Harold Hess Lustron House

Closter, New Jersey

Preservation Plan

September 2017

Lacey Thaler Reilly Wilson
Architecture & Preservation, LLP

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Acknowledgements

This Preservation Plan has been prepared for the Borough of Closter, New Jersey by Lacey Thaler Reilly Wilson Architecture & Preservation. Funding was provided through the New Jersey Historic Preservation Office.

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Note: All figures were photographs taken by Mark Thaler, AIA of Lacey Thaler Reilly Wilson Architecture & Preservation, LLP in 2017 unless otherwise noted.

Executive Summary

This Preservation Plan for the Harold Hess Lustron House, 421 Durie Avenue, Closter, New Jersey was prepared by Lacey Thaler Reilly Wilson Architecture & Preservation, LLP (LTRW). It has been financed in part with the federal funds from the National Park Service, U.S. Department of the Interior, and administered by the New Jersey Department of Environmental Protection, Historic Preservation Office. The building is individually listed on the National Register of Historic Places and is owned by the Borough of Closter. The Borough issued a Request for Proposal (RFP) to solicit firms to complete the Plan from which LTRW was selected.

Historic Structure Reports and Preservation Plans, a Preparation Guide, prepared by the New Jersey Historic Preservation notes:

> *The need for Historic Structure Reports and Preservation Plans is based on the understanding that each historic property represents a unique and irreplaceable resource. In too many cases, well intentioned restoration or other construction efforts destroy or obscure historic character and physical evidence or present a false sense of a property's past. Historic Structure Reports and Preservation Plans provide a forum to address changes to a resource during the planning process, explore alternative plans of action, and minimize loss, damage, or irreversible adverse effect on historic fabric. With proper planning, work efforts at a historic property can be viewed in the context of its significance and phased to achieve the desired goals. The process described in this brief allows owners and stewards to prioritize their work and responsibly plan for the future.*

The Harold Hess Lustron House is a one-story house with gable roof erected in 1950 with a garage and open breezeway. In 1952, the breezeway was enlarged and enclosed. There have been no major alterations since that time. Although a few of the interior features were replaced in the 1970s, there were no changes in the original layout. Unlike most houses constructed of wood framing and common materials, the Harold Hess home was purchased from the Lustron Corporation and erected from pre-manufactured parts. After World War II, the Lustron Corporation intended to mass-produce all-steel, low maintenance homes to address the housing shortage of the time. The technology was based on the automotive industry and the assembly-line production facilities that had mass-produced materials for the war effort. The company produced approximately 2,680 Lustron homes between 1948 and 1950 before financial problems forced the company out of business. Today, it is estimated that only about 1,500 of these homes remain.

This particular home is an ideal example of a Lustron Corporation home because it remains in relatively good condition and has witnessed very few changes. Hardly any of these homes remain open to the public, and the ones that do, no longer remain in their original state. During the preparation of this Preservation Plan, three Lustron homes were identified that have been dis-assembled and re-assembled in museums in Ohio, North Dakota, and Kansas.

The Lustron House is unique to the Post World-War II era and exemplifies many of the desires of middle-class America in the 1950s and 60s. The homes were low-maintenance, efficient modern designs set in suburban settings and drew many people out of the urban settings where they were raised.

It is the recommendation of this Preservation Plan that the building be interpreted as a historic house museum. Such a museum would be a cultural asset that is not duplicated within the State of New Jersey or anywhere else in the north-eastern United States.

In addition to being interpreted as a Lustron House, the building can also serve to interpret middle-class life in mid-20th century America. Virtually no changes of substance were made to the house between the enclosure of the breezeway in 1952 and the 1970s when several original Lustron features were lost.

The Period of Significance for the building is recommended to be 1950 – 1970. This spans from the building's construction until before original Lustron features were lost. Restoring the house to this period would allow its interpretation both as a Lustron House and as an example of middle-class American life in the mid-20th century.

The recommended treatment approach for the building is one of preservation and restoration. All elements that date to the Period of Significance should be preserved. Where original elements were removed after 1970, original features would be restored. Also, where original elements remain but their condition cannot be adequately addressed through just preservation techniques, they would also be restored.

The recommendations within the report are classified into three priorities in the Prioritization and Cost Estimate section. These include items of immediate concern, short-term needs that should be accomplished within the next three years, and longer-term restoration items which should be accomplished over the next five years.

Immediate needs include providing temporary heat for the building until a permanent system can be put in place, and having an asbestos hazard assessment completed by an Environmental Engineer. Complete recommendations are included within the body of the Plan.

It is understood that the programming of a historic house museum may be a daunting task for a municipality with many competing responsibilities. However, the value of this cultural asset and it's educational and tourism potential should not be squandered. The building's restoration and interpretation as a cultural resource could be greatly assisted by the development of an independent not-for-profit "Friends" group. Such a group could assist in fund-raising, maintenance, and programming.

Programming at the site should be as robust as possible and be very inclusive of Closter residents. The more the public is engaged at the site, the more likely we will see its full potential.

Introduction

This Preservation Plan of the Harold Hess Lustron House has been prepared for the Borough of Closter, New Jersey with funding from the New Jersey Historic Preservation Office.

Lacey Thaler Reilly Wilson Architecture & Preservation, LLP was retained to evaluate the building and prepare the plan. Mark Thaler, AIA, a partner of the firm evaluated the existing conditions of the building on June 8 and 9, 2017, and had previously toured the building on March 27, 2017.

The evaluation of the building was made based on conditions which were readily observable. Probes or destructive testing were not within the scope of this study.

This report provides a brief historical background of the building, an assessment of its current conditions, and recommendations for its treatment in the future.

The Harold Hess Lustron House is individually listed on the State and National Registers of Historic Places. The National Register of Historic Places Registration Form explains the historical significance of the house:

> ***"The Harold Hess House is an excellent example of the Westchester Deluxe model which was manufactured by the Lustron Corporation and built in 1950. It is significant under criteria A as a representation of the mass production of post-World War II housing. It is also significant under criterion C as an example of a new construction method for residential housing with its entirely enameled steel frame and body as well as its modern design and "ranch-type" open layout. In its day the Lustron house was touted as the most technologically advanced answer to the housing shortage after World War II. It was an innovation born of necessity to meet specific needs such as low cost, quick production, and the use of available post-war materials.***

The Preservation Plan follows the organization recommended in *Historic Structure Reports & Preservation Plans: A Preparation Guide – Second Edition*, a publication of the New Jersey Historic Trust with the technical assistance of the New Jersey Historic Preservation Office, and the Request for Proposal provided by the Borough of Closter.

As next steps, this Preservation Plan recommends that an asbestos hazard assessment be completed by an environmental engineer; heat be provided within the house; and that Priority 1 tasks be accomplished over the next year.

The Harold Hess Lustron House is an important cultural asset for New Jersey and the nation at large. It can become a valuable resource for educating the public on life in Post-World War II America.

The author would like to acknowledge the gracious assistance and guidance of Borough Administrator Arthur Braun Dolson and Historic Preservation Commission Vice-Chair Jennifer Rothschild during the preparation and review of this Preservation Plan.

Part I – Developmental History

The following information from the National Register of Historic Places Registration Form provides an excellent synopsis of the historical background and significance of the Harold Hess Lustron House.

> *"The Harold Hess House was built in 1950 and is located at 421 Durie Avenue, Closter, Bergen County, New Jersey. It is an example of the two-bedroom Westchester Deluxe model with attached breezeway connecting to a one car garage. The house which measures 1,085 square feet, 31' x 35', is constructed entirely of prefabricated porcelain enameled steel. The structural steel panels rest on a concrete slab foundation. The rectangular yellow enameled steel house with dark gray tile roof was one of 2,498 manufactured and sold in the United States by the Lustron Corporation between 1984 and 1950. The house is located in a suburban residential neighborhood and the property retains a high degree of historic integrity and is in excellent condition.*
>
> *The Westchester Deluxe model was the most popular of all Lustrons manufactured and this is a good example of the most common two-bedroom type. The two-bedroom Westchester is distinguishable from all other Lustrons by the 6' x 12' cutout located on the gable front. The main entrance to the house is located under the cutout. The interior of the two-bedroom Westchester was originally constructed with built-in Kitchen cabinets with a pass-through to the china cabinet in the dining room. Other features of the deluxe model were the built-in bookcase and cabinets in the living room, combination dishwasher-clothes washer in the kitchen, automatic water heater, built-in vanity and storage cabinets in the master bedroom, seven large closets and a radiant panel heating system. Most bathrooms in the Westchester and especially the three bedroom Westchester Deluxe model were outfitted with all essential elements for storage like a built-in (antennae like) projection for a washcloth in the shower, swiveling tooth-brush holder, and built-in tissue holder. All that was needed from the owner was a refrigerator, stove and furniture.*
>
> *The interior doors are enameled steel, sliding pocket doors, which continues the streamline appearance and decreases the need for the space a swing door requires. The original floor covering was resilient asphalt tiles and these have been replaced in the Hess house by linoleum and a new asphalt tile floor in the kitchen. Because of the durability of the enameled steel, the majority of the original features have been retained in the Hess House. The most significant alteration has been the application of yellow paint to the exterior panels and a light coat of black spray paint to the roof tiles. However, just as the porcelain-enameled panels were intended to shed dirt they are now causing the paint to peel. Almost all the applied paint will soon disappear with no harm*

to the enamel coated original panels. All of the original gutters and down spouts have been replaced.

The house is a one-story, side gabled, ranch type erected on a concrete slab. The exterior of the house contains very little ornamentation. However, the exterior porcelain-enameled yellow steel panels, which measure 2' x 2', the brown enamel tile roof, enameled steel chimney panels, living room bay window and decorative spiral porch-roof support in the cutout; give this house its distinct appearance. Gable ends have 1' wide panels placed vertically. All windows have their original aluminum sashes and have been retained. They are operated by small crank windows. All enamel window surrounds and curved lintels are extant. There are two original gray doors with glass inserts, and original locks. The original entrance porch lamp also remains.

The present front façade faces southwest and features a picture window in the dining room and the inset entrance cutout. This door which was traditionally the main entrance to the living room is not used and the primary entrance is through the intended rear door through the breezeway and utility area on the northwest side of the house. Generally Lustron site suggestion plans show what is the southeast side in the Hess façade as the main side facing the street. This side features two picture windows. The main picture window for the living room is the bay window which was one of the upgraded features of the "deluxe" package. The other picture window is located in the master bedroom. The rear north side has 2 smaller windows, one in each bedroom.

The side or northwest (traditional rear) façade features one window in the second bedroom and two smaller, symmetrically-placed aluminum windows for the bathroom and kitchen, flanking the door. This side has the breezeway attachment to the garage and this is used as the primary entrance. The breezeway has been enclosed with brick, wood and has aluminum storm windows. The one car garage measures 15 by 21 feet, and unlike the Lustron house design, it is traditionally framed using balloon construction. The matching yellow 2' x 2' steel panels and dark gray roof tiles were attached to this construction.

The interior of the house features a living room/dining room area, a kitchen, a utility room, a bathroom, two bedrooms, and closet space. The interior is also covered with porcelain enameled steel panels measuring 2' x 8'. The panels are vertically scored to give a paneled appearance. The kitchen and bathroom panels are yellow and all other wall panels are a light gray. Ceiling panels throughout measure 4' x 4' and are white. Panels in the kitchen, utility room, and bathroom are yellow and measure two-feet square. All cabinets in the kitchen, bedroom and bathroom are light gray.

Design features include built-in wall furniture and closet space with sliding doors. Between the dining area and kitchen is a buffet with shelves and drawers on one side and kitchen cabinets with shelves and drawers on the other side. The built-in steel unit between the living room and front (master) bedroom contains a mirrored bookcase on one side and a mirrored vanity and counter top with drawers and doors for closet space on the other side. Exterior and interior wall corners are rounded and contribute to the clean, streamlined look of the Lustron home.

The two bedrooms and bathroom have their original steel porcelain-enameled flush gray pocket doors which slide and roll on overhead tracks. All closet and storage doors are of the bypass sliding type. All doors and cabinet hardware throughout the house is original. The bathroom retains the original stamped steel bathtub measuring 5' ½", built-in three drawer counter, mirror and light fixtures, soap dish and other fixtures. The sink and vanity has been replaced and shower doors installed. All of the kitchen cabinets and hardware are original. Only the "Thor" brand dishwasher-clothes washer was removed. The kitchen sink which was attached to this machine was likewise removed. The original gas Tappan range from 1950 still functions.

In the utility room the original Lustron hooks for drying laundry are still in place. The most often changed item in a Lustron house is the heating system and it has been replaced in the Hess House with a gas burner which connects to the old radiant heating system. The original system consisted of small generator and furnace supplying radiant heat through duct work contained in the attic space located directly above the ceiling panels and through a plenum chamber radiates the heat into the interior of the house after heating the ceiling panels. The wall identification tag or builder's plate (similar to auto serial number plates) is extant but presently obscured behind new cabinets attached to the utility room wall above the washer and dryer units.

The Hess House is sited diagonally on a corner lot with main façade facing the intersection of Legion Place and Durie Avenue. The main façade is in line with the breezeway and garage. This was not in accordance with the recommendations published in the Lustron "New Standard for Living," planning guide which covered site plans for placement of the houses. The side facing Durie Avenue with projecting bay window was the standard front of the Lustron. Also because the rear of the house is now the side the breezeway and garage are also on the side. The standard planning guide always recommended placing the garage at the rear of the house."

The National Register of Historic Places Registration Form also noted the following:

> *"An aluminum storage shed is located on the north side of the property line at the rear of the house and is painted yellow. The lot size is two thirds an acre and the property is very threatened as a sub-dividable lot. The Hess House is located in close proximity to the Closter Historic District, a pre-automobile late nineteenth and early twentieth century railroad suburb of New York City. Several suburban houses nearby are of like circa 1950 date."*

The Registration Form's author was correct that the site was threatened as a sub-dividable lot. Since the building was listed the site was sub-divided and two homes were constructed behind the Harold Hess house. The aluminum storage shed which was noted in the Registration Form as being located on the north side of the property line is no longer extant.

After construction of the two new homes on the site, the developer of the property donated the remaining land and the Harold Hess house to the Borough of Closter.

Fig. 1 – This image of the Harold Hess family taken in 1950 in front of their new home is included in the Borough of Closter's Historic Preservation Commission's website at http://closterhistory.com/documents/history_closter_10-14.pdf. Note that the breezeway was not yet enclosed.

The National Register of Historic Places Registration Form further goes on to explain the historical significance of the house:

"The Harold Hess House is an excellent example of the Westchester Deluxe model which was manufactured by the Lustron Corporation and built in 1950. It is significant under criteria A as a representation of the mass production of post-World War II housing. It is also significant under criterion C as an example of a new construction method for residential housing with its entirely enameled steel frame and body as well as its modern design and "ranch-type" open layout. In its day the Lustron house was touted as the most technologically advanced answer to the housing shortage after World War II. It was an innovation born of necessity to meet specific needs such as low cost, quick production, and the use of available post-war materials.

At the close of World War II, the United States faced the most severe housing shortage in its history. The government tried to ease the situation by continuing price controls, offering low interest housing loans and encouraging the development of moderate priced housing. Government statistics estimated that over three million new housing units would be needed at the end of the war, with an additional twelve million needed within a ten year period. In January 1946 the Veterans' Emergency Housing Program was established to deal with these problems. The Veteran's Emergency Housing Act was enacted to set up a program to quickly increase housing units by utilizing surplus war plants. In an effort to build as much as possible and as fast as possible, Congress voted to fund research into prefabricated housing and firms specializing in prefabricated houses were rewarded with access to natural resources and rationed steel-making materials.

The Lustron Corporation (a subsidiary of the Chicago Vitreous Co.) was formed by Carl Strandlund, an engineer who received a patent for his steel panel design. Standlund, when to Washington, D.C. to request steel to produce all-steel gas stations for the Standard Oil Company, and his plan was rejected on the basis that materials were needed for housing units and not gas stations. Three month later Strandlund returned with plans for an all-steel house designed by Illinois architects Roy Blass and Morris Beckman. Based on an estimate that one hundred homes could be produced in nine months at a retail price of $7,000, the Reconstruction Finance Corporation committed the first $12.5 million dollar loan to production. The first Lustron factory was located in a Curtis-Wright factory near Columbus, Ohio, and later moved to the Tucker Automobile plant which was also in Columbus. In order to make manufacturing more time and cost efficient Strandlund based production on the automobile assembly line.

The Lustron Corporation operated from 1946 to 1950 before government loans were recalled and their business came to a halt. Unfortunately by the time Lustron got production fully underway the housing crisis had subsided. There were major outside obstacles such as pressure from the building trades, local zoning laws, and the novelty of living in a steel house which led to the failure of the company. Despite the major

technological production advances and new standard design ideas, the company folded after only producing less than 2,500 by 1950.

The production of the Lustron house is significant in that it contributes to the broad patterns of the suburban housing development in 20th century American history and especially for its association with the post-World War II prefabrication efforts of government, industry and technological innovations to comply with these needs. The major design element of all these houses was that all parts were made of steel. That included studs, trusses, wall frame assemblies, exterior walls, roof shingle panels, rain gutters, window, and door frame panels. All interior wall and ceiling panels were coated in porcelain enamel, as were cabinets and every other surface throughout the house. The only different item was the concrete slab floor which was originally covered in asphalt tiles.

The original prototype Lustron house, known as the "Esquire," designed by Blass and Beckman was never used in the construction of houses. The modified version became the two bedroom "Westchester" and this model comprised over 90% of the Lustron houses ever manufactured. The Westchester Deluxe was the only model to incorporate all the built-in amenities and was produced in 1949-1950. Breezeway and garage attachments were also made available during this time period, however, only a minimal number were ever produced.

According to Lustron Corporation sales records only sixteen houses were sold in New Jersey and all of these were probably the Westchester Deluxe models. Only 11 of these have been identified to date in the State and three are know from Bergen County. In 1998 the Lustron at 22 Division Street in Closter was demolished and only the Hess House at 421 Durie Avenue in Closter and the Hiorth House located at 19 Dubois Avenue in Alpine, Bergen County, remain. Both of the Bergen County Lustrons were purchased from the North Jersey Better Living Homes Company in Maplewood. This Lustron franchise was owned by Arthur Padula, a Newark builder, and it was the first and most important dealership in New Jersey.

The Harold Hess House retains almost all of its original historic fabric and it is an excellent example of the Westchester Deluxe model. Features such as the front bay window, easy-care enameled steel panels, space-saving shelves/bedroom vanity are some of the many architectural features used to create a comfortable, space-saving and modern home.

In 1949, Mr. Harold Hess, a returning World War II veteran and recently married, saw the Palisades Amusement Park model of the Lustron. In 1950 he purchased the "Westchester Deluxe" model with attached breezeway and one-car garage from Art Padula, owner of the Better Living Homes Lustron franchise in Maplewood, New Jersey. Originally he wanted the three bedroom, two-car garage models but felt fortunate to receive what he got, since the company was already headed into bankruptcy.

