Suburban Steel

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CHAPTER THREE

From Politics to Production

We must remember that mass production of housing and especially a fully industrialized brand of it is without historical precedent.

—Richard Neutra, Survival Through Design

By the end of 1946, Carl Strandlund had become a nationally known figure whose plans to mass-produce a prefabricated porcelain-enamed steel house were regularly celebrated in the media as an important part of the government’s solution to the postwar housing crisis. Navigating the political minefields in search of government financing for his company consumed Strandlund’s energies during the last months of 1946. He made promises regarding scale, scope, and speed of production that favorably influenced politicians and government administrators. Their continued support could open a floodgate of capital and shelter the nascent enterprise; their opposition or reticence could quickly scuttle the company and ruin Strandlund’s personal reputation. Although political battles continued throughout its entire history, in 1947 Lustron won a key struggle that enabled it to begin production, launch a nationwide promotional campaign, and create a corporate hierarchy to implement the transition from entrepreneurial dream to commercial reality.

Swirling about the company was the ongoing struggle over the direction of federal housing policy in the postwar era. Supported by the Truman administration and a bipartisan coalition in Congress, a comprehensive housing bill sponsored by Senators Taft, Ellender, and Wagner promised to guarantee decent housing for every American family. The bill and subsequent amendments provided for the expansion of primary and secondary credit programs, easier access to FHA-insured mortgages, housing research, slum clearance, and the construction of half a million public housing units for low-income families over the coming decade. The prospect of an active federal presence in the housing market for the foreseeable future soon drew familiar objections. Buoyed by the 1946 congressional elections that returned control to
the Republicans for the first time since 1931, conservatives in government and business rallied once again to the cause of the private housing industry. However, the ongoing veterans’ housing crisis kept the production issue in the forefront of public concern and enabled Lustron to tap into public sentiment favoring federal support of the prefabricated housing industry. It made for some strange bedfellows as the prospect of large-scale factory-made housing began to rattle longstanding relationships within the American housing system.

Friends in High Places

RFC chairman John Goodloe informed Strandlund in January 1947 that the agency needed “unmistakable evidence” of high-level support to secure a loan for Lustron. In response, and with the assistance of VFW Commander-in-Chief Louis Starr, Strandlund intensified his efforts to win the support of key congressmen and administration officials. Senator Ralph Flanders (R-VT), a member of the Banking and Currency Committee, the committee charged with oversight of the RFC, welcomed Strandlund into his office on several occasions during the last two weeks of January 1947. A mechanical engineer and former banker, Flanders was impressed with Lustron’s technological base and manufacturing plans. He offered to sponsor Strandlund’s testimony before the Banking and Currency Committee in an effort to cultivate support for a reconfigured loan. Other legislators who lent a sympathetic ear included Representative Frank L. Sundstrom (R-NJ) and Senator Joseph McCarthy (R-WI), both of whom served on the Banking and Currency Committees of their respective chambers. John R. Steelman, former administrator of the Civilian Production Administration, then serving as an assistant to President Truman, also emerged as an important source of support.

As Strandlund met with key legislators, his associates formulated a marketing strategy to support the firm’s political appeals. The strategy soon engendered favorable responses from the national press. Lustron’s participation in a March conference sponsored by the National Housing Committee of the VFW provided a good opportunity to inform the public of the company’s intentions. The conference agenda included discussions about the future of industrialized housing and focused on strategies for encouraging the acceptance of prefabrication. On the final day of the meeting, Lustron’s public relations director, Charles Prins, outlined the firm’s marketing strategy and emphasized several themes for maximum political effect.

Prins told the conference that Lustron planned to focus sales in communities with programs giving preference to veterans’ housing and announced that the company would favor veterans by offering them “first crack” at dealerships. Prins also presented an intriguing proposition to housing reformers when he revealed that the
company planned to design “prefabricated multiple dwellings that will be offered for low-rent, subsidized public housing.” The first mention of Lustron’s interest in public housing, Prins’s comment was highly speculative and politically motivated to further rationalize potential government investment. In fact, while Strandlund and NHA officials had once discussed the issue, neither the company nor the NHA had given it serious consideration.

Another opportunity to present Lustron in a favorable light arose in March. At the urging of Representative Sundstrom, Strandlund agreed to testify before the House Banking and Currency Committee during its deliberations on H.R. 2549, a bill to amend certain provisions of the Veterans’ Emergency Housing Act (VEHA). From Lustron’s point of view, the most important aspect of the bill was the extension of government aid to prefabricated housing manufacturers beyond the original June 30, 1947 expiration date of the VEHA. As Strandlund observed, an extension to March 31, 1948, would afford the industry “an opportunity to gear up for production” and provide additional time to “sell” its ideas to wary investors. Although the bill gutted the VEHA’s price, wage, and rent control provisions, it maintained the government’s power to allocate materials and provide market guarantees for housing, provided that it was intended “to assure preference or priority to veterans of World War II or their families.”

Strandlund testified before the committee both as head of Lustron and as president of the National Association of Housing Manufacturers (NAHM). Founded in February 1947, NAHM represented approximately eighteen manufacturers with plans to mass-produce “unconventional housing materials and new prefabricated designs.” Primarily a political organization, NAHM focused on lobbying Congress and the Truman administration to secure favorable legislation, financial assistance, priority allocation of materials, and mortgage financing for firms on the cutting edge of prefabrication technology. Along with Strandlund—the primary financial and organizational force behind the association—other key members included Abel Wohlstetter, president of General Panel Corporation; Harry Nagin, president of Reliance Homes; and David L. Krooth, former general counsel of the NHA. As one industry observer commented, “if prefabrication is to mean revolution, these are the revolutionaries.”

Strandlund began his testimony with a statement delineating the differences between the “new generation” of prefabricated housing manufacturers, who offered innovative designs and “real mass production methods,” and companies that “merely transferred the traditional materials and methods from the building lot to a factory” and “continued to do the same old sawing and nailing under a factory roof.” Offering the analogy that the mass production of ready-made clothing had not destroyed the business of custom tailors, he sought to allay the fears of conventional builders who
believed that the mass production of prefabricated houses would threaten their livelihoods. Rather, factory-made housing would serve an important social purpose by delivering decent houses to wage-earning families. In Strandlund’s opinion, tapping into this vast market also guaranteed the long-term viability of the mass production approach.8

Again emphasizing the lack of affordable housing for veterans, Strandlund wondered why they should be “victimized” by a housing industry that continued to build costly houses with “techniques and materials that were popular in biblical times.” Traditional construction had served “better-than-average” income brackets well but had failed “Mr. and Mrs. Kilroy”—returning veterans and their families who most often fell into the working and white-collar middle classes. Large-scale mass production, Strandlund argued, was the only method to deliver houses at a price that the average veteran could afford. Since the average annual income of veterans in 1946 was approximately $2,500, the “magic number” for the industry was $5,000. “What this country really needs is a good $5,000 house,” Strandlund asserted, wryly echoing former U.S. Vice President Thomas Marshall’s famous quote about the country needing a good five-cent cigar.9

Most of Strandlund’s testimony urged the committee to extend the market guarantee provision of the VEHA into 1948. This was crucial, since market guarantees provided essential collateral against RFC loans and private investment. As Lustron’s experience evidenced, attracting venture capital from private or public sources had proven extremely difficult even with market guarantees. Without them, it seemed impossible. “No single action that the Congress could take would be of greater benefit to the solution of our housing problems or cost the taxpayer less,” Strandlund implored.10

The relationship between a viable prefabricated housing industry and the issue of rent control, also under consideration by the committee, provided another compelling argument for government support. The need for rent controls would be eliminated, Strandlund noted, by the availability of affordable mass-produced houses. Additionally, he argued for maintaining limitations on nonresidential construction and recommended the continuation of allocation restrictions on raw materials necessary for innovative approaches to prefabrication.11

During questioning, committee members rarely challenged Strandlund and frequently lobbed friendly informational queries seemingly designed to cast Lustron and the prefabricated housing industry in a favorable light. Representative Sundstrom (R-NJ) gushed that he was in “100 percent agreement” with the need for governmental support of the industry. Sundstrom’s questioning also reflected his intent to ease fears that market guarantees and RFC loans might be considered unnecessary government subsidies to an untested industry. Strandlund assured the
committee that nothing could be further from the truth. If Lustron failed, the government could recoup its investment by terminating the market guarantee and liquidating the company’s assets. Market guarantees, he added, served the same purpose as FHA mortgage insurance for conventional builders, which provided access to capital for on-site construction. Since such mortgage insurance was unavailable to factory-made housing, the market guarantee was simply another type of incentive that reflected a continuation, not an aberration, of governmental housing policy. Besides, Strandlund argued, once the industry was adequately capitalized, it would no longer require direct assistance.  

