

Preserving Progress: Assessing the Significance Of a Small Steel House in New London

By Douglas Royalty

Abstract

A panelized steel house in New London, Connecticut, underscores the challenge of assessing the significance of prefabricated structures and the “everyday modernism” of the twentieth century. The product of a pathbreaking but commercially disappointing system for factory-made housing developed in the early 1930s, the house suggests a paradox for preservationists: How significant can a mass-produced building be if there is no mass production? Conversely, how important can one example of a more prevalent building system be if hundreds or thousands of copies exist elsewhere? As an example of an efficient, holistic building system—a forerunner to today’s “whole house” systems—the house also illustrates the pitfalls of evaluating the integrity of, and developing treatment plans for, the “engineered” buildings of the twentieth century. The questions posed by this small prewar structure are sure to weigh on preservationists as an ever-growing number of postwar sites and structures become eligible for historic designation.

In no particular has the depression revealed more distress than in the problem of habitations. And yet it is just because this situation looks the most hopeless that it invites the most positive innovations.

—*Douglas Haskell (1934)*

Introduction

This is the story of Rusty, as Connecticut College’s steel house is fondly referred to by its supporters. Rusty—aka the House of Steel, aka the “tin house,” aka 130 Mohegan Avenue—is a prefabricated, panelized Bauhaus-style structure erected in New London in 1933, the worst year of the Great Depression. At the time of its construction this modest one-story building, with just



In 2007, Connecticut College's steel house, designed and built by General Houses, Inc., in 1933, stood vacant and in disrepair (author photo)

780 square feet of living space, represented fresh thinking about the design and construction of houses; presented a promising concept for the industrialization of housing; suggested a solution to America's housing crisis; and incorporated a host of leading-edge business practices.

Rusty's association with these developments is central to its significance, though not the only context. On its own, the house is a compelling artifact—not the only surviving emblem of America's Machine Age culture nor the only example of contemporary European architecture's influence in 1930s America but a striking example of how those two strains of modernism came together in the interwar period. Its appearance in 1933 foreshadowed America's postwar suburbanization and looked ahead to an age of standardization, mass marketing, and mass consumption. Meanwhile, Rusty's inventor and its first owner—one a visionary architect-entrepreneur, the other a trailblazing museum director—are noteworthy historic figures. Perhaps best of all, Rusty sits beside a second early modern prefab, also commissioned in 1933. Together, the two buildings constitute an unusual and revealing mini-district of Depression-era modernism.

Assessing Rusty's significance might seem like a straightforward exercise, given all that. Yet it has proved to be a complex assignment. In part, that has to do with the building's uncommon construction system, its out-of-the-ordinary materials, and its ambiguous level of integrity. Another factor, no doubt, is a perception in some quarters that modern architecture is

unappealing and unworthy of preservation. On a more conceptual level, Rusty illustrates how prefabrication, standardization, mass production, and the precepts of twentieth century modernism can upset traditional notions of historic significance. It's a quandary preservationists are likely to face as their attention increasingly turns to the vast inventory of buildings and sites from the modern era.

Design and Construction History

Before Carl Koch's Techbuilt houses and Carl Strandlund's Lustron houses, before Frank Lloyd Wright's Usonian, before the landmark homes of Walter Gropius and Philip Johnson—not to mention the tens of thousands of ranches and Levitt-style Capes that filled America's postwar subdivisions—there were the two prefabricated modern houses commissioned by Winslow Ames and his wife, Anna, in New London.

Ames (1907-93) was the founding director of New London's Lyman Allyn Museum and an ardent modernist. In the nineteen-thirties and early forties he curated a wide range of exhibitions—including then-unorthodox shows of drawings, photographs, and objects of industrial design—that gave his museum a reputation out of proportion to its size. As one historian wrote about Ames's decade at the museum, "Something unusual was always happening at the Lyman Allyn."¹

In the summer of 1933, Ames visited the "Century of Progress" World's Fair in Chicago, where he met America's frontiersmen of prefabrication, Howard T. Fisher, founder of General Houses, Inc., and Robert W. McLaughlin, Jr., founder of American Houses, Inc. General Houses was exhibiting a frameless steel cottage at the fair that seemed like the factory-made American dream—a house designed to be, in GH's terms, "twice as good at half the price." (GH's New York-based rival, American Houses, had a similar program, though its buildings had steel frames and wall panels of asbestos cement.)

