

The Illustrious Lustron

A Guide for the Disassembly and Preservation of
America's Modern Metal Marvel



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By
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Dedicated to Dr. Clifford M. Krowne, for his generosity and patience

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A Note on the Design—

The colors used throughout this booklet were chosen to emulate the four original exterior colors offered by the Lustron Corporation: desert tan, dove gray, maize yellow, and surf blue.

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A 20TH CENTURY ICON

In the buoyant atmosphere after World War II, the Lustron Corporation had a sure-fire solution for the postwar housing crunch. Lustrons were prefabricated, porcelain steel-enameled houses built in the United States between 1948 and 1950. The design and manufacture of Lustrons aimed not just to satisfy the immediate postwar need for affordable housing, but to raise the quality of living for middle-class Americans. As an official Lustron marketing brochure touted, “Basic colors throughout the house harmonize with your own decorating ‘scheme.’ You get the beauty of porcelain combined with the strength and permanence of steel.”¹

Lustrons were ingenious not only in their materials, but also in their open floor plan, built-in cabinetry and appliances, and virtually maintenance-free all metal construction. Clad in one of four exterior colors of lustrous porcelain enamel, the houses were resistant to fire, termites, and

“You get the beauty of porcelain combined with the strength and permanence of steel.”

—Lustron marketing brochure

vermin. They originally were priced below \$10,000, making them comparable to similar conventional houses. A national sensation was created around this so-called “house America has been waiting for.”²

Headquartered in Columbus, Ohio, the Lustron factory was a massive former warplane plant large enough to contain the giant conveyor belts, welding rigs, sheet-metal presses, enamel sprayers, and other machines needed for the production of each house’s more than 3,000 parts. The process was so extensive and seamless that *Fortune* magazine heralded the “special kind of beauty” in the factory’s

The Lustron home’s serial number tag, installed in each home on the utility room wall.

—Image available from members.tripod.com/Strandlund/subStrand/lustronserialtag.jpg



Promotional advertisement showing the elegance and efficiency of a furnished Lustron living room. —Image from a Lustron promotional ad, courtesy of the Zeiger Collection.

23 acres of floor space, “alive in one long rhythmic flow.”³ At peak production, according to Lustron author Douglas Knerr, the Lustron plant used more electricity than the whole city of Columbus.⁴ Lustron production officially began on September 4, 1948.⁵

Although their fame was short-lived, the one-story, ranch-style Lustrons represented the only successful widespread use of steel porcelain enamel as an interior and exterior building material

Exterior of the Lustron Corporation factory in Columbus, Ohio. —Image from a Lustron promotional ad, courtesy of the Zeiger Collection.





Lustron creator Carl Strandlund.

—Image available from members.tripod.com/~Strandlund/subStrand/Strandlundportrait.jpg

for single-family homes. ⁶ “We can have homes like Lustrons,” asserted Lustron Corporation President Carl Strandlund, “because of the perfection of steel and the engineering genius which has produced a porcelain enamel—based upon trade secrets older than history—which lends itself to beautiful architecture and lifetime durability.” ⁷

With initial financial and political backing from the federal government, Lustrons became approved houses under the guaranteed mortgage program for returning veterans. Two- and three-bedroom models, with the customer’s choice of six interior color schemes and with optional garages available, offered variety in size and price. The first few homes were shipped out as “exhibit models” in several Midwestern cities such as Chicago and St. Louis, as well

as New York, Washington, D.C., and other large cities. Based on the popularity of these exhibit models, large concentrations of Lustrons were later shipped to the Midwest, the Mid-Atlantic states, and other regions. ⁸

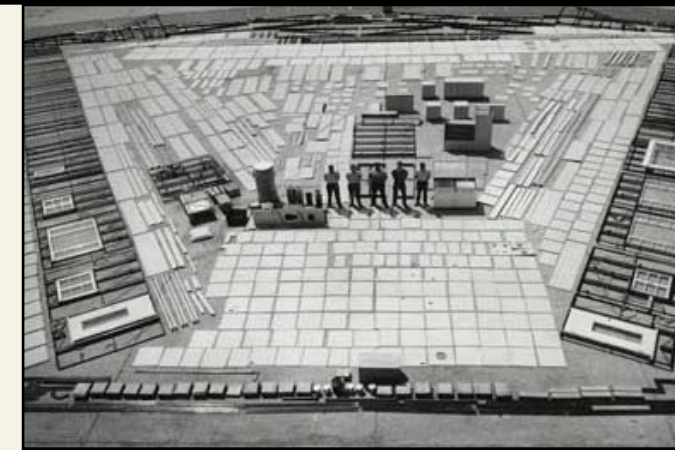
Yet even with \$37.5 million in federal subsidies, the company could fill only 2,680 of the more than 20,000 orders it received before declaring bankruptcy in 1950. Historians contend that it was difficult to implement a singular vision for factory-produced housing in a diverse, complex, and decentralized housing industry. The highly engineered houses posed problems for builders and were a “hard sell” for some real estate dealers, who also had to navigate building codes that often had no provisions for the Lustron’s modern design and building materials. ⁹ But the bankruptcy had more to do with politics—as fiscal conservatives questioned whether taxpayers should support Strandlund’s scheme—than economics or production (see Bibliography for sources on the history of the Lustron Corporation).

Today, the Lustron is significant not just as an American housing experiment and architectural icon, but as an unprecedented preservation challenge. Aside from

“We can have homes like Lustrons because of the perfection of steel and the engineering genius which has produced a porcelain enamel—based upon trade secrets older than history—which lends itself to beautiful architecture and lifetime durability.”

—Carl Strandlund

a small but growing and dedicated community of Lustron admirers, most Americans are unfamiliar with the Lustron’s fascinating history and rarity. Furthermore, because of their modest size, Lustrons are susceptible to demolition and are quietly disappearing from America’s architectural landscape. ¹⁰



The 3,000-plus pieces of one individual Lustron house all laid out.

—Image available from www.wosu.org/archive/lustron/house.php



An official Lustron truck, specially commissioned by the Lustron Corporation and packed at the factory in the order needed at the building site.

—Image available from www.lustron.org (search for historic images).

A Lustron home under construction.

—Image available from www.wosu.org/archive/lustron/house.php



Across the country, however, dedicated preservationists are working to save the remaining Lustrons and keep them in use as houses, museums, community centers, or for other public or private functions. In Arlington County, Virginia, the preservation of one of the County's few remaining Lustrons serves as a model for other localities contemplating or beginning a similar effort.

Arlington's Krowne Lustron House

Arlington County is a dense urban community located just west of Washington, D.C., that boasts a variety of historic resources, ranging from Civil War forts and early-20th-century commercial buildings to traditional bungalow and colonial revival neighborhoods, as well as military and national memorials. Yet the Arlington community is largely unaware that its post-World War II neighborhoods are also indeed historic in terms of age and architectural and social significance. Those houses, including the Lustron, that are of a more recent vintage are still often regarded as simply outdated. However, all Lustron houses are now over the fifty-year age threshold beyond which buildings are considered potentially significant under the criteria for the National Register of Historic Places. Several states, including Alabama,

Georgia, Iowa, Kansas, New Jersey, and South Dakota, have successfully added their Lustrons to the National Register.¹¹

With its large federal presence, Northern Virginia was a natural draw for the Lustrons. Construction of the Pentagon was completed in 1943, and the government needed housing for the thousands of workers who were pouring into the greater Washington region.¹² In December 1948, the U.S. Navy approved a contract for 60 Lustron houses—the largest quantity built in any one location and among the earliest Lustrons produced—at the Marine Corps Base in Quantico, Virginia. One Marine Corps general praised the Lustron because of its “attractive architecture” and “trim appearance.”¹³ The Navy Department accepted Lustron's bid for 30 two-bedroom and 30 three-bedroom homes because of the fact that, of all the bids submitted, Lustron offered the lowest total cost per square foot of usable space (\$10.21 per square foot for a total of 58,710 square feet). The proposed units, also described as “basementless bungalows,” were to house families of married officers and enlisted men attending the Marine Corps School. The first ten homes were to be completed within 50 days of the awarding of the contract, which required



*Enclave of original Lustrons at the Marine Corps Base in Quantico, Virginia. This subdivision of Argonne Hills in the central portion of the base was removed in October 2007.
—Cynthia Liccese-Torres, September 26, 2007*

“At first I thought the Lustron was 50 percent genius and 50 percent madness...Now I think it's about 90 percent madness, but it's historical madness! There should be one preserved.”

—Frank Phillips, disassembly crew chief, Capstone Properties, Inc.

Lustron to be ready for immediate production.¹⁴ Unfortunately, most of the Quantico Lustrons have been demolished and replaced with more contemporary housing. Recognizing their historic significance, base officials had offered the Lustrons to anyone who could arrange and fund their removal—but this process was largely unsuccessful. Aside from two houses the base will keep and reuse as offices, only one house was disassembled for preservation elsewhere, and 57 Lustrons were razed in 2006 and 2007.