Strandlund’s testimony attracted the attention of administration officials. White House aide John Steelman and RFC chairman Goodloe discussed the Lustron loan during several meetings in May and June 1947. The company’s inability to raise sufficient private capital to meet the terms of the January agreement caused Goodloe to remain wary. Yet Strandlund’s largely successful quest to marshal political allies on Capitol Hill, and the favorable press that accompanied his efforts, increased pressure on the RFC to consider reducing Lustron’s equity requirement. Although Steelman sympathized with RFC concerns, he revealed strong support for the company, commenting that “the Lustron method represents the fullest application of mass production techniques to the housing problem.” Additionally, Steelman observed that even a reconfigured loan agreement would remain in line with congressional desires, expressed in the passage of H.R. 2549 as the Housing and Rent Act of 1947, to employ “unusual measures to further the factory-built housing program.”  

Goodloe realized that Steelman was expressing the views of President Truman, but he also demanded written confirmation of administration policy regarding the Lustron loan. During the last week of June, as the RFC board again considered the loan, Steelman sent a letter to Goodloe confirming the president’s position. The letter outlined the terms of the new agreement: Lustron would provide $500,000 in private capital, and the RFC would increase its participation to $15.5 million. “I have discussed this matter with the President and he has authorized me to state that the views expressed herein meet with his approval,” Steelman wrote; “I believe, therefore, under all the circumstances, that the loan should be made.”  

The RFC board unanimously approved the loan on June 30. “I know of no loan application since I have been connected with RFC that has received more thorough and more careful consideration,” Goodloe observed. Although Truman’s approval no doubt influenced the board, Goodloe detailed additional elements that led the RFC to the decision. Foremost, he cited the favorable conclusions of the Stone and Webster report, as well as positive information obtained from the NHA and engineers retained by the RFC to review the Lustron data. Goodloe defended the decision by asserting that “the Lustron house is not only a good house but is among the best, if
not the best, of the various prefabricated houses that have been developed. "The only aspect that gave the board pause, it seemed, was the risk that the public would not accept the house. Although cautious of the potential consequences both financial and political of backing a failure, the board, according to Goodloe, "felt like it was a risk that we were justified in taking in view of the acute need for prompt low-cost housing for veterans."  

Terms of the agreement included repayment over 78 months at 4 percent interest, with the first installment due on January 1, 1948. Significant elements of the loan reflected concerns among the directors regarding Lustron’s ability to initiate production in a timely manner, as well as fears of “excess profit” at government expense. Consequently, the RFC structured the agreement to retain a measure of control over the venture. The guarantee of Chicago Vitreous, although limited by a complex financial formula, also allayed fears. The expertise and technical guidance provided by Chicago Vitreous reassured the RFC that an established firm stood behind Lustron. Collateral requirements included all of the machinery, equipment, and inventory of the pilot plant, as well as the assignment of all patent rights, pending patent applications, and license agreements to the RFC. Further, the agreement required preapproval of all salaries paid to Lustron directors, officers, and employees exceeding $10,000 per year.  

Should Lustron succeed, the RFC included a provision to maximize its position and accelerate repayment. It reserved the right, after two years, to convert the remaining balance on the loan into 100 shares of common stock for each $1,000 owed on the principal balance. Should the venture fail, the RFC secured its position as principal creditor. Additional restrictions limited Lustron’s right to alter its capital structure, engage in any activity other than the production and sale of prefabricated houses and component parts, or invest more than $50,000 per year in capital improvements without the written permission of the RFC board. At last it appeared that the most significant barrier to the company’s future was removed. Lustron could now proceed with negotiations to secure the Curtiss-Wright plant in Columbus, Ohio, and finalize arrangements with suppliers who had been unwilling to commit to production until the loan came through.

Company Building

Strandlund celebrated the milestone in the Mayflower hotel dining room with VFW Commander-in-Chief Starr and Charles Prins during the evening of June 30. Starr and other leaders of national veterans’ organizations had been invaluable allies. Strandlund reiterated the company’s intentions to favor veterans for dealerships and also
promised to give priority to veterans in filling an estimated 7,000 jobs at the Columbus plant. Yet as the champagne flowed at the Mayflower, the owners of Chicago Vitreous, William and Emanuel Hogenson, began to develop second thoughts about their participation in Lustron. A lack of consistent communication on Strandlund’s part, a consequence of his immersion in the politics of the startup process and physical separation from Chicago, prompted the brothers to reevaluate their relationship with the enterprise. An extensive review of the loan agreement and financial impact analysis by the Hogensons’ attorneys and auditors alerted them to a number of potential personal and corporate hazards. The brothers were in their late sixties and planned to retire in the near future. Consultants advised the Hogensons against accepting the guarantee provision of the Lustron loan since it limited short-term liquidity, created a number of immediate tax problems, and might force a major reconfiguration of their estate plans with unknown effects on the tax liability of their heirs.19

Restrictions placed on the amount of profit that Chicago Vitreous could realize from the sale of frit to Lustron also raised concerns. According to the agreement, Chicago Vitreous’s profits were limited to a percentage at or below the average profit margin on sales to other customers. On the surface this seemed reasonable. But the company estimated that an additional $500,000 to $750,000 investment would be necessary to rationalize the increased plant capacity required to supply Lustron with a previously agreed upon 50 percent of its frit requirements. If Lustron failed, the Hogensons would be “on the hook” for a large amount of money and Chicago Vitreous would be saddled with excess plant capacity. Further, the loan agreement prevented Chicago Vitreous from selling the Lustron common stock it would receive for development expenses without prior permission from the RFC.20

An additional motive behind their decision to withdraw support was “the fear of political taint,” as Emanuel Hogenson later put it. If Lustron failed, questions might be raised about the high level of governmental participation in the loan. The Hogensons feared that potential “bad press” and the appearance of “guilt by association” might permanently damage the sterling reputation of Chicago Vitreous.21 The brothers had worked too hard to build their company to see it placed in a vulnerable position at a time when they anticipated a comfortable retirement. Although the Hogensons remained convinced that the Lustron house was “a wonder” and believed in the ultimate success of the venture, they moved to terminate their association with the company.22

The Hogensons’ attorneys informed Strandlund on August 5 of the decision to withdraw from Lustron.23 Just as all elements of the venture were coming together, Strandlund once again had to ask the RFC to change the terms of the loan agreement. How many times could he go to the well before it dried up? Angered and frustrated by the actions of his longtime business associates and personal friends,
Strandlund nevertheless discovered opportunity amidst the debris of the broken agreement. He began to craft a reorganization plan for a “new” company that would afford him greater opportunity for personal control over the enterprise.