The Ameses had become "rather excited" about prefabrication, as Winslow Ames wrote decades later.² In this they weren't alone—in 1933 much of America was intrigued by the idea—but the couple were the rare Depression-era prospects with both desire and means. "The upshot," Ames wrote, "was that Ann, able to touch some of her mother's estate at age 25, decided to build one each of AH and GH as rental properties on two small lots on Mohegan Avenue."³



General Houses postcard image, c. 1933, used to promote the company's prefabricated steel houses at the "Century of Progress" World's Fair in Chicago (author's collection)

The houses, with their smooth, unornamented surfaces, rooftop terraces, integrated garages, and new materials, drew their share of quizzical looks. According to one newspaper account in the fall of 1933, "Most of the neighbors lift their eyebrows and question his sanity, but Winslow Ames, director of the Lyman Allyn Museum in New London, believes implicitly in an impending revolution in the home building industry, signaled by two prefabricated houses he is erecting on Mohegan Avenue. They are going up on ground adjoining the museum and are startlingly original in type: one is asbestos cement; the other entirely of steel."⁴

Few believed in prefabrication's transformative potential more than the steel house's inventor, Fisher (1903-79). After designing and overseeing the construction of a highly praised modernist house (in brick) for his brother Walter T. Fisher in 1928, he became intrigued by the possibilities offered by prefabrication, mass production, and alternative building materials. In 1929 he embarked on a three-year research and development mission that led to the formation of General Houses, Inc. in 1932.



General Houses logo stamped on interior wall panel of Connecticut College’s steel house (author photo)

Fisher unabashedly patterned GH’s program on the automobile industry, with one notable exception: The company had no factory. Instead, it relied on a series of corporate partners—Pullman for steel fabrication, Container Corp. of America for insulation, General Electric for wiring and appliances, and so on—to supply components for its buildings. Meanwhile, Fisher’s patented frameless construction system facilitated rapid, “dry” assembly onsite by a small crew of workers. The goal, in 1933, was a four-day, \$3,500 house.⁵

Although GH’s first building, erected in March 1933, exhibited some streamlined American Deco features, such as curved coping sections, subsequent houses hewed ever more closely to the International Style. As one General Houses architect put it, the style was “almost made mandatory by the panelized construction system.”⁶ Fisher himself had been inspired by Europe’s “new pioneers” such as J.J.P. Oud and Le Corbusier, as well as by American innovators

such as R. Buckminster Fuller and Henry Ford.⁷ His staff, too, was filled with converts to European-style modernism: According to one account, the company's offices in Chicago buzzed with talk of Mies van der Rohe—a figure not then widely known—in the early thirties.⁸

In the fall of 1933 a crew of workers overseen by a GH representative assembled the parts for the New London house on a concrete slab foundation that had been put in place by the owners. Flanged exterior wall panels were bolted to the foundation and to each other. Roof panels were similarly joined. Factory-made wood cabinets and closets were set in place, and windows and doors, also wood, were installed. Insulation, wiring, and plumbing went into wall cavities, and interior steel walls and joint covers were added. Plumbing fixtures and appliances were hooked up. Roof panels were filled with insulation, then topped with a wood deck and a built-up membrane. Linoleum floors were laid. Atop the garage, a rooftop deck and iron railings were added. (A “ship’s ladder,” later removed, provided access to the deck.) Altogether the job required 650 man-hours of labor—roughly three weeks’ work for a crew of five.⁹

The Ames family owned the GH house and the AH house for 15 years, leasing them to various tenants. This arrangement continued on after they sold their two prefabs to Connecticut College (then Connecticut College for Women) in 1949. In the mid-1980s the college renovated the steel house, outfitting it with a new furnace and baseboard heating system, a shower enclosure, false ceilings, and other updates. In each instance, bits of historic fabric were lost, damaged, or obscured. These changes were minor, however, compared with one other addition: the placement of a wood-framed, asphalt-shingled pitched roof atop the original flat roof.

In 2004 the steel house's last tenant, Connecticut College professor Tek-wah King, moved out and the college closed the building. Soon after the college removed the house's mechanical systems. Once shuttered, the house deteriorated rapidly. With no ventilation or temperature control and a leaky roof, pipes burst, paint peeled, and corrosion accelerated.