On the civilian front, eleven Lustrons were built in Arlington County in 1949, amounting to the second highest quantity within Virginia.¹⁵ Similar to other two-bedroom Lustrons, the Westchester models built in Arlington featured two bedrooms and a single bath in 1,085 square feet of living space, with such standard amenities as radiant panel heating, a built-in combination dishwasher/clotheswasher/sink in the kitchen, and several large built-in closets and storage units throughout. Once considered an attractive and practical home, the image of Lustrons has been changed by the current local real estate market. The high land values and cost of housing in Arlington have increasingly endangered the County’s Lustrons, as new property owners tear them

Table 1. Lustrons in Arlington County, Virginia

Address and Neighborhood	Exterior Color	Factory Serial Number (if known)	Building Permit Approved	Construction Company	Year Demolished (as applicable)
1112 South Forest Drive, Virginia Heights	Surf blue (later covered)		5/4/49	Construction Associates, Inc.	—
1117 South Forest Drive, Virginia Heights	Dove gray (later covered)		5/4/49	Construction Associates, Inc.	—
1124 South Frederick Street, Virginia Heights	Dove gray with tan trim		4/11/49	Lustron Corporation (as stated on building permit)	—
2915 7th Street South, Arlington Heights	Dove gray with white trim		12/5/49	MacFarlane Enterprises	—
5201 12th Street South, Virginia Heights	Dove gray with tan trim	#549	5/4/49	Construction Associates, Inc.	Disassembly completed June 2006; awaiting reassembly
1818 North Randolph Street, Cherrydale	Dove gray		5/17/49	Construction Associates, Inc.	2003
4647 3rd Street South, Barcroft	Surf blue with yellow trim		1/7/49	Carlton Construction Corporation	April 2007
5200 12th Street South, Virginia Heights	Surf blue with yellow trim	#465	5/4/49	Construction Associates, Inc.	August 2005
3500 13th Street North, Ballston-Virginia Square	Maize yellow		2/15/49	Carlton Construction Corporation	By 1994
2812 23rd Road North, Maywood	Surf blue		12/31/48	Carlton Construction Corporation	By 1998
4831 24th Road North, Old Dominion	Desert tan		5/17/49	Construction Associates, Inc.	By 1998

Note: All the Lustrons built in Arlington County were Westchester Deluxe 02 models.

Source: Arlington County historic building permit records. On file with the Department of Community Planning, Housing and Development.

down to build larger houses in their place. As of late-2007, only four Lustrons remain intact of the original eleven (see Table 1).

In Spring 2005, Arlington County was presented with an extraordinary opportunity to preserve its best remaining Lustron. Dr. Clifford M. Krowne, who had just purchased a Lustron that was in nearly mint condition, offered to donate the house to the County if it could be moved off his property and put to a new use. With the exception of the kitchen appliances and toilet, this home retained all of its original interior and exterior features, including the built-ins in the dining room, living room, and bedroom; all of the floor-to-ceiling closets and the sliding pocket doors; all the metal paneling and roofing; the bathroom fixtures and Art Deco-styled bathtub; all the windows and doors; and the still-functioning Gas-o-matic furnace unit.¹⁶

In April 2006, Arlington's elected officials formally accepted the donation of the Krowne Lustron House and authorized funding to have the house disassembled and all of its components placed in temporary storage. Not only did this action save the house from demolition, it reinforced the

“Basic colors throughout the house harmonize with your own decorating ‘scheme.’...all the floor space in the house is living space.”

—Lustron marketing brochure

*Front elevation of the Clifford M. Krowne Lustron House on its original lot, 5201 12th Street South, Arlington, Virginia. A neighboring Lustron still stands at 1124 South Frederick Street (at far right of photograph).
—Cynthia Liccese-Torres, August 2005*



*Detail of original front porch pier and gutter.
—Cynthia Liccese-Torres, August 2005*



*Dr. Clifford M. Krowne, donor of the house, being interviewed on-site during the disassembly.
—Victor E. Muniec, June 7, 2006*





Authors' Note: In an interesting coincidence of fate, Bruce Ruble, former owner of the Krowne Lustron, grew up in another Lustron in Kansas City, Missouri, that was the exact same model and color. These historic photos, all courtesy of Ruble's private collection, show his family's Missouri Lustron being built, as well as charming images of his family life in this distinctive house.

The foundation has been excavated and poured for the Ruble home (serial #775), located at 14 E. Porte Cimi Pas, Kansas City, Missouri. Image dated May 17, 1949. Note the local Lustron dealer's "sold" sign prominently displayed in the front yard.



The foundation has set and the wall sections are being installed. Image dated June 13, 1949. In the yard, note the conveniently parked Lustron trailer, which would have been packed in the order needed at the building site. Another Lustron with the small square-shaped bedroom windows, typical of earlier models, already has been completed next door.



In just two days' time, all the wall framing is up and the roof trusses and panels in place. Image dated June 15, 1949.

Christmas joy abounds at the Ruble home, as a young Bruce delights in St. Nick's recent delivery. Image dated December 25, 1952.



Winter fun at the Ruble home. Image dated January 1953.



*Front entrance door, living room, and dining room of the Krowne Lustron House.
—Cynthia Liccese-Torres, June 2005*

*Bathroom of the Krowne Lustron House. All features are original, with the exception of the toilet, faucet, and shower head.
—Photographed by James W. Rosenthal, Historic American Buildings Survey (HABS), National Park Service, March 2, 2006*



*Master bedroom of the Krowne Lustron House with built-in vanity and closets.
—Photographed by James W. Rosenthal, Historic American Buildings Survey (HABS), National Park Service, March 2, 2006*



County's commitment to historic preservation in general and, more specifically, Arlington's more recent architectural past. The County's Historic Preservation Program staff continue to work with other staff in the County's Department of Community Planning, Housing, and Development; the Department of Parks, Recreation, and Cultural Resources; and the Board of Directors of the local nonprofit Arlington Heritage Alliance (AHA) to finalize planning efforts to implement the reassembly phase and subsequent reuse of the building. Such plans include gaining approval of an appropriate County-owned site where the house could be reassembled, securing funds for the expenses associated with reassembly, and determining a creative programmatic use for the building coupled with an interpretive program.

During the disassembly phase, which began in earnest on May 5, 2006, and concluded on June 8, 2006, County Historic Preservation Program staff and AHA Board volunteers thoroughly documented as much of the process as possible. This involved writing detailed site notes throughout the disassembly work, taking photographs of each phase, and hiring a videographer to capture key project milestones

(e.g., views prior to disassembly, deconstruction of the interior, removal of the exterior panels, removal of the roof trusses, removal of the wall sections, and interviews with the disassembly crew, County staff, and previous owners of the house). The results are comprehensive and capture each specific phase of the project. (In addition to this booklet, highlights of the disassembly are available in a companion video, available from the Arlington County Historic Preservation Program Office—see Bibliography and Additional Resources.)

The preservation of the Krowne Lustron is the result of a longtime collaboration between County government and staff, AHA Board members, and other Lustron aficionados, architectural historians, and concerned citizens and property owners. In the summer of 2005, the groups first worked together to save what they could of another Lustron across the street from the Krowne House that was scheduled for demolition that August (see “Salvaging Steel” sidebar on the following page). Even as the groups sought a preservation solution for the Krowne Lustron, they carefully salvaged dozens of historic pieces from the adjacent Lustron for possible reuse in other restoration efforts, including

exterior and interior wall panels, windows and built-ins, and other elements. Ever since, the groups have held numerous meetings and consultations to seek solutions and foster support for saving the Krowne Lustron, keeping the project alive in the minds of County planners, preservationists, elected officials, and the community at large.

The process of dismantling the thousands of components comprising the Krowne Lustron and storing the pieces for reassembly saved one more of the surviving Lustrons from the untimely fate of demolition. “At first I thought the Lustron was 50 percent genius and 50 percent madness,” says Frank Phillips, disassembly crew chief with Capstone Properties, Inc., the firm hired to dismantle the house. “Now I think it’s about 90 percent madness, but it’s historical madness! There should be one preserved.”¹⁷ Reassembling the Lustron is the final aspect of Arlington County’s long-term plan for preserving the house. This documentation project is a crucial step toward that goal. It also serves as a guidebook for other organizations, local governments, and concerned citizens that want to save these rare, unusual, and significant examples of our nation’s historical and architectural legacy.