Mr. Hess, with Lustron engineer Jim Mortimer, faced 6 months of endless planning and zoning board meetings in Fort Lee. They failed to obtain a permit and Hess turned to the northern sections of Bergen county which were less developed and relaxed building codes provided opportunities to build the novel construction of the all-metal, prefabricated house. Hess never lost faith and is still the proud owner in the year 2000. Having raised his family here he remains quite pleased with the house. Only noting that there were some adjustments, such as finding people with enough problem solving creativity to make repairs to a steel house. Other minor matters such as having family portraits with industrial magnets and interior spring cleaning with automobile was were more easily solved."

Site and Landscaping

The Harold Hess Lustron House is located at 421 Durie Avenue in Closter, New Jersey. The site is at the intersection of Legion Place with Durie Avenue. It is on the north side of Durie Avenue and on the east side of Legion Place.

The front of the house faces Durie Avenue but the garage faces Legion Place. The location of the house is on a curve in Durie Avenue. Someone driving east on Durie Avenue toward downtown Closter gets a long view of the house.

When the house was constructed in 1950, the lot size was approximately two-thirds of an acre. When the National Register of Historic Places Registration Form was completed in 2000, it noted that the property was endangered because the lot was sub-dividable.

Indeed, the property was later sub-divided and two homes were constructed behind the Harold Hess Lustron House. The Borough of Closter was awarded a 2013 Bergen County Historic Preservation Trust Fund Grant to acquire and preserve the Harold Hess Lustron House. However, this was not finalized as the owned deeded the Lustron House and the remaining property to the Borough of Closter in 2015 in exchange return for zoning variances.

Despite the construction of a two-story house behind the Harold Hess Lustron House, the Hess house retains much of its historical site context. It remains a focal point on the corner of Durie Avenue and Legion Place, set back on a well-treed lot.

Fig. 2 – Satellite view of 421 Durie Avenue from www.google.com/maps image dated 2017.

Fig. 3 – View of the Harold Hess Lustron House looking northeast from the Tenakill Brook bridge on Durie Avenue, taken June 2017.

Fig. 4 – View of the Harold Hess Lustron House looking north across Durie Avenue, taken June 2017.

Landscape Elements

The landscaping is indicative of a well-cared for suburban home with a lawn, trees and plantings, and reflects its mid-20th century roots. Currently, a large oak tree is located in the center of the yard closest to the corner. This tree pre-dates the construction of the house. There are several other large trees as one moves east along the property.

One large tree which was located on the left side of the driveway entrance off Legion Place has been removed in the recent past. This tree measured approximately 15" in diameter.

At the corner of Durie Avenue and Legion Place there is a grouping of low shrubs planted just inside the sidewalk. These plantings help soften the view of the road from the house and date to the Hess family's occupation.

Other shrubs are located on the west side of the driveway and garage but are in poor condition.

Until recently there were planting beds on the front and left side of the house. The plantings included overgrown yews, rhododendrons, azaleas, and ground cover. These plantings were removed in 2016 by the Borough of Closter DPW to provide access to the building face and eliminate retention of moisture on the face of the building.

There are no plantings behind the garage or between the bedrooms and the stockade fence that now defines the northern boundary of the property.

Hardscape Elements

There is a relatively new concrete sidewalk and curb along Durie Avenue and Legion Place which is in excellent condition.

The asphalt driveway which enters off of Legion Place is in fair condition. It shows signs of settlement in some areas and cracks which allow weeds to grow through. The driveway has not been sealed in many years. There is a turn-around at the left side of the driveway near the entrance.

The asphalt has had additional top coats applied which has raised the level of the asphalt above the level of the garage door. This impacts drainage away from the front of the garage.

Near the house, the asphalt widens to the width of both the garage and the breezeway with a small area on the right side of the garage entrance left unpaved. This area contains a pole-mounted coach light. This area also appears to have had plantings until recently.

The area immediately in front of the breezeway is paved with green and purple flagstone which is laid directly in the ground and has settled unevenly in spots. The same stones are used to create a pathway from the driveway to the front porch.

This flagstone paving is identical to the mortared flagstone used in the enlargement of the breezeway and likely dates to that construction in 1952.

Other hardscape elements include a concrete pad which is located between the bedrooms and the stockade fence; a concrete walkway which was located at the rear door of the breezeway and was recently dug up to install new utilities; and vitreous tiles that are laid adjacent to the foundation at the rear of the garage which served as a splash. Many of the tiles are now missing or broken, but they appear to date from the mid-20th century and are likely original features of the construction.

Recommendations for Treatment

Site

1. The site of the Harold Hess Lustron House is an important part of the building's historic context. If the building were ever moved from the site it could be removed from the National Register of Historic Places. The building and remaining site should be restored to the post-World War II period where possible. The house should not be moved to another location.

Landscape Elements

1. What the plantings were like in the 1950s has not been determined. Before further changes are made in the landscaping, research should be undertaken to determine what plantings were installed shortly after the construction of the home in 1950. This might be determined through interviews with family members, former neighbors, or photographs. Figure 5 shows the large trees on the site in 1953, shortly after construction.
2. If it is determined that there were plantings but the species cannot be determined, then species which were commonly being used in the 1950s should be considered.
3. The trees will continue to mature. When trees need to be removed, new specimens of the same species should be planted nearby.
4. Recent plantings which are determined not to have been on-site during the post-War period should be removed.
5. Any plantings that are placed near the house should be kept far enough away to avoid contact with the building.

Hardscape Elements

1. The asphalt driveway should be repaired and sealed. The paving in front of the garage should be removed and new paving installed which allows for drainage away from the garage.
2. The flagstone paving in front of the breezeway should be re-laid with a firm sub-base.
3. The flagstone walkway to the front door should be re-graded and the stones set in a concrete sidewalk to provide a handicapped accessible pathway to the front

porch from the driveway. The grade along the foundation should remain unchanged except where the walkway meets the front porch and the gentle slope each side of the walkway.

4. The walkway out the rear of the breezeway should be restored.
5. The vitreous tiles along the rear of the garage foundation should be reset.
6. The concrete housekeeping pad on the north side of the house should be removed.

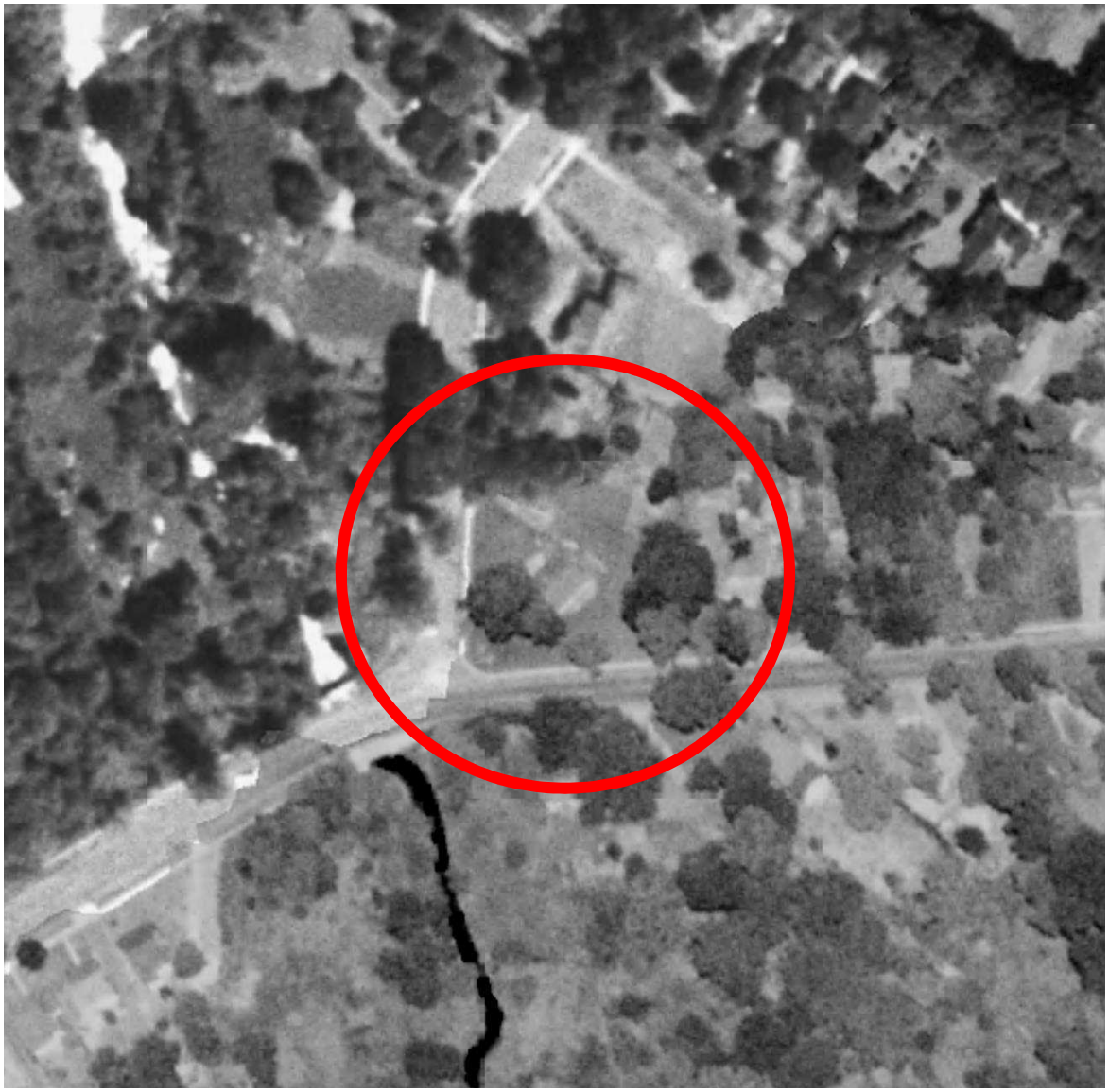


Fig. 5 – 1953 aerial view of 421 Durie Avenue, Closter, New Jersey. Note that there were some large trees on the property shortly after the construction of the house. Most of the surrounding area appears to be lawn area. It is impossible to determine whether there were planting beds based on this image. Image from Historicaerials.com.

Fig. 6 – Plantings have been removed between the house and flagstone walkway, photo taken looking north, June 2017.

Fig. 7 – The flagstone walkway to the front porch should be re-graded to create a handicapped accessible path from the driveway to the front door. The remaining foundation area should be left exposed, photo taken June 2017 looking east.

Fig. 8 – Plantings along the west side the garage appear to be haphazard and poor specimens, photo taken June 2017.

Fig. 9 – Plantings have been removed from the front of the house looking west, photo taken March 2017.

Fig. 10 – The asphalt driveway requires repair and sealing. The stump adjacent to the driveway should be removed and a new tree planted in its place. Photo taken looking east, June 2017.

Fig. 11 – The flagstone paving in front of the breezeway should be re-laid, photo taken looking southeast March 2017.

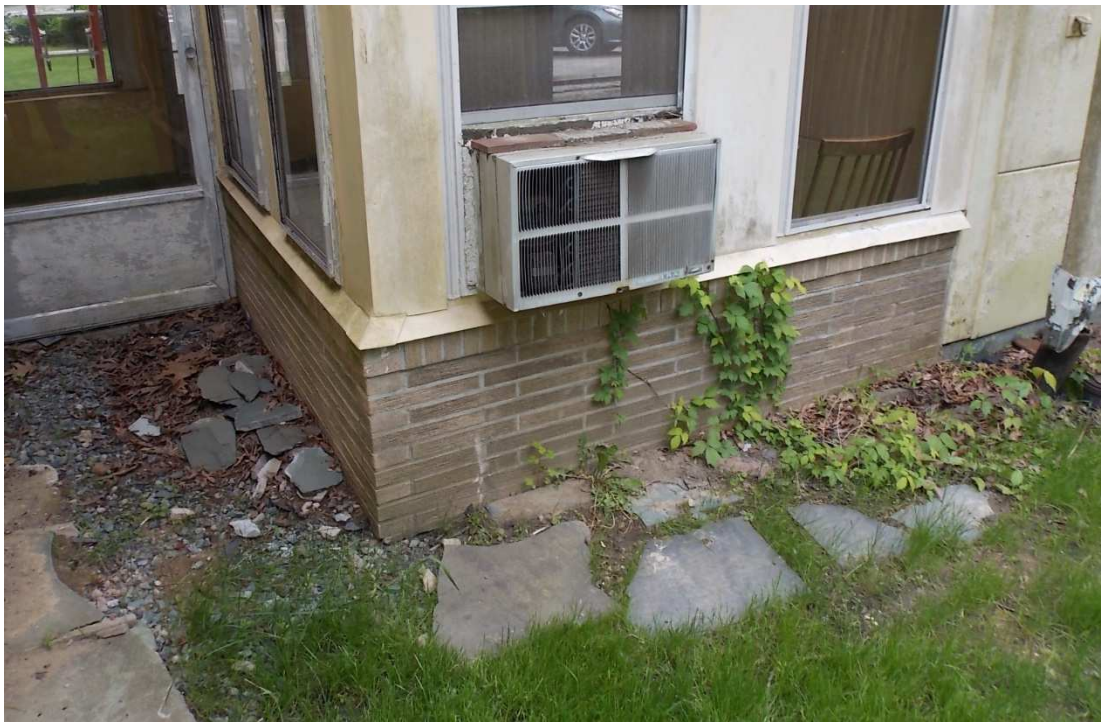


Fig. 12 – The walkway at the rear breezeway door should be restored, photo taken looking south, June 2017.

Fig. 13 – The vitreous clay tiles along the garage foundation should be reset, photo taken looking west, June 2017.

Architectural Descriptions and Problems of Repair

Exterior

For a house constructed sixty-seven years ago, the Harold Hess house is a testament to the durability of the Lustron house. Despite having received minimal maintenance the house remains in relatively good physical condition. The porcelain enameled steel panels which clad the walls and roofs of the house and garage appear in worse shape than they are because they were painted, something the Lustron Corporation would have staunchly opposed.

There was of course a reason why Harold Hess had the house painted. *Preserving The Lustron House: Authenticity and Industrial Production*, by Michele Anne Boyd notes on page 73 that the porcelain enameled wall panels were painted with a yellow latex house paint in 1993. The original panels do have small areas of rust where the porcelain was chipped or damaged and it is possible that the painting was meant to protect the panels from rusting further. It may also be that the fading of original Maize Yellow colored panels due to ultraviolet degradation was objectionable to the Hess family. The original white trim components have similarly received a coat of white latex paint, presumably at the same time.

This latex paint is peeling badly and has retained atmospheric dirt which has allowed biological growth making the building appear mottled and in poor repair. While the paint has not caused any observable damage to the panels, it should be removed and spot repairs made to damaged areas of the panels. The ultraviolet fading of the original Maize Yellow color, which now appears more beige, is part of the building's natural aging process and is a patina, much like the fading of a natural slate roof or an old tapestry.

Similarly, the roof was painted about the same time as the wall panels according to *Preserving The Lustron House: Authenticity and Industrial Production.* What appears to have been a black or very dark brown paint over the original brown porcelain enameled roof tiles has worn off in many spots but what remains is heavily soiled and even sustaining lichen growth. Similar to the wall panels, the paint should be removed and any repairs to roof tiles completed.

The breezeway has a modified bitumen roof which is in poor condition and leaking. That roof needs to be removed and a new roof installed.

The gutters and downspouts have not been cleaned recently and are not draining properly. Some of the original porcelain enameled gutters and downspouts have been replaced with modern aluminum ones.

The house and garage retain their original aluminum windows and the breezeway retains its original aluminum windows. Windows are generally operable but need maintenance and cleaning. The aluminum windows have not been cleaned in many years and are highly oxidized and soiled which supports biological growth in some areas.

The original painted steel front and rear doors remain. These elements were not porcelain enamel and both doors exhibit surface rust. These doors should be repainted.

Some of the aluminum storm doors have been painted. This should be removed and the aluminum finish restored.

Fig. 14 – View of left and front side of the house looking north across Durie Avenue, photo taken June 2017.

Fig. 15 – View of Bedroom 2 and rear of garage looking southeast toward Durie Avenue, photo taken March 2017.

Fig. 16 – View of west side of garage looking toward Durie Avenue, photo taken June 2017.

Fig. 17 – View of front of garage looking north, photo taken June 2017.

Fig. 18 – View of breezeway entrance and left façade (as noted on the Lustron drawings) of house looking east, photo taken June 2017.

Fig. 19 – View of front and right facades (as noted on the Lustron drawings) looking west, photo taken June 2017.

Foundation

The foundation of the Harold Hess house is cast-in-place concrete. This was one of the few elements which was constructed on-site. The exposed face of the foundation generally ranges from 4" – 8" from grade to the bottom of the metal wall panels. This face was previously painted a turquoise color, much of which is now worn away.

The Lustron drawing AP2-D-100 included within the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report shows that the intent was that the concrete foundation wall be 8" thick and extend 8" above finished grade.

Page 1 of 18 of the Master Specification included within The Lustron Home Master Specification Appendix to this report indicates that the concrete was to attain a minimum compressive strength of 3000 lbs. per square foot after (28) days. No steel reinforcing was called for in the Lustron drawings or specifications.

The depth of the foundation and size of the footings is not indicated in the Lustron documents. This is something that would vary by location due to soil conditions and potential depth of frost penetration. As there are no apparent signs of settlement at the Harold Hess house, these issues were adequately addressed at the time of construction.

Existing Conditions

1. The foundation appears to be in good condition, however a small section of the foundation and concrete slab on grade into the Bedroom 2 closet was removed relatively recently and has not been repaired.
2. The face of the foundation has hairline cracks in some areas and the original paint coating is worn.
3. There is a crack in the foundation of the garage, approximately 1/8" wide, near the front left corner of the garage which may be the result of impact damage.

Recommendations for Treatment

1. The hole in the foundation requires repair. The repair would include in-kind replacement of the damaged concrete foundation wall and slab-on-grade within the closet.
2. The exposed foundation should be re-painted its original turquoise color with an exterior paint suitable for cement or concrete surfaces.
3. The crack in the foundation should be filled using a cementitious flowable grout.

Fig. 20 – View looking west of exposed concrete foundation wall which was previously painted a turquoise color, photo taken June 2017.

Fig. 21 – Section of concrete slab-on-grade looking north, which was removed in the Bedroom 2 closet, photo taken June 2017.

Walls and Trim

The exterior walls and trim of the Lustron House are composed of porcelain enamel steel panels which are a character-defining feature of the Lustron design. The color of the exterior wall panels is "Maize Yellow" with white trim components. The porcelain enameled wall panels were painted with a yellow latex house paint. In *Preserving The Lustron House: Authenticity and Industrial Production*, by Michele Anne Boyd she notes on page 73 that this was done in 1993. The original white trim components have similarly received a coat of white latex paint, presumably at the same time.