Project History

By fall of 2006, Rusty was slated for demolition, but at yearend the college agreed to put its plans on hold to consider preservation alternatives. Planning began in 2007 with support from Abigail Van Slyck, the Dayton Professor of Art History, and the Dean of the Faculty's office.



Metals conservator Adam Jenkins (left) and architect Barun Basu examine an interior wall panel at the steel house in early 2008 (author photo)

Activities that year included archival and field research; discussions with conservators, preservationists, and state and local agencies; articles; grant writing; and a State Register of Historic Places nomination. That summer the building was listed on the State Register, and in the fall the college received a \$7,000 Historic Preservation Technical Assistance Grant, or HPTAG, from the Connecticut Trust for Historic Preservation. Although a small sum, the HPTAG conferred legitimacy on the project and, if nothing else, bought Rusty a year.

In 2008 a National Register nomination and a Historic Structure Report were prepared, a website created, ideas for adaptive use explored, and additional grants sought. Meanwhile, Barun Basu, a veteran architect in Connecticut and principal of New London's Barun Basu Associates, signed on as the project's preservation architect, and Adam Jenkins, a metals conservator, was recruited to examine the house. That year, I learned a few new terms such as "corrosion jacking," "metalization," and "calcium sulfonate penetrant."



Workers from Yankee Fiber Control Inc. employ dry ice blasting to remediate lead-based paint at the steel house in March 2009 (author photo)

In 2009, thanks to a grant from the Chicago-based Dr. Scholl Foundation, the Providence firm Yankee Fiber Control Inc. was retained to remediate lead-based paint, remove some non-historic features, and coat the building with a rust-inhibiting paint. Also that year, the Park Service signed off on the NR, an adaptive use report was prepared, and planners explored new funding options. Among them was Connecticut's Historic Restoration Fund (HRF), a program administered by the State Historic Preservation Office. In October an application for a \$101,500 matching grant was sent to Hartford.

In 2010 the HRF grant was awarded for the full amount requested, with the match provided by Scholl and a second, anonymous foundation. This was excellent news, though it raised two worrisome questions: Would \$203,000 be sufficient to rehabilitate Rusty without setting in motion a series of costly change orders? And would it be enough to do the job, as required, according to the Secretary of the Interior's Standards for Rehabilitation? With all this in



Rendering of a rehabilitated steel house as conceived by Barun Basu Associates, the project’s preservation architects, in 2010 (photo illustration by James Dixon/Barun Basu Associates)

mind, months of negotiations over the plans and specifications ensued. That year, I learned a few more terms, including “change order,” “unit prices,” and “non-collusion bidding certification.”

Thanks to additional contributions from the two supporting foundations, the college’s steel house fund had some \$235,000 available by the time of the public bidding in March 2011. Yet even that was not enough. All bids came in too high, and the SHPO instructed the college to rebid the project with a new, reduced scope of work. Out of this disappointment, however, arose hope: In May the college agreed to support a \$293,000 project, an amount that approached the low bid received in March. It also endorsed the adaptive use plan that called for Rusty to become a center for student-oriented sustainability programs. In June the project went to bid again, with some elements of the original scope of work, such as the restoration of interior walls and built-in cabinets, set aside. This time the low bidder, Milner + Carr Conservation LLC of Philadelphia, was within the project budget. In July, Milner + Carr was awarded a contract for \$262,000, including a \$30,000 add-alternative plan for metalizing the steel house’s structural wall panels.

Research and Documentation

Researching the steel house's development was at times vexing. Local archives, land records, historians, Winslow Ames's family, and other leads turned up only scraps of information and no photographs, drawings, blueprints, or construction manuals. Ames's papers at the Smithsonian Archives of American Art were of little help. University archives and libraries held valuable information about General Houses but next to nothing about the New London house.

Fortunately, a resident of the house in the 1970s remained on staff at Connecticut College. Photographs in reference librarian Jim MacDonald's family album depict Rusty in what appears to be a largely unaltered state, with its flat roof, outdoor stairway, and painted steel surfaces in place. These shots, along with published work on similar GH buildings, provided just enough information to document the building's design and construction with some confidence.