WASHINGTON, D.C.’s LUSTRON DEALER

In July 1948, Carl Strandlund appointed Carlton Construction Corporation as the official dealer and erector of Lustrons in the Washington, D.C., area, including Arlington County. The firm was led by president Charles E.V. Prins and the construction supervisor was A.C. (Pete) Shire, formerly the chief engineer of the Federal Housing Administration.ⁱ The sales office opened August 3, 1948, and was located at 1013 15th Street, N.W., in Washington, D.C.ⁱⁱ

A Lustron exhibit house for the metropolitan region was built at the intersection of Rock Creek Parkway, New Hampshire Avenue, and E Street, N.W., in the nation’s capital. By the end of summer 1948, more than 75,000 curious visitorsⁱⁱⁱ had toured the model home, with 1,500 prospective buyers already on a waiting list.^{iv} The Lustron exhibit house remained open daily from noon until 10 p.m., from Memorial Day through December 12, 1948.^v Admission was 25 cents per guest.^{vi} During that summer’s heat wave, in which temperatures topped 100 degrees, Prins rushed down to the exhibit house to discover that the interior was a relatively cooler 88 degrees, leading a *Washington Post* real estate writer to note that, “if you can’t find a movie or an air-conditioned cocktail lounge during a heat wave, head for the nearest Lustron house.”^{vii}

Early estimates projected that the first Lustrons would be available in the Washington area in late August or early September 1948, with shipments expected at a rate of nearly 300 per year.^{viii} The first Lustron building permit in Arlington County was approved on December 31, 1948.^{ix}

By mid-August 1949, the Carlton Construction Company was out of business. The replacement dealership was MacFarlane Enterprises, led by Malcolm M. McFarlane and located at 728 17th Street, N.W., in Washington, D.C.^x As of January 30, 1949, a completed two-bedroom Lustron in the Washington, D.C., region cost \$9,188 – not including the price of the lot, refrigerator, stove, or settlement fees.^{xi}

- i “Lustron Names Dealer; 300 Units Per Year Allocated to D.C. Area,” *The Washington Post*, July 25, 1948, p. R1.
- ii “Lustron Opens Office Tuesday,” *The Washington Post*, August 1, 1948, p. R1.
- iii “Lustron Prefab to Remain Open,” *The Washington Post*, August 29, 1948, p. R1.
- iv “Lustron Names Dealer.”
- v “Lustron [sic] Model Home Due to Close Tonight,” *The Washington Post*, December 12, 1948, p. R3.
- vi “‘Model’ Way of Giving...,” *The Washington Post*, December 3, 1948, p. 16.
- vii “Realty Roundup,” *The Washington Post*, September 5, 1948, p. R6.
- viii “Lustron Names Dealer.”
- ix Arlington County [VA]. Building Permit number 22471 for 2812 23rd Road North, December 31, 1948.
- x “This Week in D.C. Real Estate,” *The Washington Post*, August 14, 1949, p. R9.
- xi “Post Takes a Camera Tour of New Homes,” *The Washington Post*, January 30, 1949, p. R1.

SALVAGING STEEL

Arlington County first became involved in Lustron preservation in summer 2005, when County historic preservation staff learned that a demolition permit was pending for a Lustron house right across the street from the gray Krowne Lustron. The threatened house, which was surf blue with yellow trim, was located at 5200 12th Street South in Arlington's Virginia Heights neighborhood, surrounded by World War II-era brick and concrete block colonials and more recent brick ramblers. The new owners of that Lustron had bought the house only for its lot. It was yet another case in Arlington in which the lot was considered more valuable than the house, which was destined to be demolished to make room for a new, larger home.

The salvage effort gave County staff and local advocates both an increased appreciation for Lustrons and an awareness of the challenges of preservation and disassembly. Local graduate student, researcher, and Lustron advocate Jennifer Sale contacted the property owners, Joe Porporino and Paul Finn, to ask whether the house could be photographed or any components salvaged before demolition. The owners were more than cooperative. For three days, volunteers from the County's preservation program and the Arlington Heritage Alliance braved the stifling August heat to salvage as much as possible before the bulldozer arrived and even during the demolition itself. "The fact that both owners were willing to work with us is a minor miracle," says Sale. "The current owners shared a bit of the passion about the Lustrons, and they obviously

had a desire to help save the history. That motivated us to begin the salvage effort."ⁱ

This makeshift salvage operation, nicknamed Operation Steel Panels by the salvage crew, yielded several lessons that would prove invaluable during the disassembly of the Krowne Lustron House nine months later. First and foremost, gloves and painter's masks were a necessity, given the amount of fiberglass dust particles in the air and debris generated by the process. Secondly, the crew quickly learned that some time should be spent beforehand determining the logical starting place on a wall or section (since panels were installed with the lip of one panel fitting under the next panel in succession). Once the first panel was removed, the rest of the interlocking panels often came off with relative ease.

In all, the volunteers salvaged dozens of pieces, including interior and exterior wall panels, cabinetry, windows, and fixtures. In one of the operation's most interesting discoveries, the removal of a stubborn exterior panel revealed a mid-20th-century glass milk bottle, probably stashed there during construction. The salvaged pieces have been inventoried, and some have been distributed to Lustron owners and enthusiasts. The remaining pieces are stored in a Virginia facility so that they can be available for either the reassembly of the Krowne Lustron (as needed) or for other preservation or interpretive needs.

"It was a real thrill to get into

the guts of the house," Sale says. "I had read a lot about how it was put together, but there were still some things that surprised me. The shell was lighter than I thought. It wasn't massive I-beams or big steel studs, just thin rods. Taking off one of the panels was like opening a closet door."ⁱⁱ

Components that the volunteers could not pry off were hauled away in a dump truck to be recycled at a local metal recovery facility, with the proceeds benefiting the demolition contractor. Overall, the effort proved that with a little planning and several willing volunteers, much can be salvaged from a Lustron facing demolition, and that remaining metal pieces can be given new life through recycling if reuse in another Lustron or for another purpose is not an option. However, to save other Lustrons from the landfill, Lustron owners and advocates nationwide would benefit from coordinating with each other to instigate salvage efforts and the transfer of usable parts for reuse.

ⁱ Jennifer Sale, Lustron researcher and advocate, phone interview by Kim O'Connell, August 2005.

ⁱⁱ Ibid.

*"Front door with a view."
—Cynthia Liccese-Torres, August 10, 2005*



Salvage crew volunteers. Front row (left to right): Jennifer Perunko and Sara Amy Leach. Back row (left to right): Kim O'Connell, Marlene Terreros-Oronao, Tom Dickinson, Cynthia Liccese-Torres, and Shannon Davis. —Victor E. Muniec, August 3, 2005



Freeing the bathtub, once the excavator partially demolished the bathroom. —Cynthia Liccese-Torres, August 10, 2005



Rear and left side elevations, showing salvaged panels and exposed wall framing. —Cynthia Liccese-Torres, August 10, 2005

After working from both the inside and outside of the house, salvage volunteers David Crane and Jennifer Sale finally remove the living room window. —Victor E. Muniec, August 8, 2005



DISASSEMBLING A LUSTRON

In essence, Lustrons were the ultimate modern kit houses. “Lustron’s home has involved expert engineering from many fields,” Robert Runyon, Chief Engineer of the Lustron Corporation, wrote in 1948. “Architects, mechanical, production, cost, ceramic, erection, heating, electrical, structural and plumbing engineers and experts were called upon to engineer the home as a complete unit.”¹⁸ All the components to build the house arrived on site in specially commissioned 45-foot tractor-trailers, which were packed in reverse order so that the builder could easily access the parts in the necessary sequence. The trailers, stocked with the walls in intact sections and the doors and windows in place direct from the factory, also conveniently served as on-site storage during construction.¹⁹

Assembly time depended on the number of crew members and their experience. In its early fact sheets, the Lustron Corporation admitted that erecting a Lustron initially took as many as 1,500 man-hours, but noted that engineering developments and “improved methods” had reduced this time to about 350 man-hours spread over two weeks—with some houses going up even quicker (see Table 2). This

took far less time than building a conventional house, the Lustron Corporation promised.²⁰

The house was constructed with steel framing, which was factory-welded into wall sections and roof trusses. Porcelain-enameled panels covered the roof and exterior and interior walls, which interlocked in a sequence and were secured with concealed screws. Plastic sealing strips formed gaskets between panels, ensuring airtight seals. Typically, Lustrons were assembled from 168 standard 2’x2’ exterior wall panels, 48 standard 8’x3’ interior wall panels, 53 standard 4’x4’ ceiling panels, and 242 roof panels. After workers poured a concrete foundation, steel walls with integrated windows and doors were quickly installed into steel channels bolted to the foundation. Internal, non-load-bearing walls and built-ins were installed next, as well as a series of steel roof trusses, to which overlapping porcelain-enameled roof panels were affixed. To maximize the open floor plan, the Lustron designers devoted more than 20 percent of total wall space to built-ins.²¹

Assembly was logical but highly detailed, requiring builders to closely follow the official Lustron

“Lustron’s home has involved expert engineering from many fields. Architects, mechanical, production, cost, ceramic, erection, heating, electrical, structural and plumbing engineers and experts were called upon to engineer the home as a complete unit.”

—Robert Runyon, Chief Engineer of the Lustron Corporation

Table 2. Assembly and Disassembly Hours

Total Lustron assembly time (as originally estimated by the Lustron Corporation)	Between 350 and 1,500 hours, depending upon the experience of the crew
Total time to label the Krowne Lustron	Approximately 7.5 hours by a crew of 5 volunteers (this included the labeling of the entire interior and exterior, minus the gable end panels and the roof panels)
Total time to disassemble the Krowne Lustron	Approximately 1,040 hours by a crew of 2 to 4 men over the course of 30 days



Detail of the metal tracking attached to the perimeter of the foundation where the wall sections were anchored. This tracking could not be salvaged from the Krowne Lustron site. —Cynthia Liccese-Torres, June 8, 2006

Erection Manual. Builders often found the Lustron to be over-engineered, complaining that “you could paper the walls with the assembly blueprints,” according to Douglas Knerr in his book *Suburban Steel*.²² The primary challenge in constructing a Lustron was the sheer number of parts, bolts, and screws that had to be installed in sequential order. Disassembling the Krowne Lustron posed similar challenges, in addition to unexpected considerations.