The period from July to November 1947 is a crucial and misunderstood era in Lustron’s history. Until this point Lustron remained a subsidiary of Chicago Vitreous. The name had been changed from the old Porcelain Products Company, but not the legal relationship to the parent firm. With the Hogensons out, Strandlund resigned his position at Chicago Vitreous and created an entirely new corporate entity. Although the name remained the same, a “new Lustron” emerged during the summer of 1947.

Strandlund and his attorneys first faced the task of negotiating terms for the withdrawal of Chicago Vitreous. An agreement with the Hogensons provided for a payment of $340,000 for all patents, machinery, and inventory relating to the production of porcelain-enameled steel houses. However, Chicago Vitreous retained patent rights and license agreements for technology pertaining to the production of enameled-steel commercial buildings. The company also agreed to supply Lustron with 25–35 percent of its frit requirements with no restrictions on profit margins.

The new Lustron also required a new capital structure. Incorporated in Illinois, the capital structure of the company included authorization of 1.8 million shares of common stock at $10 par value organized into the following categories: 84,000 shares sold to investors at $10 per share for a total of $840,000; 17,000 shares held as options to Hornblower and Weeks for their services; and 30,000 shares held by the company to offer as options to employees, officers, and directors. Strandlund and his wife Clara received 86,000 shares for a nominal consideration of $1,000. The RFC approved the purchase in part to reward Strandlund for his efforts and also to provide an incentive for success. The RFC held the remaining shares in reserve to satisfy the conversion privilege of the June 30 agreement. If Lustron succeeded, it could convert Lustron’s debt into approximately 1.5 million shares and potentially reap a large profit.

The actual dollar value of subscribed capital totaled $841,000, less $340,000 to buy out Chicago Vitreous, leaving a net invested capital of $501,000. Would the issue of equity participation—$501,000 against $15.5 million—again inflame controversy? Now only the personal assurance and business acumen of Carl Strandlund stood behind the loan. Yet the RFC board faced a quandary. Would it dare oppose the wishes of the administration as expressed in John Steelman’s letter of support?

The composition of the new Lustron’s board of directors offered some solace, since each member possessed proven commercial talents certain to aid the firm. Representing legal and financial interests were attorney Joseph E. Nolan of the Washington,
D.C., firm of Bell, Boyd and Nolan; Howard E. Buhse, a partner in Hornblower and Weeks; and Raymond Haynes, a partner in the Chicago investment house Wellington and Company. Representing Lustron’s suppliers were Raymond Hurley, vice chairman of the Thor Corporation, the manufacturer of Lustron’s dishwasher/washing machine unit; Louis Leverone, president of the Automatic Canteen Company, a supplier of kitchen and bathroom components; George Delp, president of the New Holland Machine Company, a manufacturer of Lustron’s enameling machinery; and Paul O. Buckley, an officer of the Federal Machine and Welder Company, a supplier of production equipment for steel processing. Inside directors included Strandlund, executive vice president Russell G. Davis, and vice president and treasurer Fred M. Lowum.

Despite significant changes in the financial and organizational structure of the firm, the White House remained enthusiastic in its support for Lustron. A number of Truman’s closest economic advisors viewed the RFC as a convenient tool with which to seed the economy and forestall the likelihood of a postwar depression. But certain advisors also favored using the RFC to reward friends and punish enemies through the determination of loan recipients. Whether or not Truman himself approved of these tactics, the administration’s manipulation of the RFC left it vulnerable to charges of favoritism and influence peddling. Steelman’s letter expressing Truman’s support for Lustron, for example, could easily be construed by opponents as political pressure. RFC support for the new Lustron indeed provided a good example of the extent to which the administration favored a liberal lending policy. Just as the Hogensons feared, the political consequences of such a policy would eventually taint the RFC, the administration, and Lustron.

Nevertheless, on October 31, 1947, the RFC and Lustron signed a new loan agreement and a lease for the Curtiss-Wright plant in Columbus. The terms were identical to the June 30 agreement in every respect except for the guarantee of Chicago Vitreous, the authorization of a new capital structure, and a provision requiring Lustron to pay its rent on the Columbus plant directly to the RFC as collateral rather than to the War Assets Administration. The plant agreement provided for a five-year initial lease, with an additional five-year option, at $426,800 per year.

Strandlund also formally announced the management structure of the company on October 31. The majority of Lustron’s top executives possessed extensive engineering experience. Executive vice president Russell Davis joined the company from Foote Brothers Gear and Machine Company where he had served as first vice president. Director of engineering and development Ralph H. Wise formerly served as supervisor of engineering for the Fisher Body division of General Motors. Chief engineer Robert Runyan and director of the enameling department E. E. Howe, key players in the development of Chicago Vitreous’s commercial construction business, joined
Lustron with the blessing of the Hogensons. Sales vice president Raymond J. Hurley, a former vice president of the Electric Household Utilities Corporation, along with sales manager Carl Rolen, brought a combined fifty years of sales experience in the housing industry to Lustron. Vice president and treasurer Lowum and D.W. Boylan, comptroller and secretary, both veterans of the housing industry, completed Lustron’s top management.28

Annual salaries ranged from $50,000 for Strandlund, a 50 percent reduction from his compensation as president of Chicago Vitreous, to $12,500 for the junior officers. Nearly all took pay cuts to join Lustron, a tribute to Strandlund and to their belief in the ultimate success of the product. Of the twenty-three top executives, three had worked at Chicago Vitreous, fourteen had held line management positions at manufacturing firms, two had worked in the publishing industry, and four had joined Lustron from federal agencies.29

With its management structure in place, the company now turned its attention to labor issues. Represented by the American Federation of Labor (AFL), the building trades had traditionally been suspicious of prefabrication and perceived industrialized housing as a threat to local autonomy and control of the construction process. Lustron had kept the AFL well informed of its intentions and established a good rapport with its national leadership, especially Richard T. Gray, president of the AFL Building and Construction Trades Department. Consequently, the AFL was willing to consider a new type of labor agreement tailored to the needs of prefabrication at the factory as well as the home site. On November 11 Lustron and the AFL announced a two-year labor agreement with three federated unions—the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, the International Brotherhood of Electrical Workers, and the United Brotherhood of Carpenters and Joiners of America.30

Terms of the agreement included a guarantee of uninterrupted production of the houses at the factory and their efficient assembly at sites in the United States and Canada. Reducing the number of crafts involved in production from twelve to three lessened the likelihood of jurisdictional disputes. A pledge by union officials to advise locals of the terms of the agreement and enforce contracts if necessary also reduced the potential for on-site labor problems. The agreement was attractive to the AFL because it promised year-round employment, a benefit of prefabrication over the seasonal pattern of employment in the conventional building industry. With the guarantee that Lustron would be a union shop both at the factory and at the assembly site, the AFL demonstrated its willingness to support “the experiment of industrialized housing.” The Lustron-AFL pact quickly became a model for agreements between the union and other prefabricated housing manufacturers anxious to foster a “spirit of cooperation with the building trades.” Strandlund wrote that the agreement “with great segments of American labor [would
be] cited far and wide as an example of fair dealing, honest concern in the welfare of our fellow citizens and 20th century industrial relations.”

To foster this cooperation, Strandlund recruited Frank J. Peterson as director of industrial relations. Peterson had a long history of labor relations experience, serving as an international representative for the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry before taking various posts with the federal government during the war. He was a member of the important Facilities Review Committee of the War Production Board and its successor agency, the Civilian Production Administration. “Pete” also served as a member of the Conciliation Service of the Department of Labor, which had provided him a broad view of labor–management issues across the economy. Lustron’s ability to recruit employees with substantial experience in government and industry was a benefit of its hybrid genesis and high public profile. In general, the company was able to attract highly talented people who shared Strandlund’s view that Lustron was “special” and embraced the once in a lifetime opportunity to shape a new era in American housing.