The exterior walls are constructed of a 4-1/4" wide structural steel frame which was "bonderized and then given a coat of approved organic enamel which is baked at a temperature of 350 degrees Fahrenheit," according to the Lustron Master Specification included as an appendix to this report. Bonderization is the process of using an anti-corrosive phosphate solution to the metal before painting.

Porcelain enamel steel panels are then attached on the exterior and interior of the frame making an exterior wall thickness of 6".

On page 7 of 18, the Master Specification specifies:

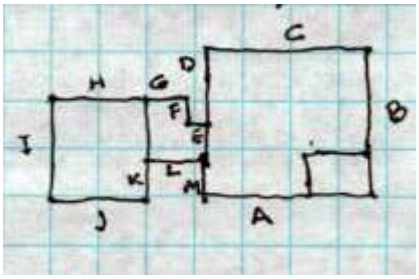
> *"5. Exterior Wall Panels are made of 20 gauge steel, cold formed to shape as indicated on drawings and covered with acid resisting porcelain enamel. Insulation consisting of 1 ½" of glass wool or Lustron approved equal is attached in the factory to the interior face of exterior panels. For this purpose a waterproof adhesive is used.*
>
> *All joints formed by panels in the exterior walls are sealed by means of factory applied polyvinylchloride extrusions. Exterior wall panels are applied in the field to the structural exterior wall sections by means of a self-tapping rust resistant sheet metal screws and in such a manner that the method of attachment is not exposed or visible.*
>
> *At all joints of exterior wall panels, where the factory applied sealing extrusion of polyvinylchloride does not completely seal the joint, a complete seal is made by the injection of a liquid preparation of polyvinylchloride, until all joints are filled.*
>
> *This field injected material upon setting becomes an integral part of the wall seal.*
>
> *6. Interior Wall Panels are made of 20 gage steel, cold formed to the shape indicated on drawings and covered with acid resisting porcelain enamel. Insulation consisting of one (1) inch of glass wool or Lustron approved equal is attached in the factory to the bottom twelve (12) inches of the exterior faces of interior wall panels forming outer walls. A waterproof adhesive is used for this purpose.*
>
> *All joints formed between panels of interior walls are sealed by means of factory applied polyvinylchloride extrusions. Panels are applied in the field to structural wall sections by means of self-tapping rust resistant sheet metal screws and in such a manner that the method of attachment is not exposed or visible."*

Existing Conditions

1. The exterior wall panels are generally in good condition. However, the latex paint is peeling badly and has retained atmospheric dirt which has allowed biological growth making the building appear mottled and in poor repair.
2. The original "Maize Yellow" color has changed due to fading from ultraviolet radiation. The original color of the panels now appears more beige.
3. The exterior wall panels have small areas of rust where the porcelain was chipped or damaged over time. There are very limited areas where a panel has rusted through.
4. There has been deterioration of some of the polyvinylchloride seals.
5. There is very little insulation within the exterior walls.
6. Gable end panels on the garage have been damaged and are bowed out,

Specific Problems of Repair

Starting on the left façade (as designated on the Lustron drawings and includes the Dinette window) as façade "A" and continuing counter-clockwise around the building, the following specific problems were noted:



Kitchen / dining room Façade "A"

- Base of left corner panel has chipped enamel and rusted through in small spot
- Second bottom panel has chipped enamel, dent, slight rust
- Through-wall fan cover is rusted, needs painting and currently inoperable (not porcelain)
- Base and right corner panel has small chipped porcelain spots
- Small rust spot at:
  - 1st bottom row, 7th panel
  - 2nd row, 4th panel
- Deteriorating gaskets between joints and panels
- Small rust spot on right side of window hood
- Small rust spot on right side of window jamb
- Small rust spots on porch return panels along joints
  - Bottom row 2nd and 3rd panels
  - 2nd row 3rd panel
  - 3rd row 1st and 3rd panels

  - 4th row 1st and 3rd panels
  - Cap piece above 1st panel
- Door jambs and casing at doorbell have rust spots
- Small rust spots on cap above hood and cap over panels to right of door (extends above 2 panels)
  - Rust spots at 2nd row 1st and 2nd panels
  - Rust 3rd row 2nd panel
  - Rust 4th row 2nd, 3rd and 4th panels
- Chipped porcelain at base and right corner panel and rust spots at top and bottom screws
- Entry door has significant surface rust (not porcelain)
- Original storm door manufactured By "Eagle Picher Aluminum Doors, Cincinnati, OH"
  - Anodized aluminum insect screen not painted but other exterior face painted white
  - Screen door lock works but doesn't mesh with catch. Original Yale 506 closer in place
  - Rubber weather stippling in place at both storm and main door
  - Door chime not working
- No settlement cracks in porch slab
- Porch light is a lantern with eagle finial
- Concrete porch originally painted turquoise (as was foundation)
  - Top of porch slab later painted battleship grey
  - Sealant at edge and porch slab and wall has expansion crack
- Ceiling of porch in good condition
- Decorative downspout at corner of porch failed at rear seam caused rusting of entire seam
  - Chipped enamel at top of sloped face
  - Serpentine pipe support rusted at bottom and (3) other connection points with sloped gutter
  - Base of support post rusted through and at bottom of serpentine pipe support connection
- Vented soffit in front of dining room window has rust over air conditioner unit (centerline of gable)
- (2) center fascia panels have chipped porcelain where there was former attachment of TV antenna
  - Center left fascia panel is rusted along bottom and has small crack
- (7) straps between shingles on left gable held wire conduit
    - Line approximately 12" down indicates former attachment on left gable panels. Original conduit can be seen in Figure 1.
- Roof panels rusted through at two spots on right gable over face and fascia panel
- Foundation is concrete with small cracks below 2nd and 5th panels

<u>Façade "B"</u>

- Left corner panel (see façade A)

- Small rust spots on panels
  - Bottom row 3rd – 6th panels
  - Left side panel of bay window
  - Bay window jambs
  - Bay window sill left end
- Chipped porcelain at bottom of right corner panel
  - Chipped porcelain 2nd row (10th panel col.; left side and bedroom window)
- Painted surfaces have caught dirt providing opportunities for lichen growth
- Galvanic corrosion of steel screws in aluminum gutter
- Original downspouts replaced with aluminum downspouts
- Right corner panel separating at bottom (1/4″ movement ±)

Façade "C"

- Left corner panel (see right corner panel façade B)
- Hole through foundation into bedroom 2 closet with green concrete housekeeping pad outside
- Panel gasketing failing
- Three rows of vitreous brown tiles laid for splash
  - Many missing or cracked, settled
- Small rust spots on panels
  - Bottom row (1st panel rusted through at bottom)
  - Bottom row 2nd, 3rd, 4th, 10th, 11th, 12th and 13th
  - Bedroom 1 window hood
  - Bedroom 2 window hood
- Chipped porcelain bottom of right corner panel
- Caulking at right corner panel
- TV antenna wire enters through bedroom 2 window
  - Steel wire clips rusting
  - Steel pole and antenna is rusting
- Vented soffit in good condition except painted
- Edge of roof panels show rust-through at ridge and one panel on right gable
- Small rust spots at farthest right fascia panel

Façade "D"

- Soffit missing trim piece behind left downspout
- Replacement downspout is crushed at bottom
- Chipped porcelain at panels
  - Bottom row 1st panel
  - 3rd row 9th panel (at utility connections)
  - 4th row 9th panel (2) screw holes
- Small rust spots at panels
  - Bedroom window hood
- Concrete flagstone walk at breezeway door has been removed
- Corrugated fiberglass roof covering removed

Facade “E” (house wall at breezeway)

- Panels in good condition but painted
- Light fixture shape (plastic) mounted upside down

Facades “F” and “G” (breezeway rear)

- Water damage interior at side wall
- Painted windows and door
- Door swing inhibited by new vent pipe
- Turquoise color to right of breezeway door

Façade “H” (garage rear)

- Small rust spots at panels
    - Bottom row 1st and 2nd panels
    - Bottom row 5th has chipped porcelain
    - Original downspout failed along back beam (not connected)
    - Drainage tiles similar to façade C
    - Gutter damaged at right end
    - Right corner panel dislocated at bottom
        - Bottom damaged and rusted
        - Chipped porcelain at corner

Façade “I” (garage side)

- Panel at bottom row 1st panel is bowed at bottom and rusted through
- Panel at 2nd row 1st panel is rusted through along bottom of panel
- Chipped porcelain at 3rd row 5th panel
- New electrical service mounted at right side
- Two center fascia panels are significantly bowed and rusted through at bottom
    - Next fascia panel to right has chipped porcelain
- Soffit okay but painted
- 1/8th crack at foundation wall (12” ± from right end)
- Chipped porcelain at right corner panel bottom

Façade “J” (garage front)

- Replacement downspout
- Left corner panel (see right corner panel façade I)
- Right corner panel has chipped porcelain at base
- Damaged aluminum panning at both jambs of garage door
- Garage door needs painting
    - Some deterioration at hardboard panels in bottom section of door
    - Rusted handle at bottom
- Garage door sits lower than asphalt which has been built up

Façade “K” (garage, house side)

- Left corner post (see right corner post façade J)
- Panels in good condition
- Aluminum screen was painted
- Mailbox added

Façade “L” (breezeway front)

- Buff colored roman brick at base
- Aluminum paneling above
- Aluminum door and windows have been painted
- Flag stone patio in poor condition
- Some wracking of storm door
- Interior signs of water damage at window frame near house

Façade “M”

- Small rust spots at panels
    - 2^{nd} row 3^{rd} panel
    - 4^{th} row 4^{th} panel at screw hole
    - Corner piece at soffit level
    - Corner piece (see façade A)

Recommendations for Treatment

1. The latex paint which was applied over the original factory finish should be removed and the original surfaces cleaned. This process should be done using the mildest methods without damaging the original porcelain enamel finish.
2. The ultraviolet fading of the original "Maize Yellow" color is part of the building's natural aging process and is a patina, much like the fading of a natural slate roof or an old tapestry. No attempt should be made to change it.
3. Where the porcelain has chipped, the steel needs to be protected from corrosion. Where the steel has not rusted through and remains structurally sound the surface rust should be removed and coated with a zinc-rich primer. The porcelain surface can be repaired using an epoxy product similar to those used for repairs to tubs and appliances and then spot painted with an epoxy paint color-matched to the existing color of the panel. Repainting of the entire panel should not be attempted. Where the steel panel has rusted through, an auto body repair filler can be used to first repair the damaged or missing steel.
4. Where the polyvinylchloride seals have deteriorated a waterproof seal needs to be re-established. Since most seals remain intact, it is recommended that repairs be made in place without removal of panels. This could be accomplished using the same technique described in the original Lustron Master Specification by the injection of a liquid preparation of polyvinylchloride, until all joints are filled. This would only be recommended where there is obvious deterioration.
5. The Lustron House has minimal insulation within the exterior walls. However, the steel components within the exterior wall are susceptible to corrosion if exposed to moisture over a period of time. This can easily happen if condensation occurs within a wall cavity. The current construction allows air movement within the wall cavity which allows moisture to evaporate. It is not recommended that any change be made at this time to increase insulation within the walls of the Lustron house.
6. If wall panels are removed at some future date and the presence of corrosion is detected within the wall cavity, repairs will need to be made and the surfaces will need to be treated with an anti-corrosive coating. Before decisions are made which might change the movement of moisture vapor within the wall cavity a thorough analysis would need to be completed to analyze where condensation could occur. If insulation is added in the future, insulation with hygroscopic characteristics such as cellulose should be considered. Open-cell spray foam should never be used. The use of closed-cell spray-foam insulation is not recommended at this time. While it provides a superior thermal performance it is not reversible.
7. Repair the damaged gable end panels on the garage.
8. Repair garage door frame.

Fig. 22 – The latex paint which was applied to the exterior wall panels is peeling and should be removed, photo taken June 2017.

Fig. 23 – Dirt clings to the latex paint allowing algae and mildew to form. This north east corner panel has rusted through and will need to be repaired, photo taken June 2017.

Fig. 24 – The fascia panels at the west side of the garage gable have been damaged and will need to be removed, straightened, and re-installed. Similar to the "Maize Yellow" panels, the white trim panels were also painted. The white latex paint should likewise be removed and the original finish restored, photo taken March 2017.

Fig. 25 –The corner panel at the rear left of the northwest corner of the garage has been damaged and will require repair, photo taken March 2017.

Fig. 26 –The sheet metal panning on both garage door jambs has been dented through various impacts. This material could be replaced in-kind. Photo taken looking east, June 2017.

Windows

The Harold Hess Lustron House retains all of its original aluminum windows. The original windows in the house were manufactured for the Lustron Corp. by Reynolds Aluminum. The aluminum windows in the breezeway were installed circa 1952 when the breezeway was enclosed. It was not determined what company manufactured the breezeway windows.

The house includes four (4) tri-partite aluminum windows with fixed center windows flanked by out-swinging casement windows with four lites. These windows measure 6'-5" wide by 4'-5" high and are located on the left façade in the Dinette; on the front façade in the Living Room and Bedroom No. 1; and on the rear façade in Bedroom No. 2. They are identified on Lustron Corp. drawing AP2-C-100, which is included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report as Type VI windows.

The rear façade includes one (1) single three-lite casement window in the bathroom identified on the drawings as a Type VIII window measuring 1'-6 5/8" wide by 3'-1 5/8" high; and one (1) pair of three-lite casement windows in the kitchen identified as a Type VII window measuring 3'-5" wide by 2'-11" high.

The right façade of the house differs from Lustron Corp. drawing AP2-C-100, in that there are two additional Type VII windows in the side wall of the bedrooms in lieu of the four "porthole" windows which would only have measured 1'-6 3/8" by 1'-6 3/8" indicated on the drawing.

All windows on the house are provided with aluminum framed screens and storm panels.

On page 8 of 18, the Master Specification specifies:

> "*1. Windows are casement, fixed, or awning type as indicated on drawings and are constructed of aluminum extrusions. All casement ventilating sections are roto operated with cam locks. Screens for ventilating sections are constructed of aluminum extrusions or rolled sections with aluminum or bronze wire cloth. Provisions are made for storm sash on all windows.*
>
> *2. Glazing is done with "B" quality, double strength glass, each light must bear the manufacturer's identifying label. All glass is held in place by means of polyvinylchloride extrusions and so placed and formed that no air leakage will occur through this mechanical glazing medium."*

The garage is provided with one (1) two-lite awning window which is located on the right side of the garage adjacent to the breezeway. This window was also part of the Lustron system.

The breezeway, which is an "L" shaped space, has two one-over-one double hung aluminum windows on the front, two on the rear, and two on the side facing the bathroom. These windows date from when the breezeway was enclosed circa 1952.

Existing Conditions

1. The finish of the windows is corroded. The exterior surface is heavily soiled in some areas.
2. Some windows have a build-up of dirt and grime which makes operation difficult.
3. Some of the windows do not close completely from the inside.
4. The cams in some of the window cranks are worn.
5. The joint sealant used at the exterior of some windows has failed.
6. Portable air conditioners have been placed in several of the casement windows in the location of the bottom pane of glass. These windows are not operable.

Recommendations for Treatment

1. The aluminum window sash and frame components should be thoroughly cleaned and the finish restored. This should be done using the gentlest means possible. Polishes designed specifically for aluminum and techniques such as using an SOS pad can be effective but care must be taken not to not leave a scratched finish. Experimentation on materials that are not part of the historic fabric of the house first should be undertaken to insure a satisfactory result. Once the aluminum finish is clean an automobile wax can be applied to help protect the finish.
2. Once the frames, sash, and hardware are thoroughly cleaned they should operate better. Using a spray silicone lubricant on moving parts will allow easier movement and reduce wear.
3. It was noted during the examination of the house that several windows did not completely close by cranking from the inside. Cleaning and lubricating should address this issue. There does not appear to be any settlement causing the windows to bind.
4. The cranks should be cleaned and lubricated. Some may require repair. If the cranks cannot be adequately repaired they should either be replaced with original Lustron components from other disassembled Lustron houses or simply maintained in place.
5. Lustron Drawing AP2-H-103 does not show the use of joint sealant around the perimeter of the windows but rather relies on a polyvinylchloride extrusion on the interior side of the window frame to create a seal. It is not known whether the failure of those seals caused the owner to caulk the edge of the windows to prevent air infiltration. As the existing joint sealant has failed it should be removed. If it is determined that air infiltration is a problem, an injection of liquid polyvinylchloride could be provided. Any use of joint sealant around the perimeter of the window will fail again because the joint is not designed to accept it.
6. The window air conditioners should be preserved in place. They are an important part of post-WWII American life-style and how the Hess family adapted the Lustron house to meet their own needs.

Fig. 27 –View of the large "Type VI" windows. This window is located in the living room and mounted in a projecting bay. Note the addition of the portable window air conditioner in the lower pane of one casement window. Air-conditioning units were installed in each of the large windows, at the Dinette, Living Room, and both bedrooms, plus in one of the breezeway windows. Photo taken looking west, June 2017

Fig. 28 –View looking south of the "Type VII" window installed at Bedroom No.1, photo taken June 2017.

Fig. 29 –View of two of the double hung aluminum windows installed in the breezeway looking east, photo taken June 2017

Fig. 30 –The attachment of this wire with a steel clip has caused galvanic action between the steel and the aluminum. Any attachment must isolate dissimilar metals. This should be replaced with an aluminum clip, photo taken June 2017.

Fig. 31 – An accumulation of dirt and grime has made operation of the windows difficult on the west wall, photo taken June 2017.

Fig. 32 –This window has had joint sealant installed at the perimeter of the steel panels. It has failed and should be removed, photo taken looking south June 2017.

Doors and Hardware

The Harold Hess Lustron House retains its all of its original doors. The front and rear entry doors are flush steel doors with a glazed center panel of obscure glass with a painted finish. Both of these doors are 3'-0" wide by 6'-8" high.

There are aluminum storm/screen doors at both entrances to the house as well as two additional doors at the breezeway which was added circa 1952.

The door between the garage and the breezeway is a painted stile and rail wood door with three horizontal panels below the lock rail and a four-lite window above the lock rail. This door appears to date from the construction of the garage but was not supplied by the Lustron Corp.

On page 8 of 18, the Master Specification specifies:

> *"3. Doors shall be of the sizes and types called for on the drawings. Exterior doors shall be hinged while interior doors shall be sliding, concealed type. Insulation and sound deadening on exterior doors shall be as shown on the drawings.*
>
> *4. Door Frames shall consist of 16 gauge steel buck, bonderized, and painted with an approved porcelain enamel, and door trim of 20 gauge steel, cold formed and covered with acid resisting porcelain enamel. All joints shall be secured and sealed against the weather after erection."*

The doors retain their original hardware except for the rear entry door knob which has been replaced. The entry doors have a pair of hinges, knob, and threshold. The associated storm doors have a latch, three hinges and a closer.

The breezeway storm doors have a knob, continuous hinge, closer and chain.

The garage door has a pair of hinges and a knob set.