First Steps

Before the deconstruction officially got under way, Arlington County’s Historic Preservation Program staff—accompanied by visiting volunteers and Lustron experts Todd Zeiger and Erica Taylor of the Historic Landmarks Foundation of Indiana and local recruits from the Arlington Heritage Alliance—numbered and labeled every disparate piece of the Krowne Lustron to aid in reassembly later.

“I thought it was a cool design, a neat concept, modern, campy 1950s architecture—ahead of its time.”

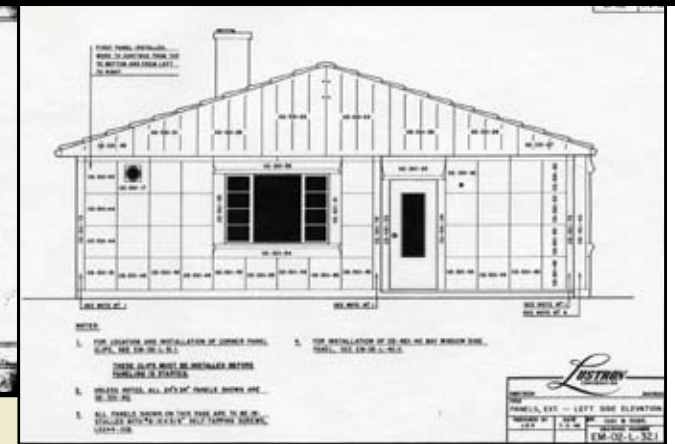
—Frank Phillips, disassembly crew chief, Capstone Properties, Inc.

Because of the complexity of the disassembly, the crew of volunteers agreed that labeling was a crucial step that needed to be completed systematically and thoroughly before disassembly began.

Essential supplies for the labeling process included several large rolls of blue painter’s tape and black permanent markers. This tape was easy to rip into individual pieces and could be removed easily from the panels or other surfaces if something was mislabeled. The tape did not leave any markings on the panels and was readily visible on every piece of the house. The Arlington volunteers recommend that if a panel or piece is particularly grimy, it is helpful to wipe down the surface first before affixing the tape, or labeling the item twice in different places in case one label falls off before reassembly begins. Half of the team began labeling the bathroom first since it was the smallest room, while the other team tackled the living room, and then the two groups rotated through the house. Because the Krowne Lustron was only a two-bedroom model, the team used a slightly modified version of the labeling system used in the Federal Emergency Management Agency’s report on Lustron disassembly (see Bibliography). For future projects, the Arlington crew recommends



Front cover of the Lustron Erection Manual for the Westchester 02 model.
—Courtesy of the Arlington County, Virginia, Historic Preservation Program



**FIRST PANEL INSTALLED.
WORK TO CONTINUE FROM TOP
TO BOTTOM AND FROM LEFT
TO RIGHT.**

Drawing EM-02-L-32.1 from the Lustron Erection Manual, showing the completed left elevation. A note in the upper left (enlarged here below the drawing) indicates the starting point for hanging the exterior panels on this elevation.
—Courtesy of the Arlington County, Virginia, Historic Preservation Program



Original dining room china cabinet with pass-through to kitchen, as labeled prior to disassembly.
—Todd Zeiger, May 3, 2006



Original and still functional Gas-o-matic furnace surrounded by labeled interior panels.
—Marlene Terreros-Oronao, May 3, 2006

using a labeling system that identifies whether the part is on the interior or exterior and on which elevation, before following a standard chronological numbering system.

For the labeling process, the team makes the following recommendations:

- First label and remove all small interior and exterior items, such as the electrical outlet covers, phone jack covers, light fixtures, door bell fixtures, kitchen vent, exterior house number, mail box, and so on. Because there are not as many screws involved with these smaller pieces, the original screws can be easily saved.
- Use re-sealable plastic bags to keep specific small items together and secure (such as outlet covers and screws, etc.), which can be easily stored together in a larger box on site.
- If original window blinds, other window treatments, or valance bars and hooks are to be saved, also label and remove these for safekeeping.
- Other fragile items, such as the bathroom medicine cabinet with mirror and vanity lights, should be removed and wrapped to prevent breakage. Towel bars and hooks also can be removed simply with a screwdriver. One can also label the bathroom vanity drawers and remove them, which aids in removal of the vanity unit itself.
- Flashlights and stepstools are helpful to view hidden screws and to reach ceiling panels and the tops of closets and built-ins.

For the actual disassembly, the County hired Capstone Properties, Inc., based in Ashburn, Virginia, to deconstruct the Krowne Lustron, with Dale Steinhauer, Capstone's chief executive, overseeing the project, and Frank Phillips serving as deconstruction crew chief. Another one to three workers assisted at various points throughout the four-week disassembly effort (and the crew recommends no more than four people at a time for such a modest-sized house). As a safety precaution, especially to keep out curious onlookers and neighborhood children, a temporary chain link fence was installed around the property perimeter and remained in place during the entire disassembly. The crew also relied on portable lighting sources and a small generator to illuminate the shade-covered house, which often got quite dark on cloudy days.

Before lifting a single tool, the crew studied the official Lustron Erection Manual for the Westchester Deluxe model, a photocopy of which was stored in the County Historic Preservation Program's historical building files. (For other copies, especially of different models, check local libraries, historical societies, or the Internet.) The detailed construction manual outlines every aspect of construction



*Rear (west) and left (south) elevations, with most exterior panels and features labeled with blue tape.
—Victor E. Muniac, May 3, 2006*



*The Disassembly Crew (left to right): Nery DeLeon, David Solis, Matthew Phillips, and Frank Phillips
—Cynthia Liccese-Torres, June 6, 2006*

*Front (east) elevation just prior to disassembly, with construction fencing around the lot. Note tractor trailer parked in driveway.
—Victor E. Muniac, May 3, 2006*



from pouring the foundation to hanging the panels and installing the assorted fixtures. Because Lustron construction was so tightly sequenced, the Arlington crew began working from the back of the manual toward the front, which essentially meant disassembling the house from the inside out and in the reverse order in which it was built. The manual includes illustrations with notes indicating where construction was to begin on any given wall, ceiling, or roof section.

Due to the heavily wooded corner lot on which the Krowne Lustron was located, and with insufficient County-owned storage space available, there was little room to store the various parts as they were taken off the house. The County rented a portable storage trailer box from A & A Transfer Company in Chantilly, Virginia. At 44 feet in length, the truck was comparable in size to the original Lustron truck (although it was not open-sided like the original) and was parked conveniently in the driveway and later moved to the street. This allowed easy access for the crew to load the truck, as well as extra security for all of the components, throughout the disassembly process. Upon completion of the disassembly, the loaded truck was delivered to A & A's storage warehouse, where items remain stored until the

County is ready to have the trailer re-delivered when reassembly is to begin.

Finally, Shannon Davis, then chair of the Arlington Heritage Alliance, created a daily log sheet (see Appendix) in which the contractors, County staff, AHA volunteers, and observers could document each day's activities. The log included spaces for such information as the name of the recorder, the date, number of workers, which rooms and/or walls were being disassembled, and additional handwritten comments. All of the blank and completed sheets were secured on a clipboard and located near the Erection Manual so that they were easily accessible at the site. These field logs provided an efficient way to capture the daily details of the disassembly and the resulting compilation of field notes and observations provided the basis for many of the suggestions offered in this booklet. In addition, staff and volunteers both photographed and videotaped key aspects of the disassembly, creating a permanent record that will offer helpful insight to other people and localities that are planning a similar effort.

Interior Walls and Ceiling

Using a variety of basic tools, the crew began by taking out the living



*The rented 44-foot storage trailer parked along 12th Street South.
—Cynthia Liccese-Torres, June 6, 2006*

room's built-in bookcase and the interior wall panels in the living room and master bedroom, which were among the last pieces of the Lustrons that were installed. The built-in china cabinet between the dining room and kitchen was removed in three large pieces. The first piece to be removed was the large, vertical floor-to-ceiling piece that faces the hallway to the kitchen. The second piece was the top section of the cabinet, followed by the bottom section. Due to its large size, the great number of screws holding the sections together (some of which are quite inaccessible), and the fact that both the top and bottom sections of the unit also are bolted to the

wall, this particular piece was very cumbersome and challenging to dismantle. Hall closets were also unwieldy.

Once interior wall panels were removed, the interior wall sections were difficult to deal with because the steel was bolted into the ceiling structure. To get around that, the crew shifted ceiling panels back and forth until they were able to dismantle all the interior walls; the ceiling panels themselves, however, were not removed until the interior was completely gutted and all the interior framing exposed.