Preparations for production at the Columbus plant went into high gear during November. As the first of millions of dollars worth of machinery and equipment began to arrive at the plant, the company announced it intention to hire approximately 7,500 workers in 1948 and set a production target of 100 houses per day by midyear. Civic leaders could barely contain their elation at the prospect of becoming “the Detroit of the housing industry.”

In Washington, however, the Senate Republican leadership introduced a resolution in December 1947 calling for a thorough investigation of the RFC. Expressing philosophical concerns regarding the role of the RFC in the postwar economy and suspicious of possible influence by the administration in its loan policies, Senate Republicans saw an excellent opportunity for political exploitation. A special subcommittee of the Committee on Banking and Currency chaired by Senator C. Douglass Buck (R-DE) held hearings during December and January to explore the details and motivations behind RFC lending practices. The existence of the RFC itself became a fundamental issue since enabling legislation listed June 30, 1948, as its termination date.

The Lustron loan received extensive scrutiny. The committee subpoenaed Strandlund and Goodloe to elicit their perspectives on the history of the venture. Unlike his previous congressional appearances, Strandlund faced difficult questioning, especially regarding his purchase of 86,000 shares of company stock for $1,000, and battled a perception that the RFC had given Lustron a better deal without the support of Chicago Vitreous than with its participation. Committee members wondered why there appeared to be no limit to the RFC’s support of this “equity-starved” venture. “That is the $64 question,” Senator Homer Capehart (R-IN) intoned, “that is the crux of the whole thing.” Strandlund understood the intent
to suggest scandal and favoritism but provided the committee little insight into the
domestic machinations surrounding his company. “Now, political pressures I do not
know very much about,” he said, playing the role of struggling entrepreneur to per-
fection. He proceeded to present a credible defense of his firm and cleverly used
the forum to emphasize the tremendous potential of prefabricated housing. “I wish
you much success,” Senator Buck wryly offered, “and hope it makes a lot of money,
and you can pay the Government back.”

A more intense examination awaited RFC chairman Goodloe. Senator Capehart
bluntly asked, “where did pressure come from to make you grant this loan?”
Goodloe instantly objected to the use of the word “pressure,” but conceded that “from
a credit standpoint, [it] was not what you could call a sound loan.” Goodloe did not
deny that the Steelman letter, with its indication of presidential support, had guided
the RFC toward approval but urged the committee to withhold judgment until the
results of Lustron’s first year could be evaluated.

Further, Goodloe implored the committee to perpetuate the RFC and to resist
using the RFC–Lustron situation as an excuse to terminate the agency. Perhaps new
restrictions and greater oversight were needed, he conceded. But where else could
small businesses, especially those operated by and for former GIs, go to obtain long-
term credit at reasonable rates? Goodloe then noted that the RFC had loaned over
$16 million to 3,924 veterans during fiscal 1947 and 1,852 of those GIs had been
unable to obtain business loans from commercial banks “due to the prevailing pol-
icy of banks not to make GI loans.”

Returning to the controversy over the Lustron loan, Goodloe urged patience. Lustron
was a complex undertaking tying to “do its best” as it navigated uncharted territory.
Why couldn’t the government exercise at least an equal amount of patience that any
private investor would grant to a fledgling enterprise, especially one that held such
obvious benefits for the nation? “I am not trying to avoid any responsibility in mak-
ning that loan,” he told the committee, “I can’t say the Lustron project [will be] unsuccess-
ful. On the other hand, I can’t say it [will be] successful. It hasn’t gone far enough.
I don’t know whether the loan is going to pay out, but the Government was justified
in making it.”

Roll Up, Roll Up . . .

Although Strandlund’s and Goodloe’s testimony failed to allay the suspicions of the
committee regarding the Lustron loan and RFC lending practices in general, it suc-
cceeded in buying time for the company. During the early months of 1948, management
focused on promotion and production. Both presented formidable challenges.
Overcoming the negative connotations of prefabrication, particularly the association between prefabrication and “temporary” construction, demanded an aggressive advertising and public relations campaign.

A major objective of the campaign was to deemphasize negative beliefs that many homebuyers held regarding prefabricated construction, an understandable perspective given veterans’ recent experiences with Quonset huts and given the overall quality and impermanence of wartime prefabricated housing. In contrast, Lustron cast its house as the equal of custom-built homes, but with added advantages only factory production could achieve, such as the use of high-quality materials manufactured to precision tolerances in every component of the house. The structural and maintenance benefits of porcelain-enamedled steel also received consistent emphasis, and the company borrowed freely and effectively from promotional materials previously developed by Chicago Vitreous. The appeal to efficiency emerged as a prominent theme as well. Lustron’s liberal use of built-ins, the cost-conscious radiant heating plant, and the automatic dishwasher/washing machine provided key points of differentiation that the marketing department could justifiably tout as unique, desirable, and otherwise available only in “upscale” houses.

Lustron’s old friend Senator Ralph Flanders helped launch the company’s promotional campaign in early 1948 by providing invaluable national exposure. Under the auspices of the Joint Committee on Housing, Flanders released a 185-page study entitled *High Cost of Housing*. The pamphlet contrasted the advantages of Lustron’s “total package” with the frequent cost overruns and contractor “add-ons” that drove up the price of conventionally built houses. Additionally, Flanders emphasized the elegance of design reflected in all aspects of the Lustron house and celebrated the unity of form and function that had been achieved by “some of the foremost architects of the nation.” The senator also pointed out that only a large-scale producer could afford to hire preeminent architectural talent to design homes for the common man.40 Lustron found another friend on the Joint Committee, vice chairman Joseph McCarthy, although Strandlund would later come to regret it. McCarthy had adroitly maneuvered the committee’s hearings to cast further public housing initiatives as “socialist.” Interestingly, though, he frequently argued that government should assist private enterprise in the advance of housing production technologies: “There are those who maintain that because private enterprise has not solved the entire problem we should scrap private enterprise and socialize housing. But it seems only logical that instead of attempting to scrap private enterprise we should furnish the necessary aids to make it work.”41

Others agreed. Lustron’s national visibility attracted consistent attention from newspaper editors anxious to mine housing stories for national syndication. *Army Times* prominently featured the Lustron house in its veterans’ edition, which had an
international circulation. The sales department noted that “letter inquiries had doubled” in the week following the article. A number of real estate editors from papers in the East stopped by the plant on their way home from a builder’s convention in Chicago in March, and the company cheerfully provided press packets, management interviews, and nourishment in hopes of facilitating good relations. The hospitality paid off, as the King Features and United Press syndicates distributed encouraging stories with pictures and descriptions of the house to over seven hundred papers.42

The initial phase of Lustron’s promotional strategy borrowed heavily from the tactics of the film industry. Beginning in April 1948 and continuing throughout the year, the company held a series of “unveilings” of model homes across the nation. Amid searchlights, local celebrities, prominent politicians, and veterans’ groups, the Lustron house debuted to an enraptured public. Favorable responses from the introduction of the original Cicero prototype had provided the company with a public relations blueprint. Now it was time to increase both the intensity and the frequency of the efforts to win public acceptance.43

On April 2, three trucks left the Columbus plant with a model home destined for display at 52nd Street and Sixth Avenue in the heart of New York City. The extent of the physical difficulties and expense of transporting the house highlighted a significant problem. Three trucks containing 250 crates cost the company over $4,500 to ship to New York City—about as much as the cost of manufacturing the house itself. Additionally, unloading the house in an efficient manner at the erection site demanded sophisticated logistics beyond anything conceived by company engineers at the time. These were serious issues, and Strandlund ordered his staff to focus on an engineered process for loading, transportation, and unloading.