Even with this material, ascertaining the details of Rusty's construction was tricky. Partly this was because of the alterations of the 1980s. The original roof panels, for example, were sandwiched between two roofing systems and tightly adhered false ceilings; they were not available for inspection. Partly it was because GH, in its quest to create sleek modernist houses, worked hard to conceal joints, connections, and systems. One could not examine foundation-to-wall-panel or wall-to-ceiling-panel connections without ripping into historic fabric (or using X-ray procedures that were out of the question, financially). Measured drawings helped, but only to a degree. With an engineered building such as Rusty, one really needed shop drawings.

Approximations of those were available in the patent materials for General Houses' first building system. Unfortunately, given the realities of an experimental architect-designed system, they weren't reliable. GH wasn't kidding when it came up with its "No two houses alike" slogan.¹⁰ Not only could the company deploy its kit of parts to design buildings of almost any size and configuration—an early version of today's "mass customization"—but it continually modified the kit. As one draftsman who worked for the company remarked, "Howard [Fisher] was cursed with a very active mind, and before the working drawings were done, he'd get another idea."⁸ One example: In early 1933, according to the literature, GH employed steel I-beams in its roof construction. Later that year it stopped doing that. By early 1934 the company's



Connecticut College reference librarian Jim MacDonald’s snapshots show the steel house in the early 1970s, about a decade before the pitched roof was added (photo: James MacDonald)

designers were specifying roof systems with expanded steel joists. Does Rusty have I-beams or expanded steel joists? None of the above is my guess, yet it is just a guess.

Fisher’s is not the only design-build program to have been adjusted on the fly like this, of course. As architect and historian Colin Davies has observed (though not about General Houses), the parts do not always work as advertised in engineered buildings. Writing about the “modular coordination” movement of the mid-twentieth century—an approach Fisher pursued before it was so named—Davies notes that “while the designers had conscientiously applied tolerance limits to their components, they had forgotten to apply them to their imaginary grid. The result was that the gaps between components were far more variable than had been assumed and the discrepancies multiplied over the length of the building.”¹¹

Designation

Rusty’s fundamental significance was not in dispute in 2008, when the National Register nomination was submitted. Already listed on the State Register, it was considered to have historic significance as an early modern prefabricated house and cultural significance through its

association with the movement to modernize America's housing industry. The house was also notable for its association with Winslow Ames and the Winslow Ames House. Architecturally, the building's functionalist design, innovative construction methods, and alternative materials make it the embodiment of a type and a period. If not the work of a master, the house is at least an example of "a distinguishable entity whose components may lack individual distinction."

The key question with the NR was: Did the building's significance rise to a national level? While the SHPO and the state review board agreed that it did, the National Park Service did not. In 2009 it returned the nomination, requesting revisions reflecting a state level of significance. "The critical factor here with a prefabricated house in terms of national significance," the NPS wrote, "is how many other examples survive."¹² The reviewer argued that since Rusty's was among the designs GH made available for sale in 1933 and 1934, other built examples may exist.¹³ (In fact, they may.) In this case, Rusty's replicability seemed to work against it.

There was a chance to make the case again, and the NR was revised. The revisions emphasized that while GH's architecture and technology were pathbreaking, only a small number of its early steel-panel houses were erected during the dawn of the modern prefabricated housing movement, and of those only a handful were the small, affordable units meant for mass production. It argued that Rusty was undoubtedly rare, even if not the only such building extant, and was significant for its role in the development of prefabrication, even if its construction was ultimately not commercially viable. It also proposed, as before, that the house was important for its association with the housing movement of the 1930s, and it emphasized the related significance of the Winslow and Anna Ames's pair of modern prefabricated houses.

That approach failed, too. This time the reviewer argued that since so few houses like Rusty had been produced, and since GH had abandoned its all-steel construction relatively quickly, national significance was not justified. "The apparent small number," the reviewer wrote, "raises the question of the importance of early prefabricated homes produced by Howard Fisher's company, General Houses, Inc."¹⁴

I recount this episode not to criticize the National Register process but to point out the inherently nettlesome nature of prefabrication. Rusty, a building that straddles the line between prototype and production model, suggests a paradox for preservationists. How significant can a

mass-production building be if there is no mass production? Conversely, how important can a commercially successful example be if a number of copies exist elsewhere?