The Lustron's radiant heating system relied on its insulated

Interior wall panels being removed along the front wall of the master bedroom.
—Victor E. Muniec, May 5, 2006

David Solis and Frank Phillips removing the first interior piece – the built-in mirror and bookcase unit in the living room.
—Victor E. Muniec, May 5, 2006



View of second bedroom looking northwest, with exposed wall framing, ceiling panels, plenum, and fiberboard insulating panels above. The plenum is the black rectangular box extending below the insulating panels and above the ceiling panels.
—Charles Craig, May 18, 2006



View of gutted bathroom with panels stacked along wall; note exposed insulation and structural framing.
—Victor E. Muniec, May 10, 2006

walls, electric oil-fired forced-air furnace, and a six and one-half-inch thick plenum. This plenum chamber was created by attaching insulation board to the underside of the roof trusses, creating a space between the boards and the ceiling panels through which the radiant heat would reach all sections of the house.²³ This structure, unfortunately, proved difficult to deal with during disassembly because the plenum does not extend all the way out to all of the exterior walls. These lengths were capped with an overlay, which had a metal lip that was hammered into the ceiling panels. Using hammers, the crew pried the lip out throughout the length of the plenum, which Frank Phillips estimates was about 75 linear feet in total. Dale

Steinhauer believes that other disassembly crews might have an easier time if they can find a way into the attic space and remove the overlay from above.

A critical step in the disassembly was dealing with the fiberglass insulation that was affixed behind the exterior panels and between the plenum and ceiling panels. The Krowne Lustron had dual layers of insulation—the original, thin layer attached to the back side of the panels, and a second, fluffier layer that was blown in by a subsequent house owner more recently, according to Bruce Ruble, a former owner who sold the house to Krowne in 2005.²⁴ To save time, reduce unnecessary clean-up of debris, and eliminate a considerable

Interior paneling is partially removed, showing the wall sections comprising the bathroom, hallway, and utility room.
—Tom Dickinson, May 2006



Interior view looking southwest from the master bedroom towards the kitchen and bathroom.
—Victor E. Muniec, May 17, 2006

Interior view looking southeast from the second bedroom towards the living room.
—Victor E. Muniec, May 17, 2006



amount of manual labor, the crew hired an insulation company, Southland Insulators of Manassas, Virginia, to vacuum out most of the abrasive insulation material above the ceiling panels in the attic area. To remove the material, Southland simply reversed the hosing system through which they normally blow in insulation, ultimately filling about 35 large garbage bags. The whole process took about five hours, but was more than worth the time and expense since it significantly eased the subsequent removal of the ceiling panels. In addition to concerns about asbestos, fiberglass particles are very irritating to the eyes, throat, and skin, and the crew thought it was best to get rid of the material prior to removing any of the interior ceiling panels or exterior panels. That said, because of the configuration of the house, only about 80 percent of the insulation was removed by the vacuum. Both

during and even days after this process, fine particles, dust, and irritants still were present in the air and the crew and visitors to the site often wore protective masks and gloves.

The cement board asbestos panels affixed above the ceiling panels were laid in sequence and held in place with strips and wing nuts, Phillips says, which were often rusted through from the water vapor caused by the radiant heating system. “I would say we used about eight cans of WD-40 when we went through and took off the ceiling panels,” Phillips says. “So we went through and sprayed every one of those panels ahead of time. I wouldn’t think they should ever use the asbestos panels again [in a restored Lustron, for instance]. The air is blowing all through that, so if it’s going to pick anything [toxic] up, it’s going to get into the air.”²⁵ Because of their concerns about the material, the crew disposed of the panels and lining at a special hazardous waste landfill in Lorton, Virginia.

The disassembly crew also uncovered several original tags that are especially instructive and interesting for Lustron researchers. In the bathroom, for example, an original green inspection tag from the Lustron factory was still affixed to the service wall between the

bathroom and the utility room, which hid the wires and mechanical systems used in the house. The tag was titled “Lustron Quality Control, O.K. Stock Tag” in the upper left-hand corner, then signed and dated by the inspector at the bottom. The tag also indicates the house’s lot number, which corresponds to the individual serial number (in this case #549). This was the only such tag found during the disassembly, though it is hoped that future Lustron disassembly crews may discover similar tags.

Small rectangular black metal tags, also attached at the factory, were found throughout the house on each wall section and affixed by a thin metal wire. The numbers on the tags corresponded to each wall section as labeled in the Erection Manual. Also of interest was an intact label from one of the fiberboard panels located above the ceiling panels. It bears the name “Careystone” at the top, manufactured by the Philip Carey Manufacturing Company in Cincinnati, Ohio. The label identifies the material as “Coverall Board,” an asbestos and cement board product. Other future Lustron disassembly projects may reveal similar or other tags and labels, which should be documented and saved so that others may be made aware of the types of original Lustron

documentation that potentially can be found within the house structure itself.

Exterior Panels, Roof, and Framing

Once the interior cabinetry, paneling, and appliances/fixtures were removed, the crew next tackled the exterior. The general order of disassembly was first the exterior wall panels (the crew started on the far right side of the front elevation), then the roof panels (working from

LUSTRON Quality Control		SERIAL NO.	
O. K. STOCK TAG			
DWG. NO. OR PART NO.	CHG.	LOT NO.	
02-201-75-C		549	
PART NAME OR DESCRIPTION OF MATERIAL			
SERVICE WALL			
WORK ORDER NO.	REQ. NO.		
LAST OPERATION NO.	QUANTITY O. K.		
ASSEM	1		
FOR RECEIVING QUALITY CONTROL ONLY			
P. O. NO.	R. R. NO.		
O. K.			
INSPECTED BY <i>Bower</i>			
CLOCK NO.			
DATE <i>5/9/49</i> TIME <i>9</i> A.M. P.M.			
Form No. 368-1			



*View of original pipes and wiring behind service wall between the bathroom and utility room; note house serial number #549 written in white in upper left and the original green inspection tag from the Lustron factory dated May 9, 1949.
—Victor E. Muniec, May 10, 2006*



Original label from asbestos board above ceiling panels and below the plenum.

Original “OK” inspection tag from the Lustron factory, dated May 9, 1949.



*Detail of structural framing with metal tag identifying wall section.
—Cynthia Liccese-Torres, June 6, 2006*

the top of the ridge downwards), the gable ends, and then the exterior wall structure. The crew rented a small crane that could maneuver the tree-filled lot, lift the roof trusses off the house one-by-one, and stack them in the yard in preparation for placement in the storage trailer.

Perhaps the single biggest challenge during the disassembly of the Krowne Lustron was the abundance of rust, especially in the gable ends of the house and in the bathroom. On the gable ends, eight vertical panels go across the space, with a riveted strip covering the seam with the wall structure where the vertical pieces interlock with the soffit underneath. When the crew removed the riveted strip, the panels were entirely rusted, as were some of the soffit and brackets. “When we took that strip off, you could see that it was completely a mess,” Phillips says. “[If this were to be repaired,] we could get wider molding and probably sink some screws through it, and that way it could cover the rust and still be intact.”²⁶

Because the trusses were installed so uniformly and securely in the wall structure, with a disparity of perhaps less than an eighth of an inch, the crew decided that the trusses needed to be removed whole rather than taken apart in two sections. This tactic also eliminates

the need to bolt the trusses back together when the house is reassembled. Using the crane and a mini-excavator, the crew stacked and stored the trusses and all the Lustron parts in the trailer. Again, taking the initiative to rent this extra heavy equipment saved the crew many hours of manual labor. The trusses were unwieldy, but handled with ease by the crane.

Arranging the Truck

During its heyday, the Lustron Corporation used its specially packed trailers as part of its marketing campaign. The brightly colored blue and yellow trailers permitted “ready visibility and an appearance of neatness and cleanliness which is evident in the house,” the original Lustron Corporation fact sheet touted.²⁷ The packing process was fascinating even for Lustron factory workers. “The walls were pre-wired, pre-plumbed, and then loaded on the special Freuhauf trailer as it slowly moved along on tracks embedded in the floor [of the factory]. Parts were loaded in sequential order,” recalls former Lustron employee Alex James, in a January 2006 article in *Preservation Online*.²⁸

Reminiscent of the efficiency of the original Lustron factory workers, the Capstone crew diligently packed the 44-foot trailer as carefully as



Removal of the first exterior panels on the front elevation; note the pile of fiberglass insulation from the panels stacked on the front lawn.
—Victor E. Muniec, May 2006



Removal of vertical panels on gable end of right (north) elevation.
—Victor E. Muniec, May 2006



Detail of rusting at base of vertical panels along the gable ends.
—Todd Zeiger, May 3, 2006



Bathtub rust.
—Marlene Terreros-Oronao, May 3, 2006



The crane gets situated in the driveway in preparation to remove the roof trusses.
—Cynthia Liccese-Torres, June 8, 2006

possible during the disassembly. Using the crane, the crew supervised the lifting of all the roof trusses and wall sections off the house, and then guided the pieces into piles for loading in the trailer. Then, the crew used a mini-excavator to leverage these pieces onto the truck. The crew encountered some difficulties, however. First, once the first truss was removed, the next few fell over like dominoes. It took the crew some time to readjust the fallen trusses and loosen their screws in preparation for being lifted off. Also, the mini-excavator could get the trusses into the truck only so far, so the crew had to push, pull, and adjust them inside the rest of the way, a difficult process that resulted in some pieces getting slightly bent. Frank Phillips is confident that those pieces can be straightened out again before reassembly.