As the trucks made their way to New York, an advance press conference alerted the local and national media, which gave the unveiling prominent features in hundreds of newspapers and on some thirty radio programs. Strandlund invited the American Society of Illustrators to cosponsor the event and arranged to donate proceeds from the one dollar per person admission charge to the United Nations Appeal for Children. The company also planned to host a benefit ball at the Waldorf Astoria to celebrate the unveiling. The door prize would be a Lustron house. Strandlund told the press that “Lustron homes mean better living for our own people,” adding that he was “happy that proceeds from the home showing would go towards aiding the innocent victims of war in other friendly nations.”44

For the first month of the exhibition in New York City, lines filled with enthusiastic homebuyers and extended “around the block,” with total attendance exceeding 130,000 persons. Lustron’s newsletter described it as “super-colossal” and offered variety-like headlines such as “Lustron Home smash hit along Main Stem,” and “Lights . . . camera . . . Roll ‘em” to communicate the excitement and glamour of the event.
to plant employees. Indeed the company had scored a major public relations coup. Strandlund personally escorted many celebrities and prominent politicians through the house and reported special interest among European visitors who wanted to know when the company would begin export sales. Several families waiting in line for hours in the midst of a driving rain told the press that they had made the Lustron tour the centerpiece of their vacation to the city but granted that the Empire State Building was impressive as well.45

As in Hinsdale, landscape design played an important role in displaying the house to best effect and reinforced the idea that this technologically advanced house fit easily into established conceptions of suburban neighborhoods. Privet hedges defined the perimeter of the front view, with mountain laurels accenting various points along the foundation. Cherry trees and lilac bushes added interest along the front and sides of the house. A bluestone terrace extended from the rear of the house, inviting visitors to explore a backyard framed with willow trees and incorporating a meandering bed of English ivy.46

Designer Mary Davies Gillies of *McCall’s* magazine coordinated the interior presentation of the house. Several reporters commented that the generous built-in storage facilitated a “pleasing modern style” of interior design that accentuated the open
feel of the floor plan. “The home has more storage space than many twice its size,” observed the New York Herald Tribune. Noting the ease of maintenance and economy of the entire design, the Tribune asserted that “[w]omen who find themselves keeping house in a Lustron Home shouldn’t have too hard a time of it.” New York radio personality Norman Brokenshire offered his listeners the kind of publicity that even Carl Strandlund hadn’t anticipated when on-air he addressed a child, Wesley Pearce, and gravely intoned: “Young man, you are standing in the greatest single development in housing since they first put one stone on top of another.”

The culmination of the New York event took place in the grand ballroom of the Waldorf-Astoria on the last day of April. Over 3,000 people attended the event, and over 100,000 tickets had been sold by the Society of Illustrators for the Lustron house door prize. Noted artists such as James Montgomery Flagg, Steven Dohanos,
and Norman Rockwell sold tickets, and other Society artists had rendered the model home and donated their creations to the company in appreciation of its efforts. Even the winner of the door prize provided Lustron with invaluable publicity. Mrs. Michael Toosusian of 306 West 28th Street in New York City had been down on her luck. Shortly after her recent marriage, her husband suffered a heart attack. As he lay an invalid in the bedroom of their fourth-floor walk-up apartment, Mrs. Toosusian tried to maintain their small dry cleaning and tailor shop as well as tend to his recuperation. Upon learning of her prize, she beamed “this is a dream come true” and announced plans to secure a lot near the Long Island shore where she hoped her husband would make an accelerated recovery.48

With the New York exhibition an unqualified success, Lustron dispatched another model home to Washington, D.C., for an unveiling on May 28. The cosponsor of the event was the company’s best ally to date—the Veterans of Foreign Wars. Commander-in-Chief Starr personally assisted top management in recruiting powerful members of government to attend private tours of the house. Other VFW members served as guides for the public, distributed literature, and collected donations for the organization’s rehabilitation fund. Strandlund also conducted private tours for members of major industrial and financial lobbying groups such as the National Association of Manufacturers. Even though the event was marred by bad weather, the public and the media swarmed the house. Five radio shows featured the opening, including Arthur Godfrey’s popular program, and all the Washington papers ran extensive coverage in their daily and Sunday editions.49

Enthusiastic reception by the media and the public energized the company as the unveiling process continued throughout the summer and fall of 1948. Lustron erected model homes in Chicago (the Cicero prototype had been cannibalized for parts), Milwaukee, Indianapolis, St. Louis, Detroit, Boston, Des Moines, and, finally, in its hometown. Total combined attendance exceeded 1.5 million persons.50 Each exhibition reinforced the concern for “context” in the display of the Lustron house and demonstrated the company’s sensitivity to perceptions that a steel house could not be aesthetically integrated into traditional neighborhoods. Confident of large attendance regardless of location, the company exercised great care in choosing sites to facilitate extensive landscaping and placement of the house in “mature” settings.51

Lustron also participated in a number of important trade shows, including the American Federation of Labor’s Union and Industry Exhibition in Milwaukee attended by over 300,000 people. Manned by Frank Peterson, the Lustron booth attracted enthusiastic visitors who clamored for brochures and asked “thousands of questions” about the company and its product. Peterson hosted a number of labor luminaries, including William Green, president of the AFL; Joseph Keenan, head of the AFL Education and Political Department; Martin J. Durkin, president of the United
Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry; and Dan Tracy, president of the International Brotherhood of Electrical Workers. Durkin and Tracy also visited the Milwaukee model home with members of their staff. Lustron’s newsletter noted with particular pride that “all classifications of the American public have been reached . . . business, labor and other segments of national life have shared in the openings.”

Concurrent with the unveiling of its model homes, Lustron launched an advertising campaign that focused primarily on such national magazines as Time, Life, McCall’s, Saturday Evening Post, and Architectural Forum but also included direct mail and limited use of radio in large markets. Originally, the campaign featured a three-tiered approach, with general advertisements and a response card in the national magazines, followed by the mailing of a detailed pamphlet to respondents, and the creation of a referral service that recipients of the pamphlets could use to locate specific dealers in their geographical area. However, the initial volume of responses—180,000 in the first two weeks of the campaign—quickly overwhelmed the promotional department, forcing the company to drop the response card in future advertisements and
restrict its focus to “home tour” layouts and “progress report” bulletins in the national print media.53

One advertisement alone in the April 19 issue of *Life* elicited over 50,000 responses within a week. Entitled “The House America Has Been Waiting For,” the two-page layout touted the technical benefits of the Lustron product as a gateway to “a new standard for living.” The advertisement clearly reverberated with the house-starved American public, literally burying Lustron’s offices with mailbags filled with response cards. Harold Denton, who had joined Lustron as head of the market development department, noted that people not only wrote but “telephoned from all sections of the country. Telegrams and registered mail increased the swell . . . people came in person to the plant from as far south as Florida and from the far side of the Rockies in response to this ad.”54

The firm scrambled to find additional staff to categorize the inquiries and hastily assembled form letters to send to prospective buyers. The responders included thousands of veterans, many of whom were enrolled in college on the GI Bill and lived in a variety of substandard housing conditions. One GI student wrote that “this home of yours sounds like the answer to my every prayer . . . do you have any more information on this wonderful new development?” Many responses also reflected the following, very American desire: “It would please me to be the first person in this city (New Bedford, Massachusetts) to own one of your houses.” Writers often included photographs of their families, and some sent blueprints with ideas for variations on the house. One wanted to place a Lustron on the thirtieth floor of a skyscraper as a penthouse, and one religious soul wanted to convert a house into a porcelain-enamelled chapel. Eventually the total volume of responses from the *Life* advertisement exceeded 200,000. Strandlund observed that Lustron was “on the main line,” meaning that the company had tapped into a powerful social current.55