As Davies notes, prefabrication tends to upset traditional notions about significance, and its place in the world of architecture remains unsettled. The prefabricated house, he writes, “challenges architecture’s most deep-seated prejudices. It calls into question the concept of authorship, which is central to architecture’s view of itself as an art form; it insists on a knowledge of production methods, marketing and distribution as well as construction; it disallows architecture’s normal obsession with the needs of individual clients and the specific qualities of particular places; and its lightweight, portable technologies mock architecture’s monumental pretensions.”¹⁵

Integrity and Treatment

Evaluating integrity, or a property’s ability to convey its significance, at the steel house was less onerous than one might imagine. Of the seven aspects of integrity, Rusty holds up well on five counts. It remains in its original location, in a setting that in many ways resembles its prewar environment. With nearly all its original components in place (if not always in view), it retains the bulk of its historic fabric. Despite the alterations, its historic workmanship is evident. And its association with Winslow Ames, General Houses, and the 1930s remains strong.¹⁶

Design and feeling are different matters, since the house’s pitched roof conceals the building’s Bauhaus-inspired design and feeling. Fortunately, though, the roof is removable, and the original roofing system, while compromised, remains in place. Restoring Rusty’s historic flat-roofed profile became a priority early on in the project. As with most other objectives, however, it had to wait for funding and a wider consensus on the treatment requirements.

Corrosion control was also a priority, since much of Rusty’s historic fabric was, well, rusty. This, too, was difficult to approach on a limited budget. In late 2006, before the project was officially under way, Robert McCullough, a University of Vermont professor of historic preservation and an authority on the preservation of historic bridges, visited the site. McCullough noted the pattern of corrosion on Rusty’s walls—a uniformly distributed, tightly bonded layer of rust—and was sanguine about the conditions. “Most of the exposed exterior panels seem to have



Connecticut College professor Tek-wah King, a former resident of the steel house, “paints” the building with calcium sulfonate penetrant in 2008 (left); a coating of rust is visible behind peeling paint (author photos)

used the rust as a sealant against sectional deterioration,” he wrote in 2007, “and the steel may have been fabricated specifically to do just that.”¹⁷

McCullough was right. Chemical analysis revealed the presence of copper in the steel, just as GH had intended.¹⁸ “The introduction of a very small amount of copper,” the company wrote in 1934, “has been found to greatly increase the rust resisting properties of the steel.”¹⁹ Rusty, it seems, was among the first structures to employ so-called weathering steel, which in 1933 was introduced by U.S. Steel under the trade name COR-TEN.²⁰

Unfortunately, “rust-resisting” is not the same as “rustproof.” As time passed it became clear that Rusty’s structural panels were corroding in a worrisome fashion at the sill level. In 2008 metals conservator Jenkins examined the building and noted the presence of corrosion jacking, in which unstable layers of rust multiply and push against adjacent surfaces. Whether because of roof leaks, inner-wall condensation, moisture wicking up from the foundation, or (most likely) all three, water had collected at the bases of the panels, where they were turned to form the flanges that connected to the metal sill plates and the foundation.

Jenkins recommended the application of a calcium sulfonate penetrant, a sealant that penetrates pack-rusted joints and, at least temporarily, arrests corrosion. That summer a Philadelphia-based distributor, John Sices, donated a few gallons of the material to the project,



The steel house after Yankee Fiber Control had abated the peeling lead-based paint and applied Prax-Ten Penetrant to bare steel surfaces in April 2009 (author photo)

and a handful of volunteers applied it to the building. The next year, as part of the lead paint abatement project, Rusty received another rust-inhibiting coating. In March and April 2009 workers blasted off layers of peeling lead-based paint—as well as the surface layer of rust—and painted the steel with a product, called Prax-Ten Penetrant, that is commonly used to protect metal in structures such as water tanks and parking garages.

Rusty’s modular, yet holistic, construction system and the nature of its deterioration led to the treatment plan adopted in 2008. With almost all of the house’s structural wall panels suffering from corrosion jacking at critical junctions, treating the building “in situ” was no longer feasible. The only way to repair the lower flanges of those wall panels—and retain the house’s historic frameless construction—was to disassemble the building and treat its components in a workshop.