“When you don’t take apart the trusses, they are 35 feet long, so they take up the bulk of the truck,” Phillips explains. “If you had stood the trusses up, they would have taken up half the truck, so we laid them down flat, and that’s where it really got tough. But they all fit on top of each other.”²⁹ The crew used plastic wrap material, corrugated cardboard, and even carpeting from the house to wrap windows and



The first of the interior house components stored away in the trailer.
—Tom Dickinson, May 2006

other parts that might risk visible scratching.

For future efforts, the crew recommends using an open-sided or flat-bed trailer—similar to the type of truck on which Lustrons were originally transported—to store the housing parts during disassembly. A rented on-site storage container or garage also would be helpful to store items temporarily until they can be most efficiently placed onto the trailer or until needed for reassembly.

Special Challenges

Unfortunately, rust, asbestos, and fiberglass insulation all posed problems during the deconstruction. As a result, not all of the original house components could be saved. In the bathroom, the bathtub area was covered in the inevitable rust



Securing the first roof truss to be lifted by the crane along the northern edge of the house. This process was made easier by three crew members – one on each end to loosen the corner bolts and one in the middle to secure the truss to the crane anchor.
—Cynthia Liccese-Torres, June 8, 2006

The first roof truss is lifted up and away!
—Cynthia Liccese-Torres, June 8, 2006



that comes with metal’s constant exposure to and contact with water. The curved metal panel pieces that rested on the top edge of the bathtub were rusted out and

not salvageable. Another interior trim component that could not be salvaged was the original dark brown mastic baseboard used



*The whole crew adjusts the fallen roof trusses that collapsed upon removal of the first truss.
—Cynthia Liccese-Torres, June 8, 2006*

throughout the house. In many instances, it was just too brittle and cracked upon removal.

The original tile flooring in the Krowne Lustron House was dark brown speckled with white and red. Many of the tiles cracked as the project progressed, but County preservation staff, consulting with Lustron expert Todd Zeiger and others, had already made the decision to discard the flooring due to the likelihood of asbestos content. For the reassembly phase, a new tile floor reminiscent of the original will be installed.

Another major challenge was that the Lustron's original screws

were difficult to remove. Like the builders who first erected Lustrons, crew chief Frank Phillips found the house to be over-constructed. Throughout the house, screws went into a slot in the steel channels, which were called studs, with two screws per panel. These grooves were unlike standard screw holes, making the screws often difficult to remove. Because the machine screws do not contribute to the house's historic integrity and because screws of this type are still being manufactured and are widely available, the team decided to dispose of the old screws. New ones will be installed during the reassembly.

Carpeting and fiberglass insulation were also a nuisance in the disassembly. The Capstone crew recommends taking out any existing carpeting (including pads and tacks) or other floor coverings before beginning any interior disassembly work. In hindsight, the crew regrets

not taking this step their first day at the site and was forced to deal with the clutter of carpet residue throughout the disassembly. Removing the carpet also would have made it easier to access the steel wall channels that were sunk into the concrete slab. The

RECOMMENDED EQUIPMENT AND SUPPLIES

- Original Lustron Erection Manual
- Permanent markers and weather-resistant and removable tape, such as blue painter's tape, to number and label parts before disassembly
- Standard tools: Hammers, screwdrivers (both manual and electric), small crowbars (Note: Lustrons were erected with slotted and nut-bolt screws.)
- Socket sets of various sizes
- WD-40 (approximately 8 to 10 cans)
- Gloves and face masks
- Portable lighting, including flashlights and floodlights or lanterns
- Small generator to charge tools and lighting
- Plastic re-sealable bags to contain small items
- Small boxes to store baggies and other small house components
- Mild spray cleanser and paper towels, which can adequately clean most surfaces
- Heavy duty trash bags
- Hand truck
- Portable scaffolding
- Tyvek, to cover extracted insulation once it is removed
- Stepstool
- Ladder
- Crane
- Mini-excavator
- Trash dumpster
- Flat-bed or open trailer for storage
- On-site garage or rented storage container for tools, etc.

Arlington crew also recommends removing as much of the fiberglass insulation and residue as possible throughout the disassembly. Cleaning off the back sides of the exterior panels and removing any clumps of insulation still attached to the wall sections will not only result in better air quality for the crew, but also will insure that the irritating debris is not stored away with the house parts.

“After it was all done,” Phillips says, “I was surprised it came apart as easily as it did. Because I don’t think the Lustron Corporation ever thought these houses would come apart. I don’t think they thought, ‘In fifty years, they will come along and say if they can’t take it apart, it will reflect badly on us.’ In the end, I was most proud of just having done it.”³⁰



*“Have tools, will disassemble.” Crew members prepare for the final hours of the disassembly effort (left to right): Nery DeLeon, David Solis, and Frank Phillips.
—Tom Dickinson, June 8, 2006*



*“Hard day’s work.” Only the house foundation and tile flooring remain, as crew member Matthew Phillips reflects on the final day’s progress.
—Cynthia Liccese-Torres, June 8, 2006*

LUSTRON PRESERVATION NATIONWIDE

Today, Carl Strandlund would no doubt be gratified to see the growing nationwide interest in preserving Lustron houses. Across the country, dozens of individual homeowners have carefully restored their Lustrons or registered them on-line, where they connect with other Lustron devotees. Organizations such as the National Trust for Historic Preservation and the Recent Past Preservation Network tout Lustron salvage, disassembly, and preservation efforts on their web sites. Communities like Arlington County harness public officials and private volunteers to save Lustrons and give them new life.

Several groundbreaking Lustron preservation efforts have taken place in the Midwest, which is fitting given the Lustron Corporation's roots in the Heartland. In Columbia, Missouri, the Boone County Historical Society has recently completed disassembly of the only known Lustron in the county, which was donated to the society for inclusion in a historic village. The society serendipitously found the original Lustron Erection Manual in a kitchen drawer in the dove-gray house.ⁱ In Great Bend, Kansas, the Barton County Historical Society Museum and Village has completed reconstruction of a donated Lustron on their site. Great Bend has been named the "Lustron Capital of Kansas" because 18 of the houses were built there, more than any other city in Kansas.ⁱⁱ

The Whitehall Historical Society in Ohio broke ground on the foundation for their relocated Lustron in 2006. Once completed, the structure will serve as both the historical society office and as a public museum. The society acquired the main house from an Ohio couple, roof panels from the city of Fontana, Wisconsin, and a garage from a Columbus, Ohio, Lustron.ⁱⁱⁱ

In Indiana, which has about 148 Lustrons throughout the state, the Historic Landmarks Foundation has been engaged in an interesting disassembly and preservation project for a Lustron at the Indiana Dunes National Lakeshore, a national park unit. The National Park Service owns several historic buildings within the lakeshore boundary and it often works with the Landmarks Foundation to find new owners willing to restore or relocate these buildings. In 2006, the Foundation sent out a request for proposals to disassemble

and restore a Lustron on the lakeshore, ultimately awarding the contract to an engineer with a strong interest in porcelain-enameled metal. Similar to the Arlington project, the owner worked with the Historic Landmarks Foundation to disassemble the house and store the components, with an eye toward eventual reconstruction elsewhere.^{iv}

Todd Zeiger, director of the Foundation's Northern Regional Office in South Bend, is now preparing technical briefs that will document the lessons learned on that project and offer guidance for similar efforts elsewhere. "The closer you can work with the Erection Manual, the better off you will be," Zeiger says. "Without the manual, you will be fighting the Lustron every step of the way. Pretend you're working on the car. You wouldn't dare do it without the manual, and the same goes for a Lustron."^v

Why does this quirky metal abode garner such lasting attention? "It's the house," as Lustron author Douglas Knerr says. "There is still nothing quite like it, and anyone who has ever set foot in one is likely to remember the experience."^{vi}

ⁱ Greg Miller, "Steel House Needs a Home," *Columbia Daily Tribune*, November 13, 2005; available from: www.showmenews.com/2005/Nov/20051113News006.asp.

ⁱⁱ The Barton County Historical Society Museum & Village web site, "The Village and Its Buildings," available from: www.bartoncountymuseum.org/buildings.html

ⁱⁱⁱ City of Whitehall web site, Parks and Recreation page; available from: www.ci.whitehall.oh.us/parks.aspx

^{iv} Todd Zeiger, Director of the Northern Regional Office of the Historic Landmarks Foundation of Indiana, phone interview by Kim O'Connell, December 4, 2006.

^v Ibid.

^{vi} Douglas Knerr, *Suburban Steel: The Magnificent Failure of the Lustron Corporation, 1945-1951* (Columbus: Ohio State University Press, 2004), 183.

"You are 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."

—Carl Strandlund

Authors' Note:
The following pages contain detailed and enlarged views of various stages of the disassembly process.



