring a community setting.

Lustron established a fleet sales department to facilitate the creation of Lustron communities and to encourage large suburban developers to use Lustron houses. The company cultivated a close relationship with American Community Builders, Inc., the developers of Park Forest, Illinois, an archetypal postwar subdivision. Lustron also marketed its community approach to suburban developers in most major cities in the United States. This became a major goal of the company’s sales strategy, which defined the creation of a “complete package”—lot, house, and community—as a key to sustained long-term growth.

The alternative to the community marketing strategy presented a number of serious difficulties, especially for a manufacturer of a porcelain-enameded steel house, even though the Lustron house had a traditional ranch-style design. Marketing a
“radical” house without exerting control over its placement meant that the house would undoubtedly come into conflict with “conventional” housing in established neighborhoods. Moreover, the Lustron house would face the various obstacles by which settled neighborhoods enforced their particular vision of planning and community design, such as building codes, deed restrictions, and zoning ordinances. Prefabricated housing had traditionally met substantial opposition from these elements of urban control because the public often perceived prefabrication as cheap, impermanent, and acceptable only in an atmosphere of crisis, such as defense housing during World War II. Lustron’s community marketing strategy, along with the traditional design of the house itself, sought to overcome negative images of prefabrication. Further, the creation of new Lustron developments in suburban or semirural areas enabled the company to “solve” the problem of possible restrictions on prefabricated houses.

However, economic pressures imposed by manufacturing bottlenecks and engineering delays forced the company to postpone full implementation of the community marketing strategy until late 1949. Up to that point Lustron was more concerned with generating sufficient sales to keep afloat until it could develop connections and expertise in the community-building field. Consequently, the company marketed the house solely through a franchise dealer network, which by definition relinquished some control over environmental issues to individual dealers. The franchise contract established standards for placement of the house, but during Lustron’s start-up phase the administrative structure to enforce the standards was not fully implemented.

Lustron’s marketing approach focused on the image of the house itself in an effort to overcome negative public perceptions of prefabricated housing. The company’s advertising stressed the design continuity of the Lustron house with conventionally built houses and pointed out the superior performance and durability found in a dwelling made of porcelain-enamelled steel. Lustron tried hard to convince potential buyers that the inflexibility of the house, specifically the difficulties in adding new rooms or changing interior floor plans, was more than offset by its technological and architectural benefits. Indeed, customer surveys revealed few complaints about the lack of opportunity for individual expression and indicated that owners were willing to forego flexibility for other advantages, especially low maintenance costs.

While public acceptance of the Lustron house was encouraging, acceptance by local governments and mortgage lenders proved more elusive. Lustron encountered difficulties integrating its house into settled neighborhoods. Building codes presented a significant and enduring barrier. Thousands of different state and local building codes closely governed the fabrication of individual house components but failed to consider the performance of the components. For example, even though Lustron’s porcelain-enamelled steel wall panel outperformed conventional “stick built” walls in terms of
strength and durability, it failed to meet code standards and was therefore prohibited in many jurisdictions. Confronting the code problem, Lustron urged dealers to submit plans and specifications of the house to local officials at the earliest possible date and provided supporting documentation, which included examples of favorable treatment in other jurisdictions and citations of successful legal appeals involving the Lustron house. The company also participated in a national lobbying campaign for code reform through a trade association for manufacturers of prefabricated housing. The campaign urged the adoption of uniform, performance-based codes that did not judge prefabricated houses within the context of traditional materials and construction technologies. Lustron also aided dealers on the local level to obtain code variances and provided a “press packet” to alert local and national media about the need to reform building codes in light of “advanced technologies of housing construction.”

The company also faced the difficult problem of financing the purchase of a factory-made house. Financial institutions considered such a house chattel property until it was affixed to a lot and proved reluctant to provide mortgages until the erection process was complete. Securing approval by the Federal Housing Administration (FHA) was also crucial in order to make FHA-insured mortgages available to homebuyers. However, since FHA standards were not uniform throughout the nation, wide variations existed in the requirements of FHA and mortgage lenders—requirements that frequently bore no relationship to the quality of the house or the safety of the loan. Another problem was bridging the gap in financing between the time the house “package” left the factory and the time the mortgage financing of the finished house was arranged for the ultimate consumer.

Lustron attempted to confront these substantial barriers by establishing a new type of financing plan in partnership with a large mortgage-lending firm. The company also envisioned the creation of a “Lustron Acceptance Corporation” modeled on the process of consumer financing popularized by the automobile industry. The company’s efforts to change the nature of financing in the prefabricated housing industry attracted widespread attention and praise in the financial press, but attempts to effect a revolution in financing inevitably faced resistance. The prospect of mass-produced housing raised concerns among mortgage lenders, who feared that technological improvements, style innovations, and the prospect of lower-cost homes would threaten the value of existing houses on which they held mortgages. Since mortgage lenders controlled funds for a credit-intensive industry, their perceptions of the impact of factory-made housing—right or wrong—carried substantial influence. As General Motors’ chairman Alfred P. Sloan observed, “the political (and economic) power of the pressure groups that would be antagonized by such a revolutionary approach to one of our greatest industries might well make any organization hesitate, and justly so.”
Yet Lustron did not hesitate. Access to substantial government capital and the ebullient optimism of its founder fostered a “full speed ahead” culture that at times served the company well and at times did substantial damage. Indeed, Lustron’s responses to longstanding problems within the prefabricated housing industry produced a number of innovative approaches to the production and marketing of factory-made houses. However, no amount of innovation could solve the problems created by its intimate relationship with the federal government. Political controversy stalked the firm throughout its existence and produced intense scrutiny from friends and foes alike. Though partially due to the unprecedented scale of operations and the uniqueness of the house itself, national interest in Lustron was consistently driven by the level of federal involvement in the venture.

Economist Ludwig von Mises observed that businesses must frequently fail for the market to gain useful information. Lustron taught the nation that the technology for the mass production of affordable housing was well within reach. It demonstrated that American homebuyers would live in prefabricated houses during nonemergency conditions and that prefabrication could be integrated into traditional neighborhood and community settings. It revealed the complexities of marketing factory-made housing and highlighted tensions between technological advances and their applications in the culture- and tradition-bound housing industry. And it raised important issues in the realm of business–government relations by testing the boundaries of institutional and firm interaction in the realm of social policy.

Reflecting on the Lustron experiment, one of the company’s original dealers observed in 1960 that “the Lustron Home was the forerunner of what will be the future of the mass-production home market. The home industry moved out of the ‘Model T’ stage for the short period of Lustron’s existence and demonstrated that high quality factory-made homes could gain widespread acceptance.” Original purchasers consistently praised the durability, ease of maintenance, and attractive design features of the house. Subsequent generations of Lustron owners reported a similar level of satisfaction in a survey completed during the 1980s. Years after the demise of the company, the emotions that the Lustron house evokes in contemporary observers remain strong. As the following chapters reveal, the emotional content of the Lustron experiment in general—from unbridled optimism to inconsolable despair—confirm the ongoing appeal of this magnificent but ultimately unsuccessful attempt to bring the American housing industry into the modern age.