It was a bold plan, and not an inexpensive one, but it did have two advantages: First, it was an intriguing concept, one that may have helped draw the interest of at least some of Rusty’s

financial supporters. Beyond that, it made sense. In 1933, Rusty was the result of a carefully calibrated system of interchangeable yet closely integrated parts, an example of today's "whole building system" concepts put into practice decades before those ideas were articulated. Seventy-five years on, its conservation required a similarly systematic approach.

This suggests at least a couple of lessons for preservationists faced with aging modern resources. One is that the diagnosis of twentieth century buildings may require the aid of specialists—or, perhaps, new preservation education courses in metallurgy, engineering, welding, and other somewhat arcane subjects. Another is that "total design" systems such as General Houses'—a forerunner of many of today's architect-devised design-build systems—may require radical, and expensive, top-to-bottom overhauls. The so-called Dutchman repair may not suffice when the form and fit of a building's every component have been precisely engineered.

Conclusion

Stuart Vyse, a psychology professor at Connecticut College, once referred to Winslow Ames's houses as "beautiful failures." It's a phrase that has haunted me, since the words "failure" and "significant" do not exactly mesh. For all its efforts, General Houses never became the General Motors of housing, nor did it solve America's affordable housing problem. In the thirties the niche for prefabricated International Style houses was minuscule, and GH encountered obstacles at every turn, from rigid building codes to chary bankers to intransigent trade unions. In the stark terms of business—profit, market share, and growth—GH was a failure. In the end it sold hundreds, not thousands, of modernist houses in the thirties.

Vyse's turn of phrase might also have served as an epitaph for the preservation project at Connecticut College, which has had its share of setbacks. In many ways, Rusty is a preservationist's dream: an important yet overlooked building, with a patient owner and unwavering support from many corners. Yet the project's four-year-plus saga attests to the complexity of preserving the modern. To be sure, modernist resources come with their own set of challenges. With prefabricated or so-called site-fabricated buildings—a sizable portion of the "everyday modernism" in America's postwar landscape—those challenges are only compounded.



The Winslow Ames House (erected 1934 by American Houses, Inc.; rehabilitated by Connecticut College, 1994) and General Houses' steel house in 2008 (author photo)

In part that's because modernism has become a litmus test on taste for Americans. In 2007 architectural historian Jeanne Lambin wrote, "Every generation has a style of architecture that it considers expendable, unattractive, or associated with an unpleasant or challenging period of history. Today, many consider the architecture of the recent past to be as expendable as the architecture of the Victorian era once was."²¹ Happily, that may be a bit less true today than it was just four years ago. In New England as elsewhere, preservationists are saving modernist structures, undertaking surveys, and preparing historic contexts on everything from prefabricated housing to postwar ranch houses to modern designed landscapes.²² With each new project, the message about the significance of resources from the recent past gains a wider audience, and perceptions shift. Connecticut College's steel house, an overlooked and mistreated modernist structure once deemed expendable, is powerful testament to that progress.

Addendum

In late September and early October 2011 crews from Milner + Carr Conservation LLC disassembled the steel house in New London and transported the parts to Philadelphia for treatment in its studios. Reassembly of the building “envelope,” along with some interior components, is scheduled for spring 2012. A second phase of work intended to make the building ready for occupancy as office space for Connecticut College will follow.

The disassembly revealed a roof construction that does not entirely conform to published drawings and descriptions of General Houses’ work during the period. Rather than unitary sheet metal panels, such as those used for walls, the roof panels were constructed from U-shaped steel channels that acted as panel frames. Flanged sheet metal ceiling sections, with horizontal steel stiffeners tack-welded to their undersides, were shop-welded to these frames to form panels. The resulting sections, some 4 feet by 8 feet and others 4 feet by 12 feet, were bolted together in typical General Houses’ fashion, with strips of wood or, in some cases, steel between the panels. Once connected, the channels formed girder-like braces that helped distribute the roof’s load.

Rusty’s foundation also held surprises. Instead of a plurality of anchor bolts set into the concrete pad at intervals, right-angle metal straps, or “tabs,” were welded to the undersides of the right-angle sill plates. These plates were set into wet cement along the perimeter of the foundation, with the tabs inserted into the cement, tying the sill to the foundation. The vertical side of the angled sill then acted as a form for the final pour of cement for the concrete slab. Wall panels were attached to the sill via bolts protruding through the sill plates. Like the metal sill’s tabs, the bolts’ heads, extending below the sill plate, were anchored in cement, further tying the sill plates to the foundation.