Lustron’s publicity juggernaut continued unabated throughout the summer of 1948. *McCall’s* ran a color spread on the house in their July issue. *Consumer Reports* evaluated the prototype against a wood prefab manufactured by Adirondack Homes and touted as a “dream house” by *Look* magazine. *Consumer Reports* found the Lustron “a better buy” and noted that the materials and construction were “excellent.” Additionally, the United Press radio wire service ran a prepared script on the company and an interview with Strandlund that was picked up by 150 radio stations. Lustron’s public relations department reported increased interest from the foreign press, including requests for information packets from journalists in Paris, Brussels, and Amsterdam. *Popular Science* ran a major story on the technical aspects of the house in June, and *Modern Industry* planned an extensive feature on the plant in a fall issue.56

The themes evident in Lustron’s initial advertising campaign contained rich social and historical implications regarding home ownership. Equating the “American dream”
with ownership of a detached, single-family home, advertisements heralded the social benefits of the Lustron house as America’s “first truly low-cost mass-produced home.” Lustron informed the public that the application of new housing technologies “far removed from the technique of hammer and nails” would improve society by making home ownership “a realistic and attainable dream for the ‘average Joe.’” References to the success of mass production in the automobile industry also provided an easily understood contextual comparison.57

The themes of personal and social accomplishment and the role of technology were nicely expressed in the opening paragraph of Lustron’s original promotional brochure. The last sentence introduced another prominent promotional theme, that modern prefabrication could provide the “best of both worlds”—an aesthetically desirable house as well as a functional, easily maintained one:

The mechanical room.
Photo credit: Ohio Historical Society
Nearly every American has the deep-down desire to own his own home . . . to put down roots and establish himself and his family as part of the life of the community. For all too many, this desire seemed destined to remain a beautiful dream—until the Lustron House made it an easily accomplished reality. Modern engineering “know-how” has made it possible. Now, a “home of your own”—at a low first cost and even lower upkeep cost—is within the reach of the average family. And, more than that, the Lustron Home is the kind of home most Americans want.58

Lustron conceded that overcoming public suspicion of prefabrication could not be accomplished through advertising alone. But the company believed that if the public could be “softened up” enough to elicit interest in the product, it could win them over with the excellence of the house itself. In an “interview” with Strandlund included in several advertisements, he reminded consumers that the Lustron house should never be confused “in any way” with previous types of prefabricated designs. Strandlund also tried to allay perceptions of impermanence by asserting that “while we will help relieve the housing shortage, this is not an ‘emergency’ or ‘stopgap’ project, but is planned on the long-range basis of complete customer pride and satisfaction and as a new contribution to the art of living.”59

As the campaign progressed, innovative features of the house received greater attention. Design, maintenance, and mechanical systems were detailed in a series of “home tour” advertisements that ran in national magazines each week for several months. Special emphasis fell on descriptions of features not found in conventionally built houses of the target market segment, such as built-in storage and display cabinets, pocket doors, the pass-through space between the kitchen and dining room, the combination clotheswasher/dishwasher, and the radiant heating system. Customers were also frequently reminded that the house achieved its technological mission within the context of a “conservative, ranch-style architecture.”60

Lustron’s advertisements consistently focused on the permanence and ease of maintenance inherent in a house built from porcelain-enameled steel. Able to withstand “the coldest blasts of the North as well as the salt air of Florida,” it was a house that “your grandchildren will enjoy owning as much as you will.” The Lustron house also offered “a safer and more healthful environment for families” because its steel structure made it impervious to vermin and insect infestations. Ease of cleaning, fire resistance, and the fact that the house never needed repainting, refinishing, or reroofing, provided other key selling points.61

One innovative advertisement compiled frequently asked questions from letters sent to the company by “people who have already heard about the Lustron Home and are enthusiastic about it.” The answers addressed potential “negatives” as well as positive elements about the house and specifically reminded customers that they would
have to give up some flexibility in return for permanence and ease of maintenance. This preemptive approach is best illustrated by answers to the following questions:

Q: What about lightning?
A: The house itself is a self-contained lightning rod.

Q: Can I have any other floor plan or room arrangement?
A: Not yet.

Q: How do I hang pictures?
A: By using self-adhesive hooking pads supplied by Lustron.

Q: Can I have a basement?
A: No, basements are unnecessary and outmoded for modern life—pioneers needed them for food storage, you have a convenient ground-floor utility room.

Q: Can the house be taken down and moved?
A: No, it is not demountable or portable. If you move to another location, you will want to sell and buy another Lustron Home.62
Lustron’s advertisements reflected a constant struggle to advance the merits and minimize the drawbacks of a “closed system” of manufacture. They stressed that each design element, even mundane components such as gutters and window frames, was fabricated for exclusive use on a Lustron house. Other products could not be substituted, nor could homeowners easily alter the house to reflect personal preferences or tastes. The closed system, they emphasized, also ruled out aftermarket modifications such as room additions, floor plan variation, or redecoration by painting or papering.

The company initially viewed the closed system as a marketing opportunity as well as a challenge and looked to the automotive industry for strategic cues. Alfred Sloan, General Motors’ legendary chairman, had demonstrated the effectiveness of “style depreciation,” a marketing strategy that encouraged customers to purchase a new car for aesthetic or status reasons long before their old car was mechanically spent. Thus General Motors introduced annual style changes and provided a ladder of consumption for status-conscious consumers to follow that began with the Chevrolet and ended with the Cadillac. Lustron embraced a similar marketing concept and planned...
to offer its own ladder of more sophisticated and expensive houses that would keep consumers “in the family” as they grew more affluent with age. The company anticipated that given the choice, consumers would replace houses for the same reasons as they traded cars.63

The closed system created a fundamental tension between self-expression and home style, on one hand, and the need for a housing design easily adaptable to mass production, on the other. The question remained, would the public accept manufacturing compromises that restricted self-expression? Lustron was convinced that it was a matter of degree. Considerable compromises were necessary during the formative years. Then, as design and production technology became more sophisticated, a greater degree of flexibility could be offered to the consumer without forfeiting the benefits of prefabrication.64

**Manufacturing the Future**

However, the formulation of a long-term marketing strategy was necessarily subordinated to the demands of preparing for full-scale production. Concurrent with the establishment and implementation of a promotional campaign, Lustron moved toward its goal of producing 100 houses per day by October or November 1948. During the first months of the year, over $12 million of equipment arrived at the Columbus plant and company engineers, with the aid of the Lindberg Engineering Company of Chicago, scrambled to set up a complex manufacturing process. The scale and scope of the production process far exceeded any previous experiment in the prefabricated housing industry. At full capacity, the Columbus plant would use more electricity than the entire city of Columbus.65

Lustron approached the manufacturing process with the goal of creating a “countrywide production line,” beginning with the arrival of raw materials at the factory and ending with the assembly of the house on a lot. Innovative assembly line techniques and a complex system of material-handling equipment ensured a steady flow through the plant. Approximately eight miles of automated conveyors enabled the synchronization of production and reduced the need for warehouse space. In fact, the plant design relied heavily on continuous-process technology and tight coordination of processes from raw material deliveries to the distribution of finished houses.66

Responding to Strandlund’s directive to develop a cost-effective method for transportation and site assembly logistics, company engineers led by Dick Reedy soon devised an elegant solution. With minimal outside assistance, Reedy’s team pursued the goal of arranging a complete set of components on a single flatbed trailer. Working in an empty corner of the plant, they placed the wall sections of the house along
the outer perimeter of the trailer and secured them with roof truss assemblies. This created a container into which the other parts could be loaded in reverse sequence of their need at the assembly site. Boxes mounted on the floor of the trailer held fasteners, nuts and bolts, and all the tools necessary for assembly.67

Strandlund was astounded at the speed and ingenuity of Reedy’s accomplishment. Compared with using wooden crates and multiple trailers, this method promised to save approximately $90 million a year based on expected levels of production. The trailer package provided a number of ancillary benefits as well. Each trailer was painted bright blue and yellow and emblazoned with Lustron logos, while the components themselves projected a high-tech look that had a dramatic visual impact. Nothing else on the road looked remotely similar, and drivers reported that the rigs turned heads wherever they went. These “rolling billboards” could also reduce raw material shipping costs since trucks returning from assembly sites that were reasonably near Lustron suppliers could transport materials back to Columbus. Another potential advantage was that a large fleet of trailers could function as a virtual warehouse for excess inventory without incurring additional expenses or compromising delivery time. Reedy went one step further—he proposed piggybacking the trailers

A Lustron house on one of Dick Reedy’s specially designed tractor trailers.