Existing Conditions

1. The aluminum storm doors have been painted white.
2. The front entry door is badly rusted behind the openings of the storm/screen door.
3. The front storm door on the breezeway does not close properly because the wood frame is wracked.
4. The rear breezeway door does not open fully because a vent pipe has recently been installed near the door.
5. The interior face of the rear entry door has black paint across the bottom of the door and frame.

Recommendations for Treatment

1. The paint should be removed from the aluminum storm doors and the original finish restored.
2. The front entry door finish should be restored. This would entail removing the existing paint finish, removing rust and filling any pitting caused by the rust, and recoating with a sprayed enamel coating which matches the original color.
3. The front storm door on the breezeway should be re-hung so that it closes properly within the opening.
4. The utility pipe should be relocated to allow the rear breezeway door to fully open.
5. The black paint across the interior bottom of the rear entry door and frame should be removed.

Fig. 33 –The front entry door is badly rusted and its finish should be restored.

Fig. 34 –The rear breezeway door no longer opens completely due to the location of a new utility pipe. The pipe should be relocated. Photo taken looking south, June 2017

Fig. 35 –The garage door to the breezeway looking west is a wood stile and rail door which was not provided by the Lustron Corp. The door does however appear to be original fabric of the garage, photo taken June 2017.

Roofs and Chimney

The house and garage retain their original brown colored Lustron porcelain enamel roof panels. The breezeway roof is a modified bitumen roof which appears to have been installed in the late 20th century.

No active roof leaks were identified in the house or garage roof, although repairs have been made to the house roof in the past. In 2016, two roof panels along the south gable became dislodged after removal of the original electrical surface allowing water infiltration of the attic. This has since been repaired.

The garage roof has a pronounced "belly" at the center of the ridge. This is due to deformation in the roof framing members and is discussed further in the Structural Analysis section of this report.

There is water damage evident within the breezeway ceiling and the modified bitumen roof installed there has long passed its useful life. The flashings for that roof were poorly designed where the low flat breezeway roof meets the house and garage.

In *Preserving The Lustron House: Authenticity and Industrial Production*, by Michele Anne Boyd she notes on page 73 that the Lustron roof panels were painted about 1993. It is possible that the breezeway roof also dates to that time.

The Lustron roof panels measure approximately 23" in width and are 48" in length plus overlap.

On page 7 of 18, the Master Specification specifies:

> "*8. Roof Panels are made of 20 gauge steel, cold formed to the shape indicated on the drawings and covered with acid resisting porcelain enamel. Roof panels are so formed that they will be load bearing and transmit the design loads directly to the trusses without the help of supporting members. In addition to strength, the over-lapping edges of roof panels are so designed that they will provide a weather-tight joint. Roof panels are applied in the field with self-tapping, rust resistant sheet metal screws in such a manner that the method of attachment is not exposed or visible except ridge roll attachment."*

There has been some rusting of the Lustron roof panels, although generally along the leading edge of panels or where two side by side panels overlap. There has been little maintenance to the Lustron roof panels over the years. Although much of the black paint has worn away over the last twenty-plus years there are still areas where it remains. This provides ample opportunity for dirt to collect. Additionally, blowing leaves and tree debris have deposited in the joints between panels which then hold moisture against the roof panels for sustained periods of time. Lichen has begun growing, especially along the eaves where these materials tend to collect.

Several roof patches of adhered aluminum were observed and at least one rust hole. Fortunately, in these locations there is an overlap of a second roof panel below.

The original porcelain enamel plumbing vent has been replaced with a copper vent and a rubber boot. It appears that the area had been patched previously. The original plumbing vent is located in the house attic.

The underside of the roof panels do show signs of surface rust as seen in the attic of both the house and the garage. This is likely due to condensation which forms during periods of high relative humidity when the panels are cold.

One feature of the breezeway roof which has been removed was a white colored corrugated translucent fiberglass panel which was located between the breezeway and the house over the bathroom window. The corrugated wood molding which supported the edge of the panel still remains, although deteriorated. These panels were common when the breezeway was enlarged and enclosed circa 1952. They were often seen in white or green, although other colors are available. A section of the panel is stored in the breezeway.

Due to the lack of gutter maintenance, the area adjacent to the house gutter has significant moss growth on the breezeway roof.

According to the Master Specification on page 14 of 18, the chimney on the house is composed of an 8" diameter Vitroliner flue manufactured by Condensation Engineering Corporation. "Vitroliner shall consist of Vitroliner pipe, Fyrex insulation and aluminum casing. All as recommended by the manufacturer and as approved by the Underwriters' Laboratories, Inc., for use with oil or gas as fuel." Drawing AP2-H-100-1, included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report shows the flue being enclosed in a 24" by 24" porcelain enamel chimney casing.

The chimney casing is the visible element on the house roof. It was manufactured in Maize Yellow with a black chimney cap. The entire assembly was painted black when the roof was painted. Much of the black paint has since flaked off.

There bottom of the chimney casing exhibits rust.

Existing Conditions

1. The Lustron roof panels retain paint which was applied in the late 20th century.
2. The roofs collect debris. Lichen has formed on the Lustron panels.
3. There are former repairs utilizing adhered roof patches and asphaltic coating on the Lustron panels.
4. There are minor areas of rusting that have created a hole through the Lustron panesl.
5. The underside of the Lustron roof panels exhibit surface rusting.
6. The original plumbing vent has been replaced.
7. The breezeway roof is past its useful life.
8. The garage roof has a noticeable "belly" in the ridge.
9. The chimney has rust at its base.
10. The TV antennas are rusted.

Recommendations for Treatment

1. The breezeway roof should be replaced. This roof needs to be able to take foot traffic so replacement with a 5-ply built-up roof or another modified bitumen roof is reasonable. A white corrugated translucent fiberglass roof panel should be re-installed to match the section which is stored in the breezeway.
2. The Lustron roof panels have several issues which should be addressed, however the roofs are not currently leaking. Immediate maintenance to clean the roof of all debris and biological growth should be undertaken. Ideally, this would include all remaining latex paint as well. This work could be done from a personnel lift to avoid potential damage to the panels.
3. Permanent repairs to fill holes from rust and treating the underside of the panels to remove surface rust and provide an anti-corrosive coating could best be accomplished under shop conditions which would require the removal, restoration, and reinstallation of the existing roof panels. If this cannot be done at this time, temporary repairs should be undertaken to fill any rust holes and touch up and spots where the original porcelain enamel finish has been lost.
4. The original porcelain enamel plumbing vent should be re-installed.
5. See the Structural Analysis section of this report for recommendations relating to the sag in the garage roof.
6. Remove the remaining paint from the chimney casing and repair the rust damage.
7. Restore the rusted TV antennas at both the house and garage roofs.

Fig. 36 – Much of the paint which was applied to the roof panels circa 1990s has worn off, there is still a rougher texture than the original porcelain enamel which catches dirt and debris allowing lichen to form. Looking south, note the paint on the chimney casing, photo taken June 2017

Fig. 37 – A make-shift roofing repair of metal foil and asphaltic roof coating likely covers a rust hole. The seams where the panels overlap every four feet are deeper and tend to collect leaves, twigs, and other debris which holds moisture against the panels for prolonged periods. Photo taken June 2017 looking east.

Fig. 38 – Close-up view of lichen growth on the house roof, looking east, photo taken June 2017.

Fig. 39 – The original porcelain enamel plumbing vent has been replaced. The original is stored in the attic of the house. Photo taken June 2017 looking east.

Fig. 40 – The chimney casing should have the remaining black latex paint removed and repairs made to the rust at its base. Photo taken June 2017 looking east.

Fig. 41 – View of the breezeway roof adjacent to the house shows constant moisture has enabled moss growth. There is water damage in the breezeway ceiling below this area, photo taken June 2017 looking north.

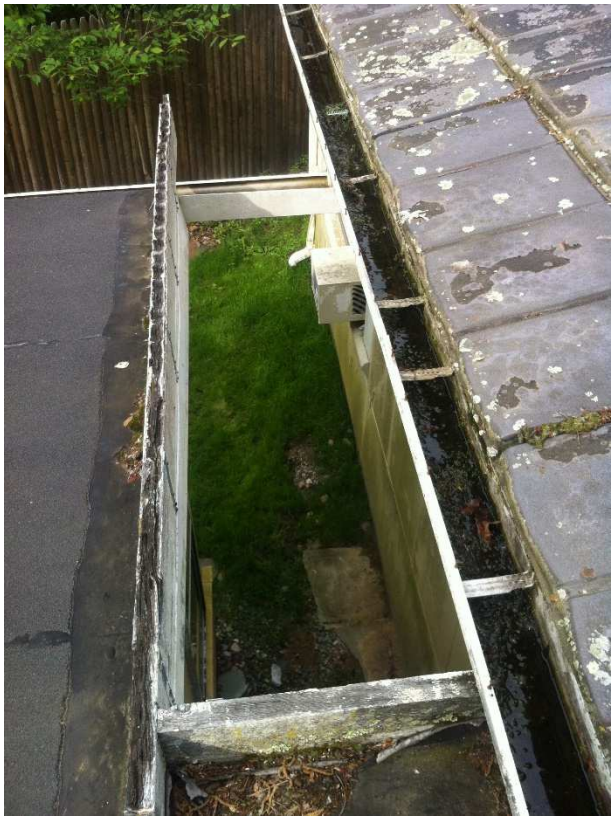


Fig. 42 and 43 – This area between the breezeway and the house was covered with a white corrugated translucent fiberglass roofing panel. A section remains stored in the breezeway. The wood trim which supported it is seen at left and below. Photo taken June 2017 looking north.

Fig. 44 – The underside of the roof panels have surface rust. The panels need to have an anti-corrosive coating reapplied to protect them from further deterioration. Photo taken June 2017 looking north.

Fig. 45 – The garage roof sags at the center, photo taken June 2017 looking north.

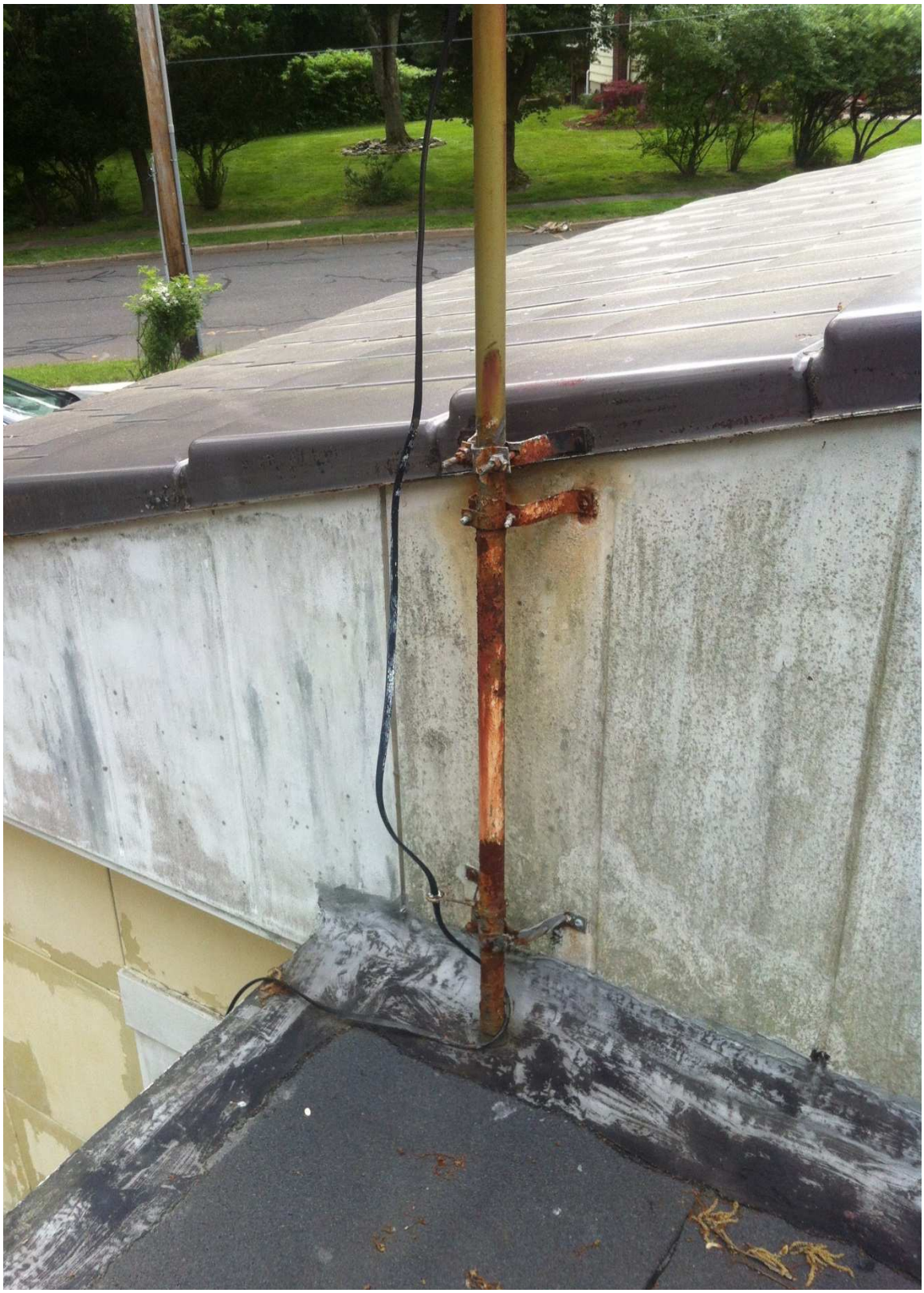


Fig. 46 – The television antennas at the garage and house are rusted. These features are important to interpret post-World War II life in America and should be retained and restored. Photo taken looking south, June 2017.

Gutters and Downspouts

Few of the original gutters and downspouts remain on the Harold Hess Lustron House. Most have been replaced with white aluminum gutters and downspouts.

Fortunately, the distinctive serpentine downspout located on the front of the house remains. The one originally located in the rear adjacent to Bedroom No. 2 has been replaced with aluminum.

The only other original downspout remaining is located at the rear of the garage adjacent to the breezeway. There are no original gutters which remain. There are some sections of original downspouts stored in the garage attic.

The existing gutters and downspouts require maintenance. The gutters are clogged and do not drain adequately which will cause them to overflow and develop ice dams during the winter.

Several of the downspouts are damaged.

Both of the original remaining downspouts are rusted and have broken seams at the back. The serpentine trim which holds the front downspout next to the porch is also rusted.

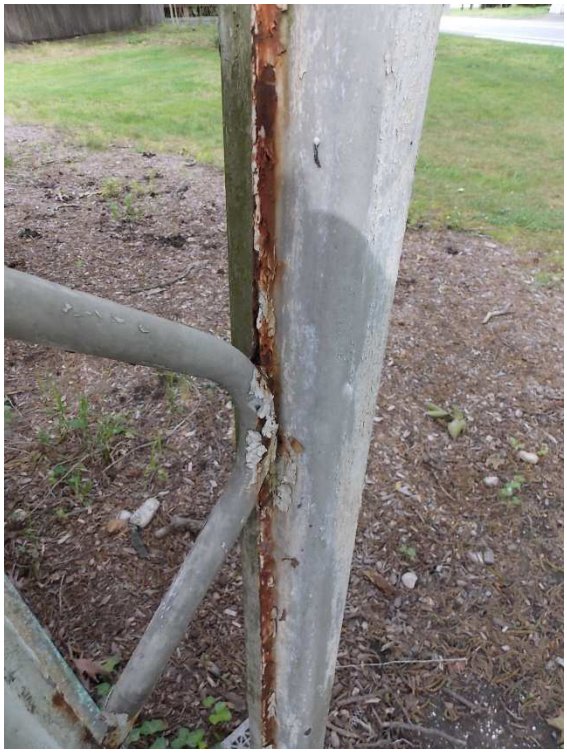
Existing Conditions

1. Only two original porcelain enamel Lustron downspouts remain on the building, the distinctive serpentine downspout located at the front porch and a downspout at the rear of the garage. Both of these have split seams and rust damage. All others have been replaced with white painted aluminum. There are some sections of original downspout located in the garage attic.
2. The gutters need to be cleaned and receive regular maintenance.
3. The downspout adjacent to Bedroom No. 2 has been damaged.

Recommendations for Treatment

1. Restore the remaining original downspouts, including those stored in the garage attic.
2. Provide regular maintenance to all gutters and downspouts.
3. Replace aluminum gutters and downspouts with enameled steel replicas of the original elements.

Figs. 47 (looking north), 48 (looking east), 49 (looking north) – Images of the original remaining serpentine downspout at the front porch. The angled downspout is supported by the vertical post on the porch by a serpentine tube. The seam at the backside of the downspout is rusted and there is a chip in the porcelain enamel finish. The tube is rusted where it connects to the downspout and the base of the post is rusted. Photos taken March/June 2017.



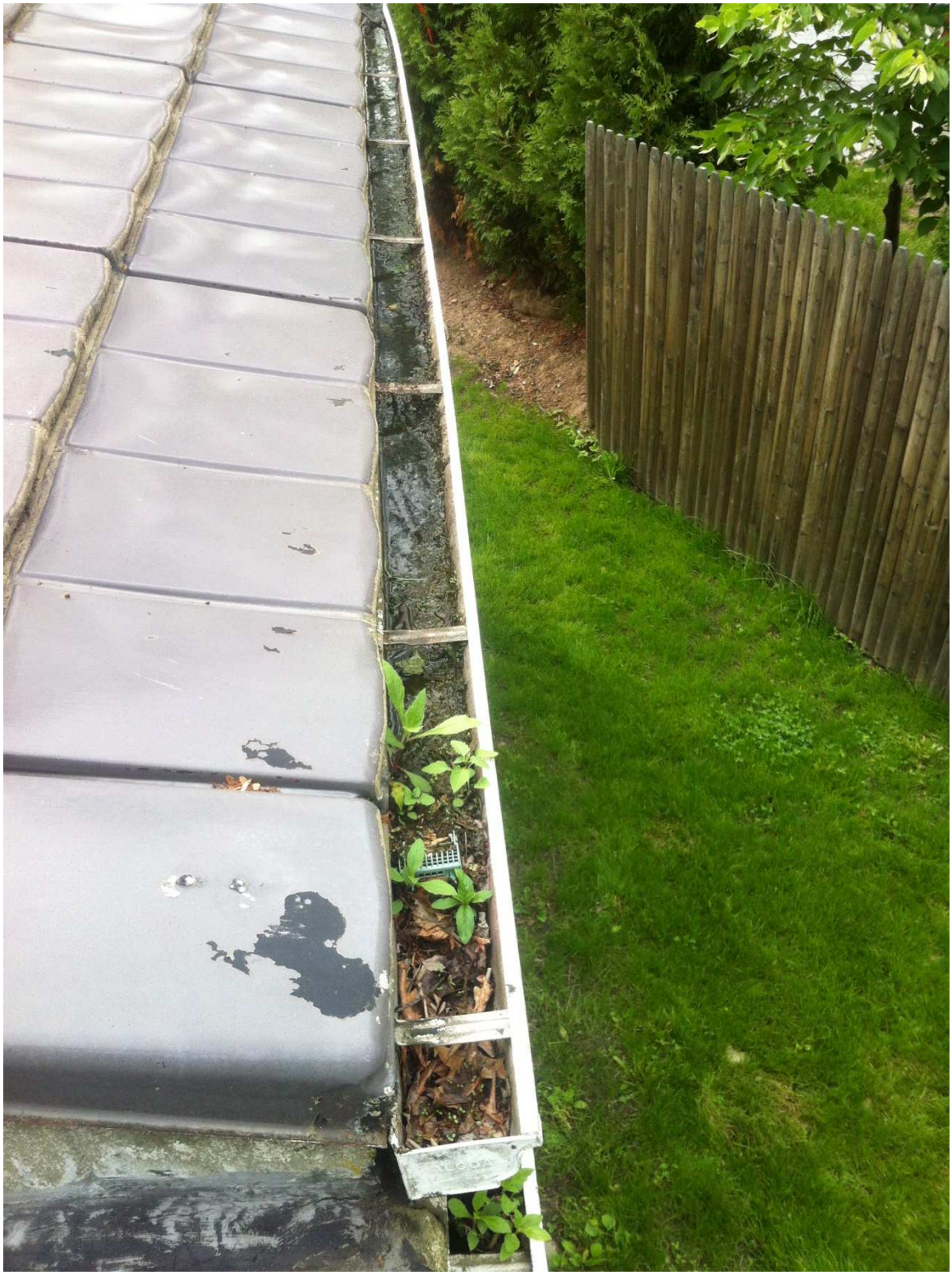


Fig. 50 – The gutters and downspouts require periodic maintenance to keep them clear, photo taken looking west, June 2017.