*Removal of ceiling panels, looking north towards the master bedroom.
—Charles Craig, May 18, 2006*



*View of gutted interior looking southeast towards the living room.
—Victor E. Muniec, May 18, 2006*



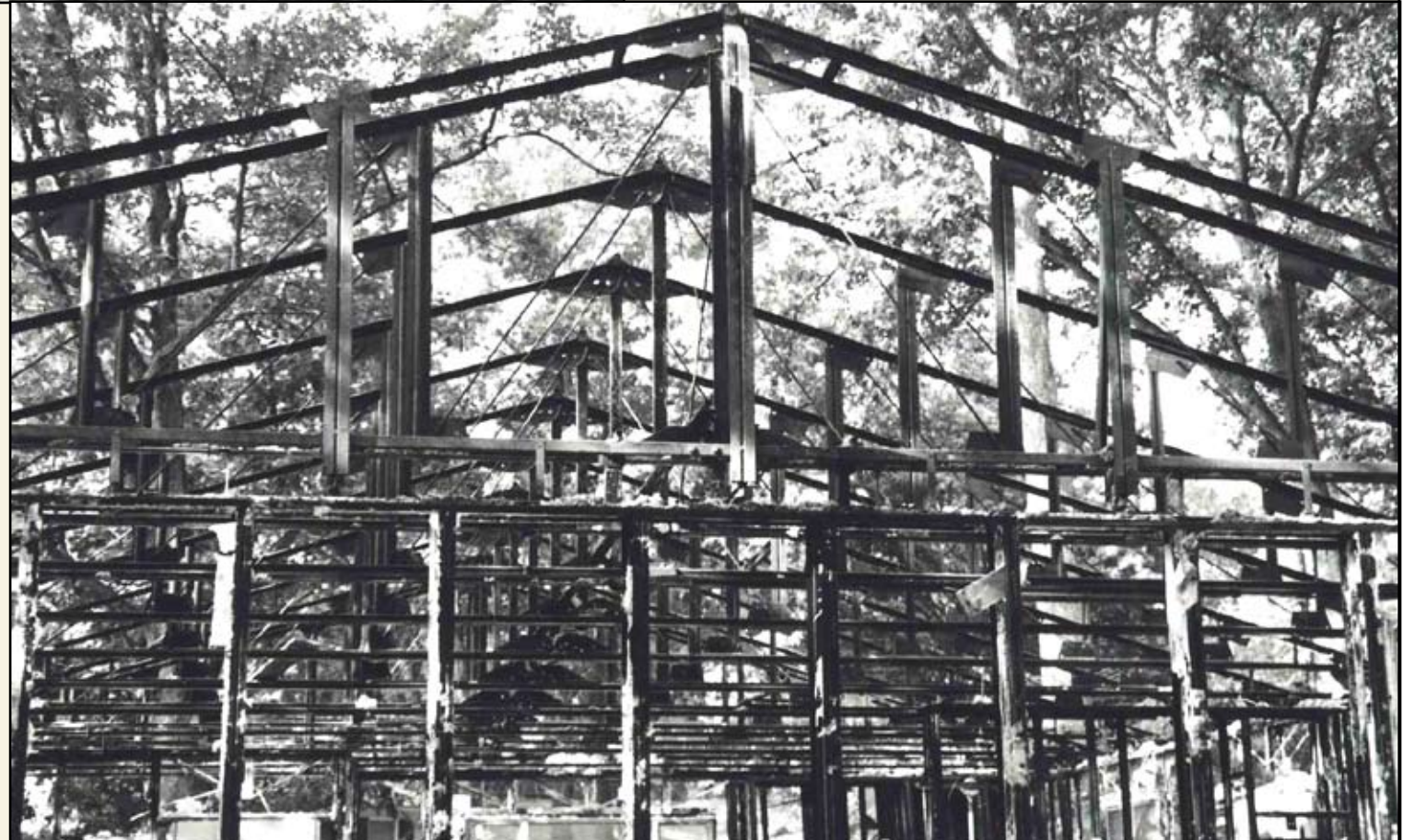
*Detail of exposed roof trussing and underside of roof panels.
—Charles Craig, May 18, 2006*



*View of rear (west) elevation with all exterior panels and insulation removed.
—Victor E. Muncie, May 2006*



*Only the metal shell remains, looking southwest.
—Cynthia Liccese-Torres, June 6, 2006*



*Detail of roof trussing system, looking south.
—Cynthia Liccese-Torres, June 6, 2006*



*View of rear (west) elevation, looking east.
—Cynthia Liccese-Torres, June 6, 2006*

*Detail of ends of roof trusses at southwest corner of house.
—Cynthia Liccese-Torres, June 6, 2006*





Detail of corner bracing and sill plate; note the large size of the bolt at the bottom right.
—Cynthia Liccese-Torres, June 6, 2006



Detail of roof trusses looking up through the roof; note the rectangular opening in the middle for the chimney flue.
—Cynthia Liccese-Torres, June 8, 2006



*Removal of the wall sections begins; view of the northeastern corner of the house and the master bedroom's front wall.
—Tom Dickinson, June 8, 2006*



*Removal of the first section of the right (north) wall in the rear bedroom.
—Victor Muniec, June 8, 2006*



*Maneuvering a wall section into the storage trailer with the assistance of a rented Bobcat.
—Cynthia Liccese-Torres, June 8, 2006*

PLANNING FOR REASSEMBLY

Although several decisions are yet to be made, the ultimate goal is to reassemble and restore the Krowne Lustron in Arlington County for a creative new use, such as public gallery space, a studio, or office. Although a crew could ostensibly follow the original Lustron construction manual when reassembling a Lustron for preservation and reuse, the disassembly of the Krowne house revealed several important considerations. Before reassembly is to begin, a power-wash station could be rented and kept on site to clean parts as they come off the trailer. A small crane also would be helpful in lifting parts—especially major ones such as the wall sections and roof trusses—off the trailer and into position.

Secondly, before construction, all slotted screws should be replaced with Phillips head screws so they could be easily drilled in or bolts that could be installed with Allen wrenches. Standard-size screws were used throughout the Lustron and could be easily replaced because of the widespread availability of similar machine screws, as previously discussed.

Larger considerations involve replacing the original heating

system and the roof sections that are prone to rust. Lustrons experienced high heat losses, especially in Northern climates, because of the single-glazed windows, thin walls, and the fact that the plenum did not extend to all the exterior walls. When restoring these houses, localities must consider an updated or alternative heating and cooling system—such as a radiant floor heating system—that would make the space comfortable without sacrificing or being intrusive to historic building fabric. This might involve cutting vents in inconspicuous locations along the interior wall panels, such as in the service-oriented utility room.

Because the metal molding along and beneath the Krowne Lustron's gable ends was so rusted, reassembly crews may have to consider casting new wide metal pieces to cover the rusted areas and give workers a larger area in which to affix the vertical gable pieces. Another option would be to salvage less-damaged pieces from other Lustrons being demolished, but this would require significant coordination. Even if new metal parts could be cast, it could be difficult to match their porcelain-enameled appearance to those of the original parts. Yet such a distinction could serve as

a testament to the failure points of the original construction and readily distinguish any modern replacement pieces from their original counterparts. Likewise, the panels that went around the bathtub were similarly rusted out and need to be replaced. The Capstone crew suggested using an auto body metal shop to repair or even recast these pieces, but felt that it would be difficult to match the porcelain-enameled finish (which might, however, allow a distinction between old and new, as mentioned above).

When reassembling a Lustron or making changes to accommodate modern functions or mechanical

systems, it is recommended that municipalities work closely with local historic preservation departments and advocacy groups to ensure that as much original building fabric is protected as possible. The Capstone crew recommends allowing at least eight weeks to reassemble the house, not counting all the site preparations ahead of time, such as clearing and grading the land, setting up utilities, pouring a new foundation, and so on. Replacement parts, such as the rusted-out gutters, should all be cast before reassembly begins. “I’m in love with the concept of the Lustron,” says Dale Steinhauer, “and I hope it will all work out for

THE NATIONAL TRUST'S LUSTRON WEB SITE

When it comes to the Internet, Lustron lovers have several web sites where they can find registries of Lustron houses, news about Lustron preservation nationwide, and brief histories of the ill-fated Lustron Corporation, but the information can be difficult to find and varies widely from site to site. To put the best information on Lustrons in one place, the National Trust for Historic Preservation developed a comprehensive web site for Lustron owners and advocates. Led by the Trust's Midwest Field Office, the site includes an architectural and social history of the houses, an interactive timeline, technical information for homeowners, repair instructions and demonstrations, a “Lustron Library” of photos and online manuals, a Lustron marketplace, and a Google Map-linked database of all the surviving houses. The web site can be found at www.lustronpreservation.org.

the rehabilitation of the [Krowne] Lustron. It's unfortunate that the Lustron Corporation went down the tubes because it was a good concept. Lustrons are constructed well because they were built in a factory....I'd like to see something like that now because the costs of housing are through the roof."³¹

Disassembling and reassembling a Lustron house for preservation and reuse requires passion, commitment, technical expertise, and patience. Yet many communities like Arlington County are gaining appreciation for these houses for their charm, durability, and modern appeal. "You are making one of the vital and most important contributions to the American way of life," Carl Strandlund told Lustron Corporation employees in 1948. "It is a challenge worthy of the best in all of us."³² The same could be said for preserving these modern metal marvels.