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Workers from Milner + Carr Conservation disassemble the original built-in closets in a bedroom in late September 2011 (author photo)



Milner + Carr conservationists “unbuckle” U-shaped steel roofing members in the steel house’s attached garage, September 2011 (author photo)

Endnotes

¹ Eugene R. Gaddis, "Modernist and Connoisseur: Winslow Ames at the Lyman Allyn Museum," in *The Vision and Influence of Winslow Ames*, exh. cat. (New London: Lyman Allyn Art Museum, 2002), 9.

² Winslow Ames, Winslow Ames Papers, Smithsonian Archives of American Art. Ames's handwritten notes, c. 1980, are for his never-completed autobiography.

³ Ibid.

⁴ Unidentified newspaper story, c. late 1933, collection of Lyman Allyn Art Museum, New London.

⁵ "First New Type of Steel House to Go Up in Pullman," *Chicago Daily Tribune*, June 26, 1932, 16.

⁶ E. Todd Wheeler, interview, June 8, 1983, conducted by Betty Blum, Chicago Architects Oral History Project, Special and Digital Collections, Ryerson & Burnham Libraries, Art Institute of Chicago (transcript, 6).

⁷ Dutch modernists such as Oud influenced the design of Fisher's house for his brother Walter T. Fisher in Winnetka, Ill., as Fisher and the architectural historian Henry Russell-Hitchcock, among others, wrote in the 1930s. Le Corbusier was, according to Fisher himself, the primary influence on the architect as he developed his prefabrication plans in the late 1920s and early 1930s. "I was strongly influenced...by some statement [made by] Le Corbusier, as to why shouldn't houses be made in pieces in a factory," Fisher wrote in 1973. "This struck me very forcibly and I began to give the idea some very specific thought—and it was out of this that General Houses, Inc. came." Fuller, who developed his Dymaxion housing plan in the late 1920s—and was himself inspired by Le Corbusier's *Vers un architecture*—was also a key influence. (Fuller, in published writings in the early 1930s, claimed that Fisher had stolen his ideas.) Ford's contribution to the General Houses program almost goes without saying: Fisher made no secret of the fact that he hoped to emulate the success of America's automobile industry.

⁸ Lawrence Perkins, interview, Chicago Architects Oral History Project (transcript, 42).

⁹ General Houses, Inc., *Our Homes* (privately published, 1934), 16.

¹⁰ General Houses, *General Houses, Inc.* (privately published, 1933). Like other GH advertising and promotional materials from the early 1930s, this brochure used the tag line "No Two Houses Alike."

¹¹ Colin Davies, *The Prefabricated Home* (London: Reaktion Books, 2005), 139.

¹² Correspondence, National Park Service to Connecticut Historic Preservation and Museum Division, April 2009.

¹³ Ibid.

¹⁴ Correspondence, National Park Service to Connecticut Historic Preservation and Museum Division, September 2009.

¹⁵ Davies, *Prefabricated Home*, 88.

¹⁶ "130 Mohegan Avenue," National Register of Historic Places nomination. The property was approved for listing on the National Register on January 30, 2009.

¹⁷ Correspondence, Robert McCullough to Douglas Royalty, February 17, 2007.

¹⁸ Samples of the exterior structural steel at 130 Mohegan Avenue were chemically tested by Bodycote Testing Group of Glendale Heights, Ill., on February 12, 2008. Testing determined the presence of copper at 0.04 percent.

¹⁹ General Houses, *Our Homes*, 22.

²⁰ "Weathering Steel," Wikipedia.org (http://en.wikipedia.org/wiki/Weathering_steel).

²¹ Jeanne Lambin, *Preserving Resources from the Recent Past* (Washington, D.C.: The National Trust for Historic Preservation, 2007), 1.

²² See, e.g., Cynthia E. Johnson, *House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900 to 1960* (Kentucky Heritage Council/Kentucky Transportation Cabinet, 2006). Other recent historic context reports include *The Ranch House in Georgia: Guidelines for Evaluation* (New South Associates/George Transmission Corporation, 2010) and the *San Francisco Modern Architecture and Landscape Design 1935-1970 Historic Context Statement* (San Francisco Planning Department, 2010).