Breezeway

The breezeway was not part of the Lustron design. However, given the corner lot at the intersection of Durie Avenue and Legion Place, the Hess family located the driveway on the less traveled Legion Place. This turned the garage perpendicular to what Lustron identified as the front façade of the house and provided an easy connection between the garage and back door. A breezeway connecting the two made good sense.

Figure 1 shows the house when first completed in 1950. The open breezeway had a concrete slab, two posts on the front (and presumably two in the back) supported beams which spanned between the house and garage and supported a flat roof. A triple arched fascia board finished the design.

Preserving The Lustron House: Authenticity and Industrial Production, by Michele Anne Boyd notes on page 73 that, "In 1952, Hess enclosed the breezeway with brick, wood, and aluminum storm windows."

Based on the physical evidence, it also appears this is when the breezeway was enlarged as well. The front wall remains where it was originally and the two posts which supported the roof were enclosed and now serve as the jambs on either side of the center door.

The rear of the breezeway expanded out the back for the center and left bays adjacent to the garage. It did not expand out in the bay adjacent to the house because it would have enclosed the bathroom window. This area was left as exterior space but covered over with a white corrugated translucent fiberglass panel, a section of which is still located in the breezeway.

At the base of the front and rear walls below the windows, Hess used a buff-colored Roman brick. The inside of the wall has a painted cement finish which suggests that there is a concrete block wall behind the brickwork. There is evidence of early turquoise color paint below the existing yellow.

The floor of the breezeway is vinyl tile over the original concrete slab of the breezeway. In the expanded area the floor is a random patterned green and purple slate flagstone floor laid in a mortar bed over a separate concrete slab-on-grade. This later slab has settled slightly toward the rear yard. This has caused some cracking in the side wall adjacent to the rear door. This has also exposed the base of the original wood post adjacent to the rear door. It appears that the base of the post is rotted.

The ceiling of the breezeway is covered with varnished 12" by 12" wood tiles attached to a furring system above. The tiles have a directional striated surface and are set opposite one another in a checker board pattern. When a new electrical service was recently installed, the electrical line was run from the garage through the breezeway and a hole was created in the ceiling to pass the line into the house. Part of the ceiling is water damaged due to a leaking roof above. A circa 1950s wall-mounted light fixture remains over the side widows.

Existing Conditions

1. The enclosed enlarged breezeway was not part of the original design of the house.
2. The roof of the breezeway is deteriorated and beyond its useful life.
3. There is rot in the wood post adjacent to the rear door.
4. The floor slab in the enlarged area of the breezeway has settled.
5. There is some water damage from on-going roof leaks.
6. There is a hole in one of the ceiling tiles where the new electrical service passes.
7. The front door does not fit squarely within the frame.
8. There is evidence of an earlier Turquoise paint color.

Recommendations for Treatment

1. The National Register of Historic Places Registration Form lists the Period of Significance for the house as 1946-1950 which are the years that the Lustron Corporation was in business. The property was listed in the National Register in May 2000, just 50 years after its construction. Normally, a property must be 50 years or older to be listed. So the enclosed breezeway was not yet 50 years old at the time the property was listed.

   However, the property is listed under both Criteria A and C of the National Register Criteria. Criteria C states that the "Property embodies the distinctive characteristics of a type, period, or method of construction…." This author would argue that the breezeway meets that criteria and it is now over 50 years old. The breezeway certainly is post-War II mid-century modern construction and it is a character-defining feature of the "Harold Hess" Lustron House. It is part of what makes this Lustron unique to the family that lived here for over 50 years.

   It is the recommendation of this Preservation Plan that the enclosed enlarged breezeway be restored as a character-defining feature of the house.

2. The breezeway roof needs to be replaced. This roof needs to be able to take foot traffic so replacement with a 5-ply built-up roof or another modified bitumen roof is reasonable. A white corrugated translucent fiberglass roof panel should be re-installed to match the section which is stored in the breezeway.
3. The base of the rotted post adjacent to the rear door will need to be exposed and a determination made as to the needed repair. If only the base of the post is deteriorated then only that section should be replaced. The adjacent surfaces will have to be restored in-kind.
4. Settlement in the floor slab should be monitored but it is unlikely still settling. No further action should be needed once the side wall is repaired.
5. Repair water-damaged ceiling and wall finishes.
6. When the breezeway roof is replaced a conduit can be located between the house and garage through the breezeway roof framing to provide an alternative

route for the electrical service. The ceiling in the breezeway can then be restored.

7. The posts on either side of the door should be examined for rot at the base. If there is rot, the same treatment would apply as to the rear post. If the post is sound, the front storm door on the breezeway should be re-hung so that it closes properly within the opening.
8. Repaint breezeway elements matching the earliest paint layer evidence.

Fig. 51 – View of breezeway front, photo taken looking north, March 2017.

Fig. 52 – View of breezeway rear, photo taken looking south, March 2017.

Fig. 53 – View enlarged area of breezeway. The floor is wet from active roof leaking. Note the corrugated fiberglass roof panel stored in the corner of the room which was formerly above the rear door of the breezeway. Photo taken looking east, June 2017.

Fig. 54 – View of the base of the post adjacent to rear door of breezeway. The crack in the wall is from settlement of the rear concrete slab-on-grade. The brown material on the floor is from the base of the post inside the wall. Photo taken looking east, June 2017.

Fig. 55 – View of breezeway ceiling, photo taken looking east, June 2017.

Fig. 56 – View of breezeway ceiling with new wiring, photo taken looking south, June 2017.

Interior

The interior of the Harold Hess Lustron House retains a high degree of historic authenticity. Little has been modified since the house was constructed in 1950.

The Harold Hess house is a Westchester Deluxe model manufactured by the Lustron Corporation constructed in 1950. Rooms within the house include the Kitchen, Utility Room, Dinette, Living Room, Hallway, Bathroom, Bedroom No. 1, and Bedroom No. 2, which are all located on one floor. There are closets in the Utility Room, both bedrooms, and two in the hallway. There is an accessible attic space in the house but it was never intended for any use, including storage.

The house also has a breezeway, which is described on pages 67 - 71 of this report, and a single car garage.

The finishes used throughout the interior are repetitive with only minor variation.

Floors and Baseboard

Floors in the Kitchen, Utility Room, Dinette, and closets are covered with the original 12" x 12" vinyl tiles which are adhered to a 4" thick concrete slab-on-grade. The bedrooms and bath have 12" x 12" replacement vinyl tiles which appear to have been installed over the original tiles. The Living Room and Hallway has sheet vinyl flooring which appears to have been installed over the original tiles.

Baseboards are 4" high black vinyl cove profile and installed at all walls. Many sections of base have come loose from the walls and some have been damaged. The base is very brittle.

Page 11 of 18 of the Master Specification specifies:

> *"3. Floors shall be covered with one-eighth (1/8) inch asphalt tile of approved quality and color to match the decorative scheme of the interior. Before laying tile the concrete floor slab must be clean and dry. To test same for moisture, place asphalt tile face down on different parts of the floor and weight tile down. After twenty-four (24) hours, remove tile and if damp spots show, the floor slab shall be allowed to dry further until the repetition of above test gives negative results before laying tile.*
>
> *4. In cold weather, all asphalt tile and asphalt cements shall be stored in a warm room having a temperature of 70 deg. F to 75 deg. F for at least twenty-four (24) hours before installation. Likewise areas in which asphalt tile are being laid, shall be maintained at above mentioned temperature range for not less than twenty-four (24) hours previous to, during and after installation.*
>
> *5. Cement shall be waterproof material recommended and approved by the tile manufacturer and shall always be stored in temperatures above freezing.*

6. Baseboard shall be of the cove type, four (4) inches high and of a type suitable to be used with 1/8 inch asphalt tile floor.

7. Cleaning of asphalt tile floor and base shall be carefully done with a neutral soap or cleaner approved by the tile manufacturer.

8. After Cleaning apply one coat of an approved water emulsion wax. Do not use any waxes containing turpentine, benzene or mineral spirit solvents."

Walls

All of the original porcelain enamel wall panels remain in the house. The interior surface of the exterior walls are covered with 24" x 24" porcelain enamel steel panels similar to the exterior wall sheathing of the house in the Kitchen, Utility Room, and Bath. The color in these rooms is Maize Yellow. Panels around windows and doors in these rooms are Dove Gray.

The remaining rooms have 24" wide x 8'-1" high ribbed panels in Dove Gray. Panels around windows and doors in these rooms differ in size but are also Dove Gray.

On page 7 of 18, the Master Specification specifies:

"6. Interior Wall Panels are made of 20 gage steel, cold formed to the shape indicated on drawings and covered with acid resisting porcelain enamel. Insulation consisting of one (1) inch of glass wool or Lustron approved equal is attached in the factory to the bottom twelve (12) inches of the exterior faces of interior wall panels forming outer walls. A waterproof adhesive is used for this purpose.

All joints formed between panels of interior walls are sealed by means of factory applied polyvinylchloride extrusions. Panels are applied in the field to structural wall sections by means of self-tapping rust resistant sheet metal screws and in such a manner that the method of attachment is not exposed or visible."

Ceilings

All of the original porcelain enamel ceiling panels in the house remain except for the scuttle panel in the Utility Room ceiling which was not located. Typical ceiling panels measure approximately 48" x 48". Ceiling panels are white.

On page 7 of 18, the Master Specification specifies:

"7. Ceiling Panels are made of 20 gage steel, cold formed to the shape indicated on drawings and covered with acid resisting porcelain enamel. All joints formed by panels in the ceiling are sealed by means of factory applied polyvinylchloride extrusions. Panels are applied in the field by means of self-tapping rust-resistant sheet metal screws, in such a manner that the method of attachment is not exposed or visible. Ceiling panels when

applied will form the bottom of the plenum chamber for the heating system and will be a suspended type ceiling."

Trim

The only trim used in the Lustron House is a small white steel molding at the intersection of the walls and ceiling panels.

Interior Doors and Hardware

The Harold Hess Lustron House retains its all of its original doors. There are three (3) communicating doors between rooms. These are located at the entrance to the Bath and the two Bedrooms. These are identified as Type II doors on Lustron drawing AP2-B-100 which is included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. The doors are concealed sliding doors and measure 2'-8" wide by 6'-8" high. These are flush steel doors with a painted finish in Dove Gray.

On page 8 of 18, the Master Specification specifies:

"3. Doors shall be of the sizes and types called for on the drawings. Exterior doors shall be hinged while interior doors shall be sliding, concealed type. Insulation and sound deadening on exterior doors shall be as shown on the drawings.

Additionally, there are thirteen (13) Type III closet doors measuring 1'-6" wide by 6'-0" high, and eleven (11) Type V closet doors measuring 1'-6" wide by 1'-10" high. The latter are used to access the upper storage area of the closets. The closet doors are sliding doors constructed of steel and painted with enamel. The design of the closet doors is shown on Lustron drawings AP2-H-201 through AP2-H-205 included in the appendix. All closet doors are painted Dove Gray.

The doors retain their original hardware. Hardware for Type II doors include a concealed track, rollers and hanging hardware at the head of the door and a mortised latch with finger pull in the end of the door, and a pair of rectangular pulls on either side of the door, the inside pull having a turning knob to lock the door. On the frame is a catch to accept the latch.

Hardware for Type III and V doors include a concealed track, rollers and hanging hardware at the head of the door and a recessed oval slide on the face of the door.

Cabinetry and Closets

All of the original cabinetry and closets of the Harold Hess Lustron House remain.

Cabinetry includes two overhead kitchen cabinets located above the stove and refrigerator; a pass-through kitchen / dinette unit; and a Living Room bookcase which is integral to the Bedroom No. 1 vanity.

Closets include the Utility Room broom closet; a Hallway closet adjacent to the Bath; a Hallway linen closet which is integral to closets in Bedroom Nos. 1 and 2; two closets in Bedroom No. 1 which flank the vanity unit; and small upper storage areas above all the bedroom closets and two above the vanity.

The design of these units are indicated on Lustron drawings AP2-H-200 through AP2-H-205 included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. All cabinetry and closets are painted Dove Gray.

On page 11 of 18, the Master Specification specifies:

> *"2. Kitchen Cabinets, book-case, bed-room vanity, linen closet, china closet and broom closet shall be an integral part of the interior partitioning. Such features shall be constructed of steel, enameled in appropriate colors."*

Fig. 57 – Camera Tour Through the Lustron Home, A New Standard for Living, page 3.

Kitchen

The kitchen measures approximately 6’ wide by 17’ long. It is located in the rear left of the house and opens into the Utility Room and Dinette.

Existing Conditions

Floor:
The kitchen floor retains its original 12” x 12” green-colored vinyl floor tile. The tile is adhered to a 4” thick concrete slab-on-grade. The tiles are generally in good condition although there is some discoloration in spots. The floor does not appear to have been cleaned and waxed for a considerable period of time.

Walls:
The original Maize Yellow porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are two access panels in the utility wall. The section of base along the utility wall is damaged.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
See the exterior door description on pages 53 – 55 of this report. There are no interior doors in the Kitchen.

Cabinetry and Closets:
The two original kitchen cabinets above the stove and refrigerator remain. Each cabinet has a pair of sliding doors with a recessed pull set in the sloped front of the cabinet. There are two steel shelves within. The units are depicted on Lustron drawing AP2-H-205 included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. The Dove Gray enamel painted finish of the cabinets has some rust spots.

The original Kitchen / Dinette pass-through china cabinet also remains. The unit is depicted on Lustron drawing AP2-H-203 included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. The lower section of cabinet facing the kitchen has four drawers on the left and two sliding doors at center and right. The upper section has three sliding doors. Between the upper and lower sections is a metal shelf that spans the width of the unit and a countertop. The counter, shelf, and vertical back to the shelf are covered with 1” square white and green ceramic tiles. These are not original Lustron features but appear to date from the construction of the house or soon thereafter. The Dinette side of the unit has two drawers in the lower section, a left hand cabinet with

swinging door, and three shelves above the countertop. The Dinette side shelves are not tiled. The end of the unit has a vertical end panel and 4" vinyl base is used at the three exposed sides of the unit. The Dove Gray enamel painted finish of the unit has some rust spots.

Appliances:
One of the distinctive features of the Lustron Houses was a combination sink with clothes and dishwasher unit. These units were manufactured by Thor Corporation of Chicago, Illinois. Unfortunately, this unit is no longer extant in the Harold Hess Lustron House. The current unit includes a double-bowl stainless steel sink with center spigot mounted in a two-door metal sink base cabinet with a white enamel painted finish. There are flanking base cabinets with a top drawer and bottom cabinet door. The three cabinets are surmounted by a single countertop with wood-grained plastic laminate finish with integral backsplash. This unit is centered below the kitchen window.

The stove is located to the left of the sink cabinet. According to page 73 of *Preserving The Lustron House: Authenticity and Industrial Production*, by Michele Anne Boyd, the existing stove is the original stove for the house. The existing stove is a four (4) burner gas stove with oven and broiler manufactured by The Tappan Stove Co. of Mansfield, Ohio. It is Model No. M cp AV 669 and Serial No. A-9479. The stove is not an appliance which was supplied by the Lustron Corporation and would have been purchased or brought to the house by the Hess family.

The Lustron Corporation did not supply a refrigerator for the house. The existing refrigerator in the house was manufactured by Westinghouse and is a Westinghouse refrigerating unit – Serial No. 7061213. According to Closter Borough Administrator Arthur Braun Dolson, the refrigerator is a recent acquisition. It is period-appropriate for the house.

Electrical:
The original ceiling-mounted incandescent light fixture with glass shade remains in the kitchen ceiling. The fixture was designed to use (3) 60 Watt incandescent lamps. A modern ceiling-mounted combination exit sign and emergency light was installed at the rear door by the Borough of Closter in 2015.

The rear wall retains the original double wall switch next to the rear door for the kitchen ceiling light and light fixture outside the back door. An original two-prong duplex receptacle is located behind the refrigerator. The range receptacle is located behind the stove. Originally, there was an outlet for the Automatic Sink unit located in the base of the unit.

The two duplex receptacles located in the exterior wall between the stove and pass-through unit, along with the duplex receptacle to the right of the stove have been

replaced with modern white colored receptacles and cover plates. The outlet to the right of the stove is a GFI-type outlet.

The utility wall which separates the Kitchen and Utility Room from the Bath includes plumbing piping and the electrical panel.

The original electrical service was a 60-amp service. The electrical panel is located adjacent to the rear door behind one of the access panels in the utility wall. In 2015, the Borough of Closter had a new electrical service installed.

The new service is a 200-amp service with the panel located in the garage. The house panel in the utility wall was then replaced with a new 100-amp sub-panel fed from the garage. Existing circuits were then reconnected to the new 100-amp sub panel in the kitchen.

Fan:
The original kitchen exhaust fan with pull chain is located in the exterior wall to the left of the stove.

Recommendations for Treatment

1. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.

2. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

3. The original Dove Gray enamel finish on the cabinets exhibits significant surface rust. The finish on these cabinets should be restored. The ceramic tile finishes in the Kitchen / Dinette pass-through china cabinet should be maintained as a historic element within the Harold Hess Lustron House.