Photo credit: Ohio Historical Society
onto rail cars to serve West Coast markets or on river barges to serve the Southeast. While he explored that possibility, Lustron negotiated with a Chicago-based leasing company to provide four hundred tractors and eight hundred trailers built to Reedy’s specifications by the Fruehauf Trailer Company.68

This was Strandlund’s company—innovative, responsive, and creative. Lustron was unparalleled in the history of the housing industry, and the sheer scale and scope of the Columbus plant demanded resourceful employees implementing a shared vision. This was a war plant in many respects—its president was a civilian war hero and most of Lustron’s management team had either served in the armed forces or held important jobs in the defense production establishment. They were used to accomplishing the impossible in an incredibly short period of time. All of them believed they could do it one more time—after all, how many times did you get to be on the ground floor of the “General Motors of the housing industry”? One such believer, General Eugene Reybold, former head of the U.S. Army Corps of Engineers, joined Lustron as vice president of operations in early 1948. Reybold had directed projects valued in the billions of dollars over his career, and as Strandlund noted, “his willingness to accept a position with Lustron is another evidence of the high regard felt throughout the nation for our venture here.”69
Lustron established a plant newsletter and welcomed all new employees by establishing the scope and spirit of the enterprise. “We have assembled the nucleus of a staff which, I am sure, is destined to make productive history,” Strandlund wrote in the first issue; “the work being done here at Lustron and the cooperative manner in which it is accomplished is enough to warm the hearts of all of us.” He noted several pressing employee issues, including the lack of public transportation to the plant and, ironically, the scarcity of available housing in the Columbus area. Evidently the complexity of the cafeteria “production” line caused a number of difficulties, but this was soon organized to everyone’s satisfaction. Strandlund took great care to remind employees that they were “making one of the vital and most important contributions to the American way of life. . . . It is a challenge worthy of the best in all of us.”

Executive Vice President Russell Davis picked up this theme, noting that Lustron “is in the throes of one of the most promising, satisfying, and important formations in the history of American industrialization . . . we are engaged in building the best homes yet offered to the American public at any price.” Lustron management also consistently emphasized the service to returning veterans, noting the “disruption, irritation, instability, and even divorces” that had resulted from inad-
equate housing. Casting the company’s operations as part of a continuing war effort served as a rallying cry for the fledgling enterprise and established a tone of urgency and patriotism throughout the organization. It was up to Lustron’s employees to provide the industrial ingenuity that would revolutionize the residential construction industry “as positively and aggressively as . . . other great sections of our economy.”

As the plant came to life, the enormosity of the production enterprise before them impressed everyone who witnessed it. The manufacture of a Lustron house began with steel fabrication. Steel arrived in rolls and sheets via truck or by railroad car at a specially designed four-track spur. Unloaded by overhead cranes directly into the plant, conveyers fed the steel into various shearing, punching, and stamping machines. For high-volume parts such as the two-foot-square wall panels used extensively in each house, coiled steel was fed continuously into six-hundred-ton punch presses that fabricated the complete panel in a four-step process. Similar processes formed the roof panels, bathtubs, sinks, and lavatories. The punch presses “overformed,” or bent, the panels to create attachment edges, a significant improvement over welding edges onto a flat panel. The overformed panels thus maintained maximum tensile strength through subsequent fabrication, enameling, and erection processes.

For lower production volume parts, the “miscellaneous press department” maximized efficiency by performing several different operations on the same press. Most of the presses had combination dies that required only minor adjustments to produce a variety of parts. This innovation reduced tooling costs and saved time since operators did not have to reconfigure the presses for each production run.

Structural assemblies such as roof trusses and various bracing systems were fabricated on roll-forming equipment and conveyed to welding stations where workers completed the 16,000 welds necessary for each house. Three separate “loop conveyers” held the largest structural components together and passed them by welders working simultaneously on three levels. The tri-level arrangement eliminated the need for workers to reposition their welding guns from one level to another, a time-consuming and accident-prone maneuver. From the stamping, rolling, and welding operations, components traveled by overhead conveyers to the enameling department.

A comparison of Lustron’s raw material requirements with the entire U.S. enameling industry provides a startling insight into the scope of operations. Based on a projected production of 100 houses per day, Lustron would consume approximately 25 percent of the frit and approximately 75 percent of the coloring oxides produced in the nation. Each day, the plant would enamel over 100,000 individual pieces in over 200 shapes and colors—by far the largest enameling operation in the world. Ceramics industry publications reflected both elation and trepidation at Lustron’s potential impact.
The enameling department consisted of a mill room where the ingredients for porcelain enamel were prepared and eleven enameling furnaces that operated as self-contained “miniplants.” The mill room occupied 13,000 square feet and contained 42 mills that produced the enameling solution, or “slip,” by grinding clay, color oxides, opacifier, and frit in a fourteen-step process. Prepared slip was kept fresh by agitating tanks that gravity-fed the solution directly to the enameling line. Each enameling furnace included a preparation, or “pickling,” unit that cleaned the steel; a “bonderizing” unit that applied a protective ground coat; a dryer; an automatic sprayer that applied the slip; and, finally, a continuous process, 180-foot furnace that fired the solution at 1,500 degrees Fahrenheit. The enameling line ran at speeds from seven to twenty feet per minute, resulting in an hourly capacity exceeding 12,000 square feet of porcelain-enameled steel.  

After fabrication and enameling, components proceeded to the assembly department. Finished panels first received a plastic edge gasket that sealed joints between panels, then proceeded to stations where machines automatically affixed glass wool insulation to the inside of the panel. The final destination was the shipping department, where workers sorted and arranged completed parts for shipment on the custom-designed trailers.
The spectacle of production overwhelmed many contemporary observers, who, with a combination of pride and amazement, expressed admiration of Lustron's "great American factory." Even the typically staid *Fortune* magazine described a "special kind of beauty" in the production process:

The twenty-three acres of floor space are alive in one long rhythmic flow . . . the monstrous two-story-high presses stamping steel into exact shapes; the tall shiny wire baskets, floating gently, swaying like mobiles by Alexander Calder, carrying things around a couple of miles of production line; dozens of huge mixers rolling endlessly overhead . . . long steel beams coming together, laced in a pattern and then sent on a wide merry-go-round through an electronic welder that works like a thinking machine . . . the endless lines of huge trailer trucks, slowly sliding forward along a track toward the daylight.78

By the summer of 1948, the total value of Lustron's plant and equipment had already exceeded the combined investment in the next forty largest prefabricated housing firms.79 Clearly, the company shouldered the burden of the entire industry in the minds of investors and the general public. If it couldn't succeed, it seemed, nobody could. As Senator Flanders observed, "if Lustron doesn't work, let us forever quit talking about the mass-produced house."80