THE *L*USTRON HOME
REG. U.S. PAT. OFF.

Never before in America a house like this



Somehow, some way, you knew that modern engineering "know-how" would go to work in home construction just as it has in automobiles.

The Lustron Home is the answer—with cost-saving volume-production techniques, unit assembly, and precision engineering applied to home building.

Here is a new standard for living, a home of cheerful convenience with the beauty of porcelain and lifetime strength of steel. Read some of the details about this new contribution to American living—the new Lustron Home described here.

LUSTRON CORPORATION
 Box 2023A, Columbus 16, Ohio @L.C.

This is your opportunity to enjoy the home of your own you have dreamed about all these years. And you can afford it if you can pay \$50 to \$60 a month.

A home of colorful beauty, spaciousness, lasting permanence. A home so easy to maintain and keep clean. A home you can be proud to own—and a welcome addition to the community.

Size—five spacious rooms, plus large utility room—total of more than 1,000 square feet.

Design—follows growing trend toward contemporary ranch-style architecture. Choice of colors for exterior and interior, all in non-glossy, porcelain enameled steel.

Permanence—fireproof, decay-proof, rustproof, termite-proof, verminproof, ratproof. Sunlight, salt water, or chemical fumes cannot stain or fade finish. It will never fade, crack, or peel.

Maintenance—can be kept clean with damp cloth. Never needs repainting, redecorating, or reroofing.

Heating—most modern type of radiant panel heating from ceiling. Automatic heating unit in utility room. Eliminates air currents that carry dust and dirt through house. Proved in two years of severe Chicago winters. House is fully insulated.

Erection—The Lustron Home will be shipped f.o.b. Columbus to builder-dealer. It can be erected on the site in three to four days, from completion of concrete foundation to putting key in front door.



The Lustron Home—a new standard for living—features this spacious 14 by 16-foot living room with big picture window and built-in bookshelves.



END NOTES

- 1 Thomas Fetters, *Lustron Homes: The History of a Postwar Prefabricated Housing Experiment* (North Carolina: McFarland & Company, Inc., 2002), 21.
- 2 Douglas Knerr, *Suburban Steel: The Magnificent Failure of the Lustron Corporation, 1945-1951* (Columbus: Ohio State University Press, 2004), 1-2, 137; Fetters, 74-75.
- 3 Knerr, 81, 120.
- 4 *Ibid.*, 1.
- 5 “House Output Begun at Nine Per Minute,” *The Washington Post*, September 5, 1948, p. R2.
- 6 Jennifer Sale, “Multiple Resource Listing for Lustron Houses in Arlington County, Virginia.” Research conducted and draft nomination prepared Fall 2004; draft still in progress.
- 7 Fetters, 50.
- 8 Knerr, 107.
- 9 Fetters, 40-42; Knerr, 2-5, 152-155.
- 10 Knerr, 186.
- 11 National Park Service, National Register of Historic Places; available from: www.cr.nps.gov/nr/index.htm (accessed on 11 January 2007).
- 12 The Department of Defense web site, “Pentagon History,” available from <http://pentagon.afis.osd.mil/history.cfm>.
- 13 Knerr, 139-140.
- 14 “Steel Prefab Homes Win Navy Contract,” *The Washington Post*, December 5, 1948, p. R1.
- 15 Fetters, 173.
- 16 A detailed list of original features in the Lustron Westchester models can be found in Chapter 8 of Fetters, 67-73.
- 17 Frank Phillips and Dale Steinhauer of Capstone Properties, Inc., joint interview by authors, June 22, 2006, Arlington, Virginia.
- 18 Fetters, 144.
- 19 Fetters, 139; Knerr, 114-116.
- 20 Fetters, 140; Knerr, 147.
- 21 Fetters, 146-8; Knerr, 79.
- 22 Knerr, 147.
- 23 *Ibid.*, 80.
- 24 Bruce Ruble, discussion with Cynthia Liccese-Torres, May 10, 2006, Arlington, Virginia.
- 25 Phillips/Steinhauer interview.
- 26 *Ibid.*
- 27 Fetters, 139.
- 28 Jennie Phipps, “Houses of Steel,” *Preservation Online*, January 27, 2006; available from: www.nationaltrust.org/magazine/archives/arch_story/012706.htm (accessed on 11 January 2007).
- 29 Phillips/Steinhauer interview.
- 30 *Ibid.*
- 31 *Ibid.*
- 32 Knerr, 117.

BIBLIOGRAPHY AND ADDITIONAL RESOURCES

Articles and Reports

Federal Emergency Management Agency (FEMA). "A Report Describing the Dismanteling [sic] of the Historic Lustron House, Grand Forks, North Dakota." May 2001. Prepared by Rurik Ekstrom.

Knerr, Douglas. "Lustron – How an Ohio Company Almost Changed American Housing." *TIMELINE*, a publication of the Ohio Historical Society, April-June 2005. Available from www.ohiohistory.org.

O'Connell, Kim A. "Loving Lustrons." *Preservation*, July/August 2007. Excerpt available from www.nationaltrust.org/magazine/archives/arc_mag/ja07feature2.htm.

Phipps, Jennie. "Houses of Steel." *Preservation Online*, January 27, 2006. Available from www.nationaltrust.org/magazine/archives/arch_story/012706.htm.

Thornton, Rosemary. "The Lustron Home." *Old House Web*, undated. Available from www.oldhouseweb.com/stories/Detailed/12270.shtml.

Books

Fetters, Thomas T. *Lustron Homes: The History of a Postwar Prefabricated Housing Experiment*. North Carolina: McFarland & Company, Inc., 2002.

Jandl, H. Ward. *Yesterday's Houses of Tomorrow: Innovative American Homes, 1850 to 1950*. Washington, DC: The Preservation Press, 1991.

Knerr, Douglas. *Suburban Steel: The Magnificent Failure of the Lustron Corporation, 1945-1951*. Columbus: Ohio State University Press, 2004.

Historical Documents

Lustron Erection Manual (and accompanying blueprints). Available from a variety of sources—libraries, historical societies, online auction sites, collectors, etc.

Photographs

Historical American Buildings Survey (HABS). Library of Congress, Prints and Photographs Division, Washington, D.C. Digital queries can be made at: lcweb2.loc.gov/pp/pphome.html

Video

Arlington County Historic Preservation Program. "The Lustron Legacy: Saving an All Metal Marvel in Arlington County, Virginia." Please send inquiries to: Krowne Lustron Documentation Video, c/o Arlington County Historic Preservation Program, 2100 Clarendon Boulevard, Arlington, VA 22201 or clliccese@arlingtonva.us

WOSU-TV (Columbus, OH) and KDN Videoworks, Inc. "Lustron: The House America's Been Waiting For." Available for purchase from www.wosu.org/tv/lustron/.

Web Sites

The Arlington Heritage Alliance's Most Endangered List, with background on the Lustrons: www.arlingtonheritage.org/angered2006.htm

The Lustron Connection web site: home.earthlink.net/~ronusny/

Lustron Home Photos and Background Material: members.tripod.com/~Strandlund

The Lustron Locator: home.earthlink.net/~lustronlocator/

The National Trust for Historic Preservation's Lustron Web Site: www.lustronpreservation.org

Ohio State University's Lustron documentary web site: www.wosu.org/archive/lustron/index.php

Examples of other Lustron preservation projects:

Barton County, Kansas: The Barton County Historical Society Museum & Village web site. "Lustron News." Available from: www.bartoncountymuseum.org/buildings.html

Boone County, Missouri: Miller, Greg. "Steel House Needs a Home." *Columbia Daily Tribune*, November 13, 2005. Available from: www.showmenews.com/2005/Nov/20051113News006.asp

Whitehall, Ohio: City of Whitehall web site. Parks and Recreation page. Available from: www.ci.whitehall.oh.us/parks.aspx

APPENDIX:

Lustron Disassembly Log

DATE Month _____ Year _____		TIME AM/PM		YOUR NAME			
# of Workers				OTHERS ON SITE			
Circle Rooms Being Worked on and Items Being Removed							
Utility Rm	floor	wall	ceiling	built-ins	window	frame	other (describe):
Kitchen	floor	wall	ceiling	built-ins	window	frame	other (describe):
Dining Rm	floor	wall	ceiling	built-ins	window	frame	other (describe):
Living Rm	floor	wall	ceiling	built-ins	window	frame	other (describe):
BED 1 (facing st.)	floor	wall	ceiling	built-ins	window	frame	other (describe):
BED 2	floor	wall	ceiling	built-ins	window	frame	other (describe):
BATH	floor	wall	ceiling	built-ins	window	frame	other (describe):
HALL	floor	wall	ceiling	built-ins	window	frame	other (describe):
EXTERIOR	wall panels		roof	gutters		frame	other (describe):
Notes (How are items being removed? Order of removal ? difficulties?)							

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At Marine Corps Base Quantico, September 2007.



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