4. The existing kitchen sink appears to date from the late-20th century. If a Thor combination clothes / dishwasher unit with sink can be obtained, the existing sink, counter, and cabinets should be replaced.

5. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Fig. 58 – View of Kitchen looking from Utility Room, photo taken looking south, June 2017.

Fig. 59 – View of stove and original cabinet above. The kitchen sink, counter, and base cabinets are not original to the house. Photo taken looking west, June 2017

Fig. 60 – View of Kitchen / Dinette pass-through china cabinet. Note the surface rusting of cabinet finish. Photo taken looking south, June 2017

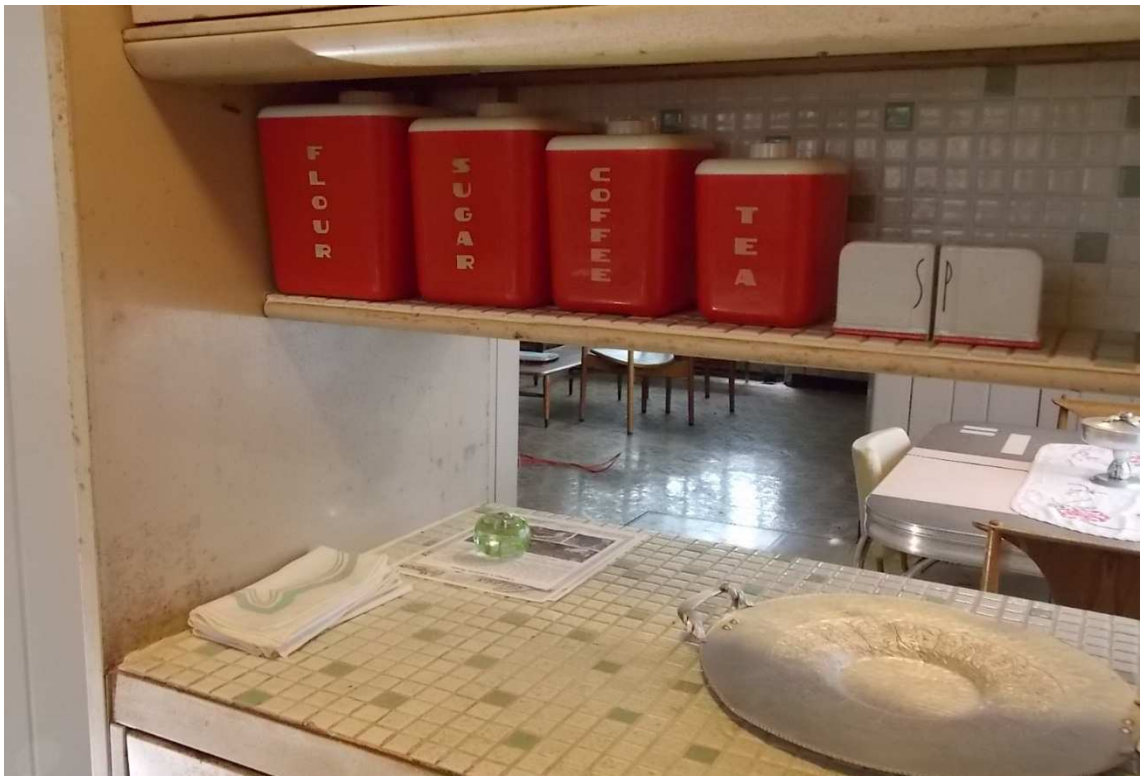


Fig. 61 – View of pass-through looking east, showing early tile finish added by the Hess family, photo taken June 2017

Fig. 62 – View of typical rust damage to cabinetry and closets. This is the kitchen cabinet above the stove, photo taken June 2017.

Fig. 63 – View of utility wall from Kitchen looking north, photo taken June 2017.

Fig. 64 – View of back door from Utility Room looking west. The modern Exit and Emergency Light fixture was added in 2015. Photo taken June 2017.

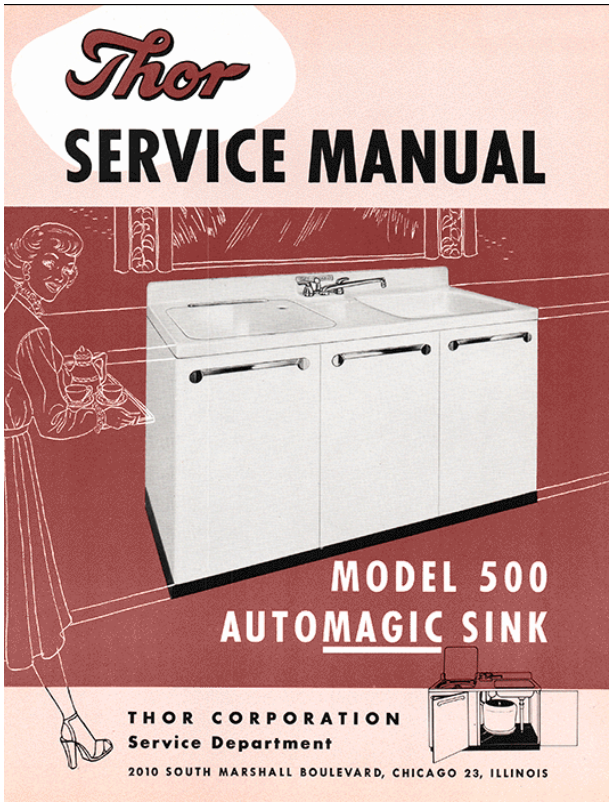


Fig. 65 – Service Manual for the Model 500 AutoMagic Sink manufactured by Thor Corporation, circa 1949. There were at least two different models of combination clothes and dishwasher with sink manufactured by Thor that were installed in Lustron houses, of which this was one. See lower right image within Figure 57.

Fig. 66 – View of potential replacement unit for the missing combination clothes and dishwasher with sink unit for the Harold Hess Lustron House. Where original elements are missing, replacement parts from other dis-assembled Lustron houses may be possible.

Utility Room

The Utility Room is located off the Kitchen directly in front of the back door. The space measures approximately 7’-6” x 8’-0”.

Fig. 67 – View of Utility Room as depicted in Lustron Home brochure republished on Ohio Historical Society website. The enclosure below the ceiling at the rear wall contained the furnace which supplied hot air to the radiant ceiling plenum system. Also note the perforated roof scuttle ceiling panel. This item is not currently in the Harold Hess Lustron House.

Existing Conditions

Floor:
The Utility Room floor retains its original 12" x 12" green-colored vinyl floor tile. The tile is adhered to a 4" thick concrete slab-on-grade. The tiles are generally in good physical condition although there is staining in many of the tiles along the rear wall. The floor does not appear to have been cleaned and waxed for a considerable period of time.

Walls:
The original Maize Yellow porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are two access panels in the utility wall. Most sections of base along the Utility Room walls are damaged or missing. The original enclosure for the furnace was removed upon which the Lustron House serial number was mounted.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There is a circular metal plate adjacent to the scuttle location which has been added to cover a hole cut into the ceiling panel which includes the scuttle. This is not original. The 20" x 20" perforated porcelain enamel scuttle panel which provides attic access is missing. The original ceiling escutcheon that trimmed the hole for the furnace exhaust remains.

Trim:
The original white steel trim typically used at the ceilings was not used in the Utility Room.

Doors and Hardware:
The only doors in the Utility Room are the two original doors at the broom closet. The lower door is a Type III door measuring 1'-6" wide by 6'-0" high. The upper door is a Type V door measuring 1'-6" wide by 1'-10" high and does not open properly. The doors retain their original hardware. The doors have a painted enamel Dove Gray finish that has exhibits surface rust.

Cabinetry and Closets:
The original broom closet remains. There is one steel shelf within. The unit is depicted on Lustron drawing AP2-H-205 included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. The Dove Gray enamel painted finish of the closet door has surface rust spots.

Two pair of white enamel painted steel wall cabinets are mounted to the rear wall. These cabinets are not original and appear to date circa 1970s. A free-standing white enamel painted steel base cabinet with one drawer and cabinet door is located below.
Mechanical Equipment:

Another distinctive feature of the Lustron House is its radiant ceiling heating system. Hot air supplied by a furnace filled a 6" deep space above the ceiling which radiated the heat into the rooms below. While the plenum system above the ceiling remains, the original heating unit which was encased in a porcelain enameled steel cabinet located below the ceiling at the rear wall of the space does not. This was removed by the Hess family and replaced with a floor-mounted gas fired furnace with ductwork connecting to the plenum above. The exposed galvanized steel ductwork was painted, but most of this has now flaked off.

Electrical:
The original wall-mounted incandescent light fixture with shade and pull switch remains mounted on the utility wall. The fixture was designed to use (2) 60 Watt incandescent lamps. An additional under-cabinet fixture was added by the Hess family below the wall cabinets on the rear wall.

The house was designed with two duplex receptacles located in the utility wall. The one which is located below the original light fixture remains, although the original ivory two-prong outlet has been replaced with a brown colored grounded outlet. The other receptacle was originally located on the utility wall closer to the rear wall and was dedicated for the water heater. The location of this original outlet was used to route plumbing lines through the utility wall to the washing machine that the Hess family installed. A separate surface mounted outlet fed through the same original opening was mounted to the wall panel and provided power for the washing machine.

Plumbing:
The utility wall which separates the Utility Room and Kitchen from the Bath is a chase wall that includes the plumbing piping and electrical panel for the house. Plumbing connections are accessed through several removable access panels in the wall system.

Additional plumbing features in the Utility Room include exposed plumbing piping that was added for a washing machine and a modern water heater.

Recommendations for Treatment

1. The Utility Room is an important part of the Lustron House story and the area which has undergone the most change over time. This room should be restored to its original condition, similar to what is seen in Figure 67 and other early photographs of Lustron House Utility Rooms available, to the maximum extent possible. This would include restoring the missing porcelain enamel paneled enclosure for the heating unit and replacing the existing floor mounted furnace and exposed ductwork.

   Any re-design of the existing heating system should be done by a licensed Mechanical Engineer with guidance from a Historic Architect.

The enclosure panels could be original salvaged Lustron panels or new recreated porcelain enameled panels that match the original design. If an original Lustron heating unit cannot be located, a modern horizontal unit could be utilized. Ideally, this would be located within the available space provided for this purpose. If this is not possible due to the limitations of equipment currently available and meeting current energy code requirements, a unit could be located in the attic. This would require a structural analysis to insure that the equipment is adequately supported without damaging the original structural elements. Installing anything in the attic would be part of a larger restoration project as it would require removal of roofing panels or the ceiling panels and plenum.

Any additional structure required should be readily reversible in the future, meaning that connections to existing structure would be clamped as opposed to through-bolted or welded connections.

2. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. If the original scuttle panel for the attic cannot be located, a replacement panel will need to be obtained. This could be an original salvaged Lustron piece or a new recreated porcelain enameled scuttle panel that matches the original design.

5. The original Dove Gray enamel finish on the closet door exhibits significant surface rust. The finish should be restored. Repair top door to swing freely.

6. The non-original wall and base cabinets should be removed.

7. The plumbing piping added for the washing machine should be removed and a duplex receptacle reinstalled which matches the appearance of the original missing receptacle.

8. The water heater should be relocated to its original location and the flue utilize the original hole in the ceiling panel for that purpose.

9. Replace the missing base trim.

Fig. 68 – View of Utility Room looking east. Note the floor mounted furnace, exposed ductwork, non-original laundry cabinets and missing scuttle at ceiling. Photo taken June 2017

Fig. 69 – View of utility wall in the Utility Room, looking east. Note the original light fixture over the removed access panel. Also note the plumbing piping added for the washing machine which the Hess family had installed here. Photo taken June 2017.

Fig. 70 – View of Broom Closet looking to the east, photo taken June 2017.

Fig. 71 – One of the access panels located in the utility wall between the Kitchen and Utility Room and the Bath. Access is provided for both plumbing connections and the electrical panel. Several sections of base are missing or damaged. Photo taken looking north, June 2017.

Dinette

The Dinette is located on the left side of the house between the Kitchen and the Living Room. The China Cabinet separates the Kitchen and Dinette areas. The space measures approximately 9'-0" x 10'-0". It is a bright room with a large Type VI window.

Fig. 72 – View of Dinette looking west toward Kitchen. Note the China Cabinet with pass-through, a distinctive feature of the Lustron House, photo taken June 2017.

Existing Conditions

Floor:

The Dinette floor retains its original 12" x 12" green-colored vinyl floor tile. The tile is adhered to a 4" thick concrete slab-on-grade. The tiles are generally in good physical condition. The floor does not appear to have been cleaned and waxed for a considerable period of time.

Walls:

The original Dove Gray porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
See the exterior door description on pages 53 – 55 of this report. There are no interior doors in the Dinette.

Cabinetry and Closets:
The original china cabinet remains and is described on page 77 of this report with the Kitchen.

Electrical:
The original ceiling-mounted incandescent light fixture with shade remains. The fixture was designed to use (3) 60 Watt incandescent lamps. There are two modern duplex receptacles that have replaced original receptacles. The new receptacles are white with smooth white cover plates. The original receptacles were ivory with a ribbed design cover plate.
The door chime is located on the wall adjacent to the front porch.

Plumbing:
The utility wall which separates the Utility Room and Kitchen from the Bath is a chase wall that includes the plumbing piping and electrical panel for the house. Plumbing connections are accessed through several removable access panels in the wall system.

Additional plumbing features in the Utility Room include exposed plumbing piping that was added for a washing machine and a modern water heater.

Recommendations for Treatment

1. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The original Dove Gray enamel finish on the China Cabinet exhibits surface rust. The finish on the cabinet should be restored. The ceramic tile finishes in the Kitchen / Dinette pass-through china cabinet should be maintained as a historic element within the Harold Hess Lustron House.

5. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Fig. 73 – The adhesive securing the base to the wall panels has failed in many areas causing the base to fall off. These sections should be reinstalled. Missing or damaged sections should be replaced with new base that matches the original. Also note the surface rusting of the China Cabinet at right and the modern white receptacle at the exterior wall. Photo taken looking south, June 2017.

Living Room

The Living Room is the largest room in the house and is located in the front with a large Type VI window set in a protruding bay. The porch is to its left and Bedroom No. 1 on its right. The space measures approximately 14'-0" x 16'-0". It opens into the Dinette and is connected to the Hallway which leads to the Bath and Bedrooms.

The partition between the Living Room and Bedroom No. 1 is an integral cabinet / closet unit that has a recessed bookcase on the Living Room side and a vanity and closets on the Bedroom No. 1 side.

In *Preserving The Lustron House: Authenticity and Industrial Production*, by Michele Anne Boyd she notes on page 73 that, "The Hesses covered the black asphalt floor tile with light-colored linoleum tiles in the 1970s."

Fig. 74 – View of a Lustron House Living Room from a Lustron advertisement circa 1949. Image from the National Trust of Historic Places website.

Existing Conditions

Floor:
The Living Room floor is covered with a replacement sheet vinyl flooring. It appears that the original 12" x 12" vinyl floor tile remains below. The structure below is a 4" thick concrete slab-on-grade. The sheet vinyl flooring is generally in good physical condition but does not represent the original appearance of the house. The Hess family "covered the black asphalt floor tile" in the 1970s.

Walls:
The original Dove Gray porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
See the exterior door description on pages 53 – 55 of this report. There are no interior doors in the Living Room.

Cabinetry:
The original recessed bookcase remains. It measures 5'-9" wide by 5'-5" high. The unit has an open center section with a four-compartment bookcase on either side. Similar to other cabinets, it has a painted enamel finish in Dove Gray. The Hess family installed a mirror in the center section of the bookcase.

Electrical:
There are four modern duplex receptacles that have replaced original receptacles. The new receptacles are white with smooth white cover plates. The original receptacles were ivory with a ribbed design cover plate. The original telephone jack and cover plate remains.

A replacement thermostat is located on the wall near the Bath.

A modern ceiling-mounted combination exit sign and emergency light was installed at the front door by the Borough of Closter in 2015.

Recommendations for Treatment

1. The Living Room floor should be restored to its original appearance. The existing sheet vinyl flooring is not historic and should be removed.

   However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.

   If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.

   If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Living Room tiles to make that determination and there information cannot be confirmed with the Hess family, then the color should either be the dark brown which remains in the Hallway closet which seems most likely, or black based on the interview that Michele Anne Boyd conducted with the Hess family in 2001. Given the dark brown color remaining in the adjacent closet it seems unlikely to this author that there was an actual black color in the Living Room.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The original Dove Gray enamel finish on the Bookcase exhibits surface rust. The finish should be restored. If there are Hess family members that can be interviewed, it would be helpful to know if the mirror was placed in the bookcase early in their occupancy or whether it is a recent addition. It should be kept unless it can be determined that it was not an early feature of the house.

5. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Fig. 75 – View of Living Room looking east from the Dinette, photo taken June 2017.

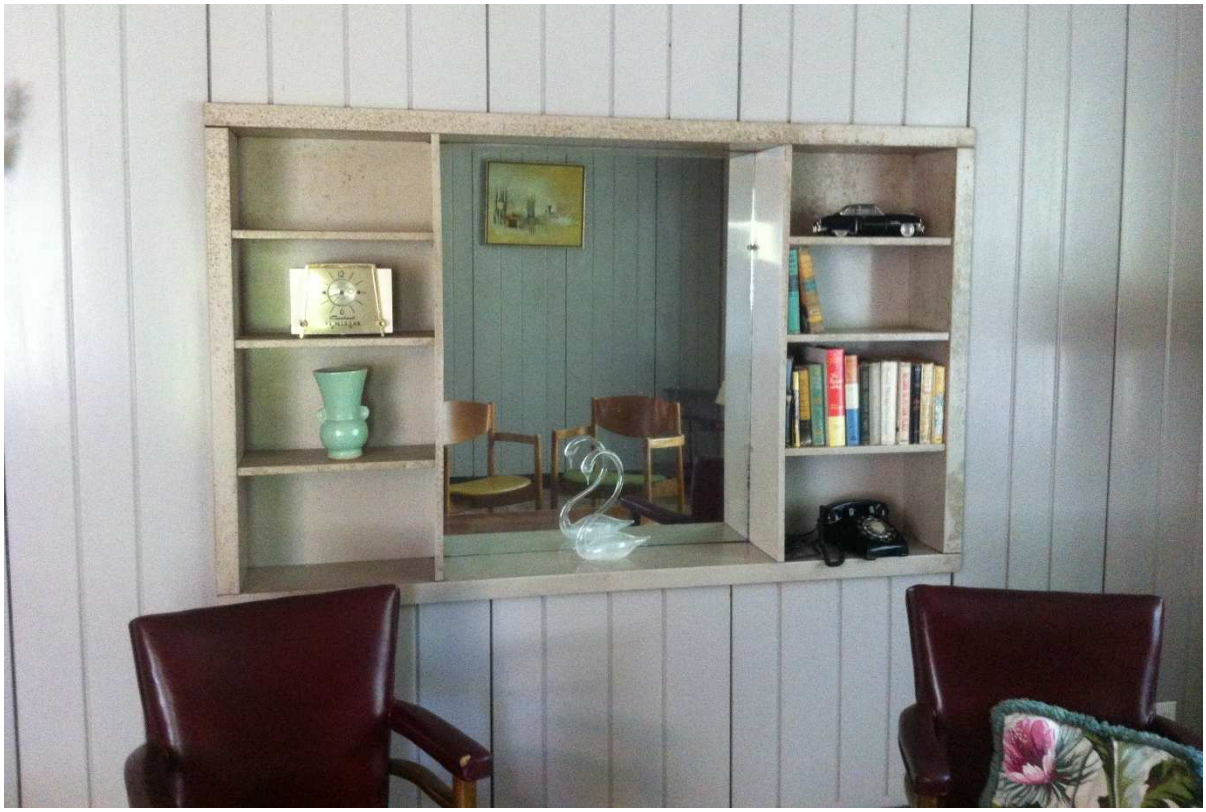


Fig. 76 – View of Living Room bookcase unit, photo taken looking north, June 2017. Note the surface rust and added mirror.