But was size a curse or a blessing? Lustron's detractors already possessed compelling evidence of the dangers inherent in high-volume, narrow-market production. The "Lustron bathtub story" appeared frequently in critiques of the company's progress, and RFC chairman Goodloe later reported that his files contained "nearly 100 copies" of the same article about "the bathtub" sent to his office by those critical of the Lustron loan.81

Problems began when the company decided to fabricate its own bathtubs, a result of frustrating bulk price negotiations with major suppliers. The engineering department then approved the purchase of a very expensive 1,800-ton press to stamp out bathtubs from rolled steel at an estimated 35 percent savings per unit. The problem was that Lustron houses needed a five-foot, 1.5-inch bathtub, while the industry standard was five feet. The 1.5-inch design variation proved extremely costly. Amortization of the investment in the press required a production rate of at least 120,000 bathtubs per year. Even at full production, the company could only use 36,000 per year, and the size variation meant that no market existed for the excess production. Retooling of the press and redesign of the house to accept a five-foot bathtub eventually cost the company far more than the original plan to use outside suppliers.82

Additional problems surfaced in July 1948 as Lustron prepared to initiate "warm-up" production. Production and promotional expenses had nearly exhausted the origi-
inal $15.5 million RFC loan. Strandlund had promised and fully intended to raise further capital through private sources, using FHA guarantees as collateral. But when Congress revoked the FHA’s authority to insure private loans in June 1948, Lustron was forced to approach the RFC for $10 million in additional capital.83

The RFC again retained the Stone and Webster Engineering Corporation to review Lustron’s progress, analyze its management and organization, determine whether further investment was warranted, and provide estimates of costs and profits at various production levels.84 Stone and Webster’s report, issued on July 15, concluded that an additional $10 million loan would be “amply sufficient to bring the operation to volume production.” Reviewing progress at the Columbus plant, the report raised no “serious apprehensions” and indicated that full production of 100 houses per day appeared to be attainable by the end of the year. The report also praised Lustron’s personnel, noting the high level of experience and competence among senior management, as well as the “considerable number of promising young men.”85

The core of the report analyzed production and sales costs and offered an overview of Lustron’s competitive position. Based on a monthly production of 3,000 houses, Stone and Webster projected the unit cost of a Lustron house at $4,359. This figure represented $3,300 for materials, $382 for labor, and $677 for factory and administrative expenses. With a projected selling price of $4,800 F.O.B. Columbus, the company would realize a profit margin of $441 per house. Thus the break-even point to cover production expenses plus interest charges on the new loan total of $25.5 million would be approximately 1,000 units per month. At 3,000 units, Lustron’s gross profit would exceed $1.3 million per month. “We are confident that the finished
product can be sold . . . at a price that will be competitive with houses of comparable size and quality,” the report concluded.86

Stone and Webster refused to predict the extent of public acceptance, yet it noted that over 250,000 people had responded to Lustron’s initial advertisement in Life and that more than 4,000 people had applied for dealer franchises. Although it warned that the plant might not be large enough to meet demand, the report concluded favorably on Lustron’s progress and prospects and advised the RFC to make an additional $10 million loan.87

Given its previous proclamations of support and the favorable report from Stone and Webster, the RFC had little choice but to grant another loan. On July 11 the RFC board approved an additional $10 million loan at 4 percent interest, although the agency required full repayment by October 31, 1949.88 The RFC’s decision was aided by congressional amendment of the National Housing Act in August 1948, which allocated $50 million to the RFC to “make loans to and purchase obligations of any business enterprise for the purpose of providing financial assistance for the production of prefabricated houses.”89 The fact that Lustron could not provide additional collateral did not deter the RFC, which agreed that the original loan conditions would suffice. The initial loan had been granted under a “defense” mentality driven by the veterans’ housing shortage. The supplemental loan agreement made no mention of crisis conditions. It was simply a business loan. Increasingly, the line blurred between private control and federal involvement in Lustron.

Another critical problem facing the company was the limited availability of steel. At full production Lustron would require approximately 500,000 tons of steel annually, about .5 percent of total U.S. production in 1948. Again, Strandlund exploited his political connections. Senator Flanders requested that the Department of Commerce, through its Office of Industry Cooperation (OIC), allocate 60,000 tons of steel to the prefabricated housing industry. Lustron was to receive 40,000 tons—the lion’s share of the initial allocation.90

The nation’s steel fabricators immediately resisted. Protests to the OIC claimed that “White House pressure” had created a “smell of favoritism” for Lustron throughout the government. Dr. C. J. Rodman, president of Alliance Ware, a plumbing fixtures company, and head of the Metal Plumbing Division of the Porcelain Enamel Institute, observed that 60,000 tons of steel could be used in as many as 40,000 conventionally built houses but could produce only 6,000 prefabricated houses. “The Government’s entire relations with Lustron have an extremely bad odor,” cried Rodman. Why did the government continue to shelter Lustron at the expense of proven manufacturers?91

With $25.5 million and considerable political capital invested in the enterprise, Rodman’s question seemed naïve. Strandlund and others in Lustron’s top manage-
ment naturally saw the relationship with the government in different terms. Executive Vice President Russell Davis praised the government for its “farsighted outlook” and called its relationship with the company “very healthful.” Strandlund himself admitted that Lustron was “in the habit of getting what it wants.”

Various appeals from Lustron executives to the OIC sought “special treatment” to help the company obtain sufficient steel to meet the target production rate of 100 houses per day by the end of the year. The appeals were based in part on powers granted to the president under the Stabilization of the Economy and Commodity Prices Act, which Truman had signed on December 30, 1947. The law gave the president authority to establish advisory committees representing major industries in an effort to encourage cooperation between government and business. The program sought to further economic stabilization by developing voluntary anti-inflationary wage and price agreements and plans for the allocation and control of scarce commodities that impacted the cost of living or industrial production.

The Steel Industry Advisory Committee, which included the presidents of the nation’s five largest steel companies, initially showed little inclination to allocate significant quantities of steel for the production of prefabricated houses. The “steel boys” had enough problems meeting the needs of established customers, and many remained wary of governmental pressure, especially regarding Lustron. Roy Ingersoll, president of the Ingersoll Steel Division of the Borg-Warner Corporation, agreed with Dr. Rodman that administration support of Lustron was “unwarranted” and confessed that he was at a loss to understand “why so many people in high places were continually promoting . . . such a wild project.”

Supporters of Lustron such as John Steelman and Housing Expediter Tighe Woods saw another possible motive within the steel industry’s reticence. Woods wrote to Steelman that he suspected U. S. Steel, which had a history of interest in prefabricated housing, “will not encourage . . . allocations to Lustron; then, after it goes through the wringer à la Tucker, will buy up the company at a nice fat loss to the government.” Woods affirmed his belief that Lustron was “still the best answer that anyone has been able to come up with for low-cost housing” and encouraged Steelman to assist the company to obtain the necessary raw materials.

Carl Strandlund also urged Steelman to take “any action which you may see fit” and enclosed a “bulletin of progress” detailing Lustron’s promotional activities. Strandlund noted that “the overwhelming response from hundreds of thousands of American homemakers justifies the foresight shown by congressional, administrative, veteran and labor leaders in our corporation’s economic contribution.” Steelman agreed and urged the Department of Commerce to relate to the steel committee the administration’s desire to see Lustron up and running. Indeed, despite outrages of
favoritism, Secretary of Commerce Charles Sawyer signed the steel allocation order in mid-August, and Lustron “got what it wanted” once again. On August 31, 1948, the Columbus plant produced its first run of porcelain-enamed steel. An avid cigar smoker, Strandlund promptly ordered some of it made into souvenir ashtrays decorated with his signature. *