Fig. 77 – View of Living Room looking south from the Hallway, photo taken June 2017. Note the new Exit / Emergency lighting.

Fig. 78 – View of Living Room looking west toward the Hallway, photo taken June 2017. Note the missing section of base.

Hallway

There is an "L-shaped" hallway that leads from the Living Room to the Bath and Bedrooms. The bedroom hallway is 3'-0" wide x 7'-6" long with a linen closet at the end. The section in front of the Bath is 3"-0" wide x 3'-6" long with a guest closet. The end of the hallway is open to the Living Room.

Existing Conditions

Floor:
The Hallway floor has the same flooring as the Living Room. It is covered with a replacement sheet vinyl flooring. It appears that the original 12" x 12" vinyl floor tile remains below. The structure below is a 4" thick concrete slab-on-grade. The sheet vinyl flooring is generally in good physical condition but does not represent the original appearance of the house. The Hess family "covered the black asphalt floor tile" in the 1970s.

Walls:
The original Dove Gray porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
There are a pair Type III doors measuring 1'-6" wide by 6'-0" high at both the guest closet next to the Bath and the linen closet at the end of the hallway. The linen closet also has a pair of Type V doors for the upper storage area measuring 1'-6" wide by 1'-10" high. The doors retain their original hardware which includes door slides, rollers, and recessed aluminum pulls. The doors have a painted enamel Dove Gray finish that has exhibits surface rust.

There are three Type II communicating doors located at the entrances to the Bath and two Bedrooms. These are sliding flush steel pocket doors that measure 2'-8" wide x 6'-8" high. They have a painted enamel finish in Dove Gray. These doors retain all of their original hardware although each requires adjustment. The Bathroom door slides hard and the door does not lock. Similarly, the door to Bedroom No. 1 does not lock. Hardware

includes a concealed track, hanging hardware and rollers in the head of the door, a pair of recessed rectangular pulls with latch, a receiver on the frame, and a finger pull on the edge of the door. The Type II doors also exhibit surface rust.

Cabinetry and Closets:
The original guest closet and linen closet both remain. The guest closet measures 3'-6" wide by 3'-0" deep and has a clothes rod and shelf. The linen closet measures 3'-0" wide by 2'0" deep and has five shelves in the lower section. Similar to other cabinets, the linen closet has a painted enamel finish in Dove Gray. The guest closet is shown on Lustron drawing AP2-H-204 and the linen closet on drawing AP2-H-202, both of which are included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report.

Electrical:
There is one original wall-mounted light fixture mounted on the hallway wall adjacent to the entrance of Bedroom No.1. The fixture is designed for one 60W incandescent lamp.

There is a modern wall-mounted battery-powered smoke detector.

Recommendations for Treatment

1. The Hallway floor should be restored to its original appearance. The existing sheet vinyl flooring is not historic and should be removed. The Guest and Linen Closets retain their original 12" x 12" dark brown vinyl tile floors. Some tiles in the Guest closet are loose and need to be re-glued.

   However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.

   If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.

   If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Hallway tiles to make that determination and there information cannot be confirmed with the Hess family, then the color should either be the dark brown which remains in the closets which seems most likely, or black based on the interview that Michele Anne Boyd conducted with the Hess family in 2001. Given the dark brown color remaining in the adjacent closets it seems unlikely to this author that there was an actual black color in the Hallway.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The original Dove Gray enamel finish on the linen closet and all of the doors in the Hallway exhibit surface rust. The finish should be restored.

5. The doors and hardware should be adjusted to properly slide and latch.

6. The finish on the original light fixture also exhibits surface rust and should be restored. Replacement lamps used in the fixture should not be higher than the glass shade.

Fig. 79 – Original dark brown vinyl floor tiles located in the guest closet of the Hallway. Some need to be re-adhered. Photo taken looking south, June 2017

Fig. 80 – View of Hallway looking south toward guest closet, photo taken June 2017.

Fig. 81 – Original wall-mounted light fixture in Hallway, photo taken looking east, June 2017. Note surface rust of finish and compact fluorescent lamp that extends past the shade.

Fig. 82 – View of Hallway looking north with linen closet doors closed, photo taken June 2017.

Fig. 83 – View of Hallway looking north with linen closet doors opened, photo taken June 2017.

Bath

The bath retains most of its original features with minor alterations. The room measures 5'-0" wide by 10'-0" long and is located in the rear of the house between Bedroom No. 2 and the Kitchen and Utility Room.

Alterations to the room include replacement of the lavatory with a modern vanity sink; installation of glass shower doors; installation of new floor tiles; and the addition of ceramic tile trim tiles at the edge of the tub.

Fig. 84 – Lustron Corporation brochure depicting the Bathroom and Utility Room circa 1949.

Existing Conditions

Floor:

The Bathroom floor is covered with 12" x 12" vinyl tiles which appear to date from the 1970s. It is possible that the original 12" x 12" vinyl floor tile remains below. The structure below is a 4" thick concrete slab-on-grade.

Walls:
The original 24" x 24" Maize Yellow porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base. The panel seals within the tub area may not be watertight.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
The sliding entry door to the Hallway is described in the Hallway descriptions on page 96 of this report.

Cabinetry:
The original vanity cabinet remains. The vanity is located next to the entry door. It has three drawers and measures 2'-0" wide by 1'-10" deep by 2'-6" high. Similar to other cabinets, the bathroom vanity has a painted enamel finish in Dove Gray. The top has been covered with plastic laminate, likely because the painted finish had rusted.

The bathroom vanity is shown on Lustron drawing AP2-H-204 which is included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report.

Bathroom Accessories:
All of the original bathroom accessories and recessed medicine cabinet with mirror and side lights remain. The chrome finish on many of the accessories has corroded.

Page 13 of 18 of the Master Specification, included in The Lustron Home Master Specification Appendix to this report specifies:

> *"11. <u>Cabinet</u> – One (1) illuminated cabinet with two side lights and convenience outlet completely wired, one 16" x 24" beveled plate glass mirror, U.S. Commercial Standard CS-27-36. Cabinet to be one piece Armco Steel or approved equal, finished with two coats of best quality baked-on enamel over rust resisting undercoat. Door to be mounted on full-length piano hinge. Interior of cabinet shall be equipped with two tooth brush racks, razor blade drop, door stop and two bulb edge glass shelves.*
>
> *12. <u>Accessories</u> shall consist of one each of the following polished, chrome plated high quality fixtures:*
>
> *Towel Bar – Attached*
> *Robe Hook – Double – Attached*
> *Toilet Paper Holder – Recessed with chrome roller*
> *Combination Soap Dish and Grab Bar, recessed with removable clear tray*
> *Soap Dish, recessed with removable clear tray*
> *Tumbler Holder, recessed*

Shower Curtain Rod – one inch diameter by five feet long."

Additional accessories which were added include glass shower doors with chrome plated track and plastic disposable cup holder.

Plumbing Fixtures:
The original tub, tub faucet, hot and cold water knobs, and toilet remain. The lavatory has been replaced with a vanity sink that has a white porcelain bowl with white base cabinet and plastic countertop with integral splash. The original shower head has been replaced.

The toilet seat is not properly attached.

Electrical:
The medicine cabinet has a convenience outlet and two side lights with shades. These appear to be original, although the Master Specifications call for tubular light fixtures which can be seen in Lustron Corp. photographs. Other photographs of Lustron bathrooms show these same fixtures.

Recommendations for Treatment

1. The Bathroom floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.

   However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The existing vinyl flooring can then be appropriately removed.

   If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.

   If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Bathroom tiles to make that determination, then the color should be the dark brown which remains in the adjacent Hallway guest closet.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The ceramic tiles around the edge of the tub should be removed and any damage to the wall panels repaired. Liquid polyvinylchloride should be injected where panel seals have deteriorated.

5. The original Dove Gray enamel finish on the bathroom vanity and entry door exhibit surface rust. The finish should be restored.

6. The door and hardware should be adjusted to properly slide and latch.

7. The chrome finish on the original accessories should be restored.

8. The shower doors should be removed.

9. The vanity should be removed and a lavatory and faucets that match the original should be installed.

10. A shower head matching the original should be installed.

Fig. 85 – Original bathroom vanity. The top no longer has its original painted enamel finish, photo taken looking south, June 2017. Note the replacement floor tiles.

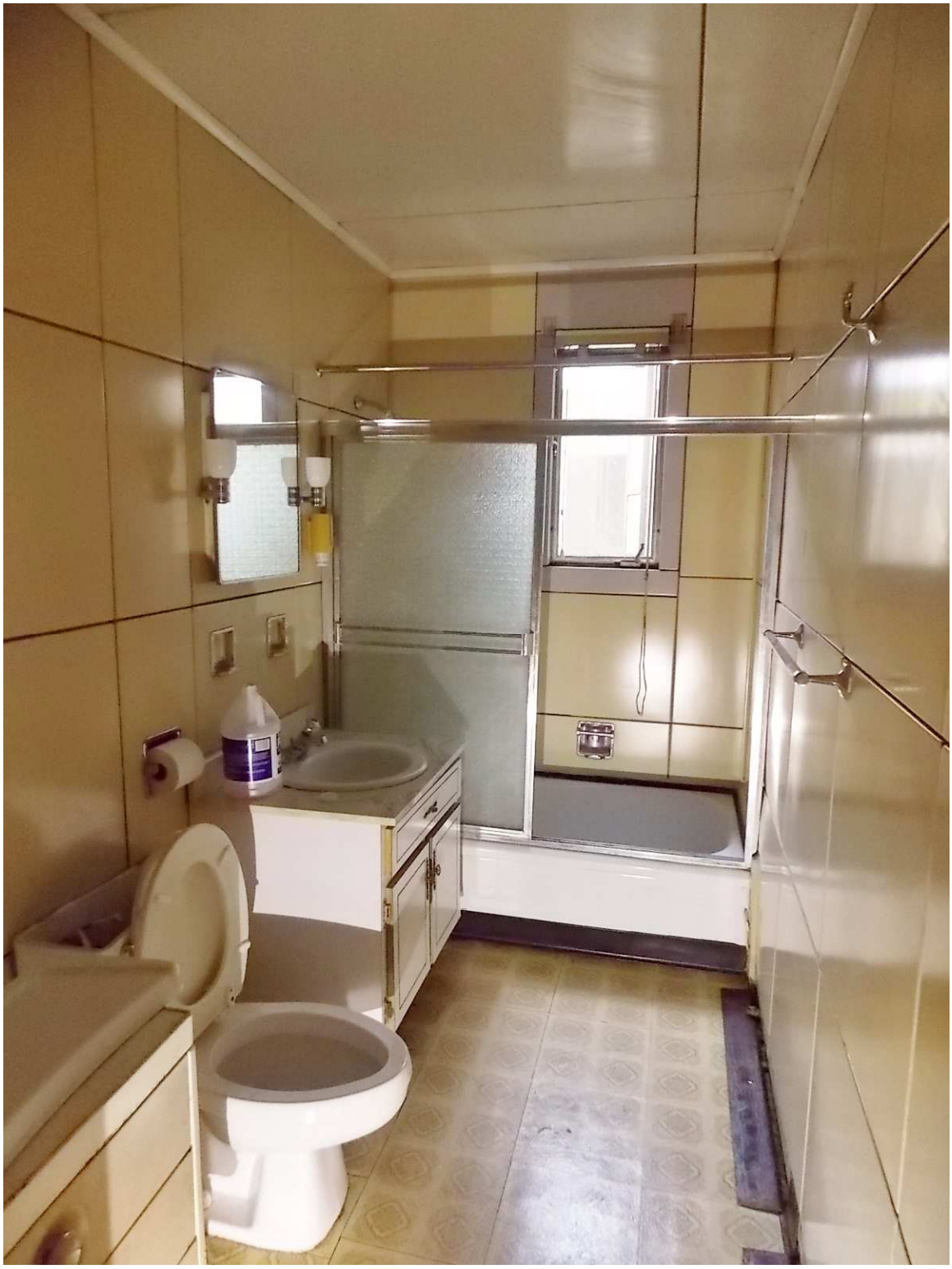


Fig. 86 – View of Bathroom looking west from Hallway, photo taken June 2017. Note the glass shower doors which have been added.

Fig. 87 – View of Bathroom looking east toward Hallway, photo taken June 2017. Note the original pocket door.

Fig. 88 – Original medicine cabinet with side lights, photo taken looking south, June 2017.

Fig. 89 – Replacement vanity sink, photo taken looking south, June 2017. See Figure 84 on page 104 for view of an original lavatory.

Fig. 90 – Original faucets, knobs, and cleanout. The black ceramic tile was added later, probably to conceal rust damage. Photo taken looking south, June 2017.

Fig. 91 – Original double robe hook, photo taken looking north, June 2017.

Fig. 92 – Original towel bar, photo taken looking north, June 2017.

Fig. 93 – Original soap dish with tray, photo taken looking south, June 2017.

Bedroom No. 1

Bedroom No. 1 retains most of its original features. The room measures 12'-0" wide by 12'-0" long and is located in the front of the house. The original 12" x 12" dark brown vinyl floor tiles have been removed or covered over with a later 12" x 12" "no-wax" brown vinyl floor tile with an octagon design and glossy finish.

Fig. 94 – Lustron Corporation advertisement showing Bedroom No. 1 circa 1949.

Existing Conditions

Floor:
The floor is covered with 12" x 12" replacement vinyl tiles. It is possible that the original 12" x 12" vinyl floor tile remains below. The structure below is a 4" thick concrete slab-on-grade. The existing vinyl tile is generally in fair physical condition but does not represent the original appearance of the house.

Walls:
The original Dove Gray porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
There is a flush sliding door at the entrance which is described on page 99 of this report. Other doors include the sliding closet doors. These include four (4) Type V doors which measure 1'-6" x 1'-10" used in the storage areas above the vanity and two (2) of these doors which serve the storage space above the closet. Three of the Type V doors have been removed. One is stored in the closet below, one is stored in the Hallway linen closet, and one was in the Utility Room. It is not known why these doors were removed. The door hardware includes slides, rollers, and recessed pulls. Not all doors work properly.

There are four (4) Type III doors which measure 1'-6" x 6'-0" that are used in the closets on either side of the vanity, and two (2) of these doors in the closet which abuts Bedroom No. 2.

Cabinetry and Closets:
The original bedroom vanity and closets remain. The vanity itself is 6'-0" wide by 6'-0" high. There are two three-drawer base cabinets on the sides with a continuous counter and a recessed mirror. This unit is flanked by two 3'-0" wide closets, each with a clothes rod and shelf. Above the vanity and closets are two 6'-0" wide upper storage areas.

On the wall which abuts Bedroom No. 2 there is a smaller closet with a clothes rod, continuous upper shelf, and four small side shelves.

All of the cabinetry and closets have a painted enamel finish in Dove Gray. The vanity and surrounding closets are shown on Lustron drawing AP2-H-201 and the smaller closet on drawing AP2-H-202, both of which are included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report.

Electrical:
There are four modern duplex receptacles that have replaced original receptacles. The new receptacles are white with smooth white cover plates. The original receptacles were ivory with a ribbed design cover plate. Another receptacle which appears to have been added in the latter 20th century is located on the front wall near the vanity closet. A telephone jack is mounted on the exterior side wall. The two receptacles at the vanity are switched from the switch adjacent to the entry door.

Some electrical wiring has been routed through the vanity closets by drilling through the panels.

Recommendations for Treatment

1. The Bedroom No. 1 floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.

   However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.

   If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.

   If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Bedroom tiles to make that determination, then the color should be the dark brown which remains in the Hallway guest closet.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The original Dove Gray enamel finish on the vanity and closet doors and panels exhibit surface rust. The finish should be restored.

5. The closet doors should be reinstalled and any repairs made to put them in good working order.

6. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

7. Any new electrical wiring that is required in the future should be routed as inconspicuously as possible and minimize any damage to original fabric of the building.

Fig. 95 – View of vanity and closets in Bedroom No. 1, photo taken looking south, June 2017. Note the missing doors.

Fig. 96 – View of Bedroom No. 1, photo taken looking east, June 2017. Note the un-adhered base and shiny vinyl flooring.

Fig. 97 – View of Bedroom No. 1 looking west toward Bedroom No. 2, photo taken June 2017. Note the deteriorated finish on the closet.

Fig. 98 – Vanity drawer unit, photo taken looking south, June 2017.

Fig. 99 – Recent electrical wiring was routed through the closet ceiling, photo taken looking south, June 2017.

Fig. 100 – Routing of electrical wiring through the closet, photo taken looking south, June 2017.

Bedroom No. 2

Bedroom No. 2 retains most of its original features. The room measures 10'-6" wide by 14'-0" long and is located in the rear of the house. The original 12" x 12" dark brown vinyl floor tiles have been removed or covered over with a later 12" x 12" "no-wax" brown vinyl floor tile with an octagon design and glossy finish.

Fig. 101 – Lustron Camera Tour brochure, page 3 published circa 1949 shows an image of the second bedroom. The Harold Hess Lustron House utilized larger windows on the side wall. Some Lustrons used the smaller "porthole" windows.

Existing Conditions

Floor:
The floor is covered with 12" x 12" replacement vinyl tiles. It is possible that the original 12" x 12" vinyl floor tile remains below. The structure below is a 4" thick concrete slab-on-grade. The existing vinyl tile is generally in fair physical condition but does not represent the original appearance of the house.

The closet retains its original 12" x 12" brown vinyl tiles except where a hole was chipped through the concrete floor slab and foundation.

Walls:
The original Dove Gray porcelain enamel wall panels remain and are in good condition generally although there are small rusts spots along the edges of some panels. There are missing and damaged sections of 4" vinyl base.

Ceiling:
The original white porcelain enamel ceiling panels remain and are in good condition generally although there are small rusts spots along the edges of some panels.

Trim:
The original white steel trim at the ceiling remains and is in good condition.

Doors and Hardware:
There is a flush sliding door at the entrance which is described on page 99 of this report. Other doors include the sliding closet doors. These include two (2) Type V doors which measure 1'-6" x 1'-10" used in the upper storage area of the closet and two (2) Type III doors which measure 1'-6" x 6'-0" that are used in the lower closet. The door hardware includes slides, rollers, and recessed pulls. Not all doors work properly.

Closets:
The original closet remains with a clothes rod, continuous upper shelf, and four small side shelves. The closet doors and panels have a painted enamel finish in Dove Gray. The closet is shown on drawing AP2-H-202 which is included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report.

Electrical:
There are three modern duplex receptacles that have replaced original receptacles. The new receptacles are white with smooth white cover plates. The original receptacles were ivory with a ribbed design cover plate. Another receptacle which appears to have been added in the latter 20th century is located on the interior wall abutting the bathroom.

There is an original wall switch for one of the outlets near the entry door.

Recommendations for Treatment

1. The Bedroom No. 1 floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.

   However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.

   If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.

   If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. The color should be the dark brown which remains in the closet.

2. The hole in the closet floor requires repair of the concrete and installation of new vinyl tile flooring to match the original color.

3. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

4. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

5. The original Dove Gray enamel finish on the vanity and closet doors and panels exhibit surface rust. The finish should be restored.

6. The closet doors should be adjusted and any repairs made to put them in good working order.

7. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Fig. 102 – View of Bedroom No. 2, photo taken looking east, June 2017. Note the rusting of the closet and entry door.

Fig. 103 – The closet retains its original brown vinyl floor tile except where a hole has been cut through the concrete foundation and floor slab, photo taken looking north, June 2017.

Fig. 104 – Typical latch and finger pull for internal communicating doors, photo taken looking east, June 2017.

Fig. 105 – Receiver for sliding door latch, photo taken looking south, June 2017.

Fig. 106 – Magnetic clip used to attach things to the porcelain enamel wall panels, photo taken June 2017.

Fig. 107 – Typical pull used on sliding closet doors, photo taken June 2017.

Attic

The attic of the Harold Hess Lustron House is a space that is rarely accessed and won't be visible to the public in the future. However, it is an integral part of the Lustron design and one of the distinctive features of the Lustron.

The attic of the house was never designed for storage and was accessed through a 20" x 20" perforated porcelain enamel scuttle located in the Utility Room ceiling. This panel was missing when fieldwork was completed for this report.

Fig. 108 – View of the attic from the scuttle location looking north, photo taken June 2017.

The attic is a single unheated space. There are ten steel roof trusses which support the roof which are spaced 4'-0" on center except for the left bay which is a 2'-0" span. The underside of the roof panels and back side of the gable end panels are exposed to the attic. The "floor" of the attic is actually a unique design feature of the house. A 6-7/8" deep plenum is created between the suspended porcelain enamel ceiling panels and the underside of the roof trusses. The top of this plenum is composed of a 3/16" thick asbestos cement board. Six inches of mineral wool insulation was placed over the top of the plenum. Hot air provided by the furnace located in an enclosure below the Utility Room ceiling filled the plenum with hot air which then provided radiant heat through the ceiling panels to the rooms below.

The cement-asbestos board which was used as the top of the plenum makes it very difficult to access the attic to make any repairs. The top of the plenum cannot support foot traffic and the 4'-0" spacing of the trusses makes it difficult for a person to have safe access.

The underside of the roof panels and the steel roof trusses exhibit surface rusting. This corrosion does not pose any immediate concern to the structural integrity of these components. However, corrosion will accelerate now that the original anti-corrosive treatments have been compromised unless new anti-corrosive treatments are applied. The surface corrosion on these elements is not the result of direct exposure to water infiltration. It is most likely that the corrosion is the result of innumerable cycles of atmospheric moisture vapor condensing on these cold surfaces during the winter months over nearly seventy years.

The attic does receive ventilation through the original soffits vents.

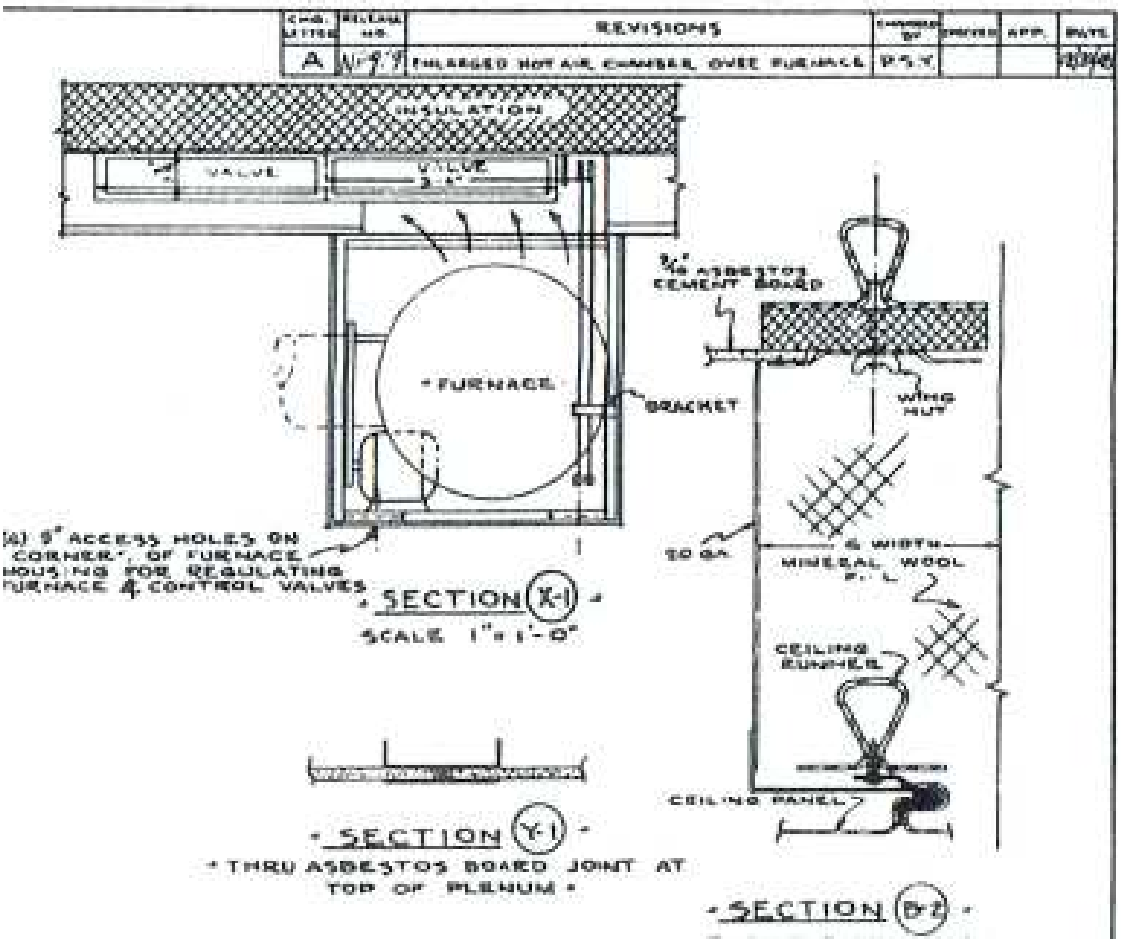


Fig. 109 – Detail from Lustron drawing AP2-J-100 included in the Lustron Corp. Architectural Plans – Model 02 Home Appendix to this report. Note the asbestos cement board which forms the top of the plenum chamber. The insulation between the board and the bottom of the roof trusses is called out as "Corrugated Asbestos Insulation".

Existing Conditions

Roof Panels:
The underside of the roof panels exhibit surface rusting.

Roof Trusses:
The steel roof trusses exhibit surface rusting.

Plenum:
A section of the asbestos cement board which forms the top of the plenum is broken adjacent to the scuttle access. This will allow any hot air supplied by the furnace to escape directly into the cold attic and short-circuit the plenum, causing the radiant ceiling heating system ineffective. It is unknown if there are other sections of the plenum which have been damaged.

Page 9 of 18 of the Master Specification specifies:

I – Plenum

1. Top Enclosure for plenum shall consist of special shapes of structural members supported on bottom chord of roof trusses and a continuous enclosing medium of rigid cement-asbestos board.

- *A. This cement-asbestos board shall be 3/16 of an inch thick and compressed under hydraulic pressure into a dense, monolithic sheet containing approximately eighty-five (85) percent Portland Cement and fifteen (15) percent asbestos fiber by weight.*
- *B. It shall have a density of 0.053 to 0.058 lbs. per cubic inch at 212^{o} F., a moisture content of 11.3 to 14.9 percent and water absorption of 22.5 to 24.7 percent after being submerged 24 hours.*
- *C. It shall be fire-resistant to meet requirements of Underwriters' Laboratories Inc. for fire-retardant classification.*
- *D. Material as manufactured by Philip Carey Mfg. Co., R.J. Dorn Co., Johns-Manville Co., or Keasbey-Mattison Co. meets the above specification.*

2. Installation of cement-asbestos board shall be carefully done, so that air leaks into the attic area are reduced to an absolute minimum.

Insulation:
The attic insulation consists of loose mineral wool insulation over which additional fiberglass insulation was added. The total thickness varies and in some areas it is only 2-3 inches. The Lustron drawings called for 6" of insulation over the plenum and the Master Specifications require a *"K" Value not more than 0.30 Btu per hour per square feet per degree Fahrenheit per inch of thickness."* This equates to an R-value of approximately 20.

Mechanical:
The furnace and existing water heater sheet metal exhaust flues combine in the Utility Room and pass through the porcelain enamel ceiling panel as a combined flue as it rises through the attic into the chimney enclosure.

The water heater was originally located in the rear left corner of the Utility Room and had a separate flue which passed through the ceiling next to the scuttle and then combined with the furnace flue in the attic. The attic portion of the original sheet metal water heater flue remains and combines with the furnace exhaust before entering the chimney.

Electrical:
A new 200-amp electrical service was installed in 2015. The main panel is located in the garage and a 100 amp sub-panel replaced the original 60 amp panel located in the utility wall of the Kitchen. To feed the sub-panel, the wiring was routed through the garage and breezeway, through the breezeway ceiling, and into the attic before going down into the utility wall. The outer jacket of this wiring has been chewed by raccoons or rodents.

Other branch circuit wiring in armored cable has also been routed through the attic.

Plumbing:
The original 3" diameter porcelain enamel steel plumbing vent was replaced with a 4" copper plumbing vent. The original porcelain enamel vent pipe remains in the attic.

Other:
There are raccoon droppings in the attic where the plenum top is broken.

Recommendations for Treatment

1. The attic should be surveyed to determine whether there is asbestos contamination of materials that are not otherwise identified as being asbestos containing materials in the original drawings and specifications. An Environmental Engineer will need to determine whether the asbestos in the attic is in a friable condition and poses any threat to health which would require its abatement.
2. Once a determination has been made whether there is asbestos contamination in any adjacent materials, and whether or not there is friable asbestos containing material (ACM) that must be removed, a determination can be made how to proceed.
    a. If the determination is made that the attic does not require abatement, then the section of plenum which is broken must be sealed so that hot air from the furnace is contained within the plenum and cannot escape to the attic. A

determination will also need to be made if there are any additional areas where the plenum might be compromised and similar repairs made. This is a top priority in order to provide heat back into the house.

b. If the determination is made that the asbestos in the attic must be removed, this will be a significant project that should be directed by a Historic Architect with the assistance of an Environmental Engineer. In order to remove the cement-asbestos board which forms the top of the plenum, and the corrugated asbestos insulation between the underside of the roof trusses and the top of the plenum, the porcelain enamel ceiling panels will need to be removed, as well as the insulation above.

   If this work is required, it will be the most cost effective time to provide an anti-corrosive coating to the roof trusses and roof panels.

   It would also provide access to the attic to install a new furnace if one cannot be identified that could fit within the heating enclosure within the Utility Room. This would also be the time to replace original electrical wiring.

   The new surface which forms the top of the plenum will need to be designed to be mildew and mold-resistant and support the weight of insulation above. A walking surface could be designed above that is supported directly off the trusses so that future access for maintenance would not risk damage to the plenum or disturb the insulation.

3. The underside of the roof panels should have surface rust removed and a new anti- corrosive coating applied such as ZRC Cold Galvanizing Compound. Ideally, this would be done with the panels removed so that a complete restoration of each panel could be accomplished. If it is not financially viable to do a complete restoration of the roof panels within the next five years the underside could still be treated with an anti-corrosive coating except for the overlap of panels which could be completed at a later date.

4. Surface rust should be removed from the roof trusses and a new anti-corrosive coating applied such as ZRC Cold Galvanizing Compound. The trusses could then receive a new high quality paint finish.

5. The existing insulation should be removed and new insulation provided over the plenum. The amount of insulation should be increased to R-38 in the attic. This will improve the efficiency of the radiant ceiling heating system. The recommended insulation is sprayed cellulose. This product is fire-resistant and will absorb atmospheric moisture vapor in the attic thus minimizing the potential for condensation to form. Spray-foam insulation should NOT be used.

6. The original water heater flue can be reused if the water heater returns to its original location within the Utility Room.

7. The electrical wiring damaged from raccoons or rodents should be inspected. If only the exterior jacketing is damaged it may be able to be taped, if not the damaged section will need to be replaced.

8. The original porcelain enamel plumbing vent should be restored and re-installed.

9. Raccoon and rodent droppings should be removed.

Fig. 110 – Surface rusting is exhibited on the underside of roof panels and the roof trusses.

Fig. 111 – Raccoon or rodent chewed wiring, photo taken June 2017.

Fig. 112 – Original porcelain enamel plumbing vent remains in attic, photo taken June 2017.

Fig. 113 – Broken cement-asbestos panel in top of plenum, photo taken June 2017.

Fig. 114 – Original hole in Utility Room attic for water heater has been plugged but flue remains in attic, photo taken June 2017.

Garage

The garage is an important part of the Harold Hess Lustron House. This is not only because it was constructed at the same time as the house and includes the Lustron roof and wall panels, but because of its important role in interpreting life in post-World War II America. All elements from that timeframe should be preserved and restored, including those elements which may seem superfluous at this moment.

Fig. 115 – View of Garage looking east, photo taken June 2017. Note new electrical service location.

The Ohio History Connection, formerly the Ohio Historical Society website page https://www.ohiohistory.org/visit/exhibits/ohio-history-center-exhibits/1950s-building-the-american-dream/lustron-about/help-for-lustrons/meet-the-lustrons/meet-what-model-is-it notes:

> *"By 1949, Lustron was also selling garage panel packages. The form of the garage mimicked that of the house, and the panels were available in the same colors as the house. The packages, however, did not include the underlying structure, so the panels were attached to traditional wood framing. There were two models available:*

- *Model G-1, measuring 15 feet by 23 feet, had space for one car plus a work/storage area.*
- *Model G-2 was 23 feet square and could hold two cars.*

A breezeway package was available to link the house and garage. A Lustron fact sheet distributed in January 1950explained that "breezeways, patios, carports, screened porches can be added by the dealer, at the customer's option, using Lustron Panels in combination with conventional materials to give unlimited variety to Lustron Homes."

The Hess family purchased the Model G-1 single car garage package for their house. The garage is oriented perpendicular to the orientation of the house with the roof ridge running parallel to Legion Place. The garage door faces Legion Place.

There is a passage door that provides access to the breezeway and a small aluminum awning window located on the same side just in front of the breezeway.

The garage is designed to have additional space on the right side of the garage to allow for storage or workspace.

The garage has a concrete foundation and a concrete slab-on-grade floor. Walls are constructed of 2x4 wood studs located 24" on center to which the Lustron porcelain enamel panels are attached at the exterior. The rear walls are covered with unpainted 4' x 8' x ¼" thick fiberboard wall panels. The stud spaces are filled with fiberglass batt insulation with an integral kraft paper vapor retarder.

The fiberglass batt insulation appears to date from the mid-20th century, if not original to the construction of the garage. As there is no insulation in the stud cavities abutting the breezeway, it was probably installed at the same time or after the breezeway was enclosed. As there is no permanent heating source in the garage there would not have been a need for insulation. The addition of insulation would suggest that Harold Hess was utilizing a portable source of heat such as a kerosene heater or a portable electric heater as he worked in the garage.

The roof is covered with Lustron porcelain enamel roof panels which are fastened to five (5) wood roof trusses which span the 23 foot length of the garage. The outer trusses are located at the gable end walls. Two others align with the two sides of the garage door opening and one is located at the center of the garage door opening. Because the design of the garage has a wider right side to accommodate storage, the spans of the roof trusses vary. There is a definite sag at the center of the garage roof noticeable at the ridgeline. This can be seen in Figure 45 on page 62 of this report.

One of the trusses has been damaged by raccoons or rodents gnawing on one of the intermediate support members.

A garage "attic" is formed by board laid across the tops of the bottom chord of the roof trusses. There is a space left open for access by a ladder. The underside of the bottom chord of the trusses has wood furring strips across to keep fiberglass batt insulation in place. There are additional furring strips at the rear of the garage ceiling to provide seasonal storage of the screens and storm windows.

The two-lite aluminum awning window is part of the Lustron system. The door to the breezeway was not a Lustron supplied door and is discussed in the Doors and Hardware section on pages 50 - 52 of this report and shown in Figure 35.

The garage door appears to be original to the construction of the garage. It is a sectional overhead door with five sections. Each section has an exterior wood frame with center wood mullion and right and left panels of Masonite or similar hardboard. The second highest section has obscure glazing in lieu of the hardboard panels. The door retains its original tracks and hardware although an automatic garage door opener was installed in the 1970s. The garage door opener was sold by the Sears Roebuck Company and is Model 139.651500, Serial # E-039119 and bearing the Patent 3 529 183. This patent number was issued for the transistor control circuit on September 15, 1970.

In 2015, a new 200-amp underground electrical service was installed. The new panel is located in the garage and feeds a 100-amp sub-panel in the Kitchen which replaced the original 60-amp panel.

There are two mid-20th century 8'-0" long chain-hung fluorescent work lights remaining in the garage.

Existing Conditions

1. The exterior foundation, wall and roof panels, gutters and downspouts, door to the breezeway and aluminum awning window are described in the Exterior sections of this report on pages 32-66.
2. The unpainted and unsealed concrete slab-on-grade garage floor remains in good condition.
3. The 2x4 wood stud framing of the exterior wall remains in good condition.
4. The fiberglass batt insulation in the exterior walls is in fair to poor condition. The insulation was never covered with an interior wall finish.
5. Some of the fiberboard surfacing of the rear wall is loose.
6. The roof trusses have deformed at the center causing a noticeable sag in the garage roof ridgeline. One of the structural members has been damaged from a raccoon or rodent gnawing on the wood.
7. The fiberglass batt insulation is in fair to poor condition and some of it has fallen from the ceiling.
8. The garage door paint is failing and the panels exhibit water damage.
9. The automatic garage door opener is not original to the construction of the garage and was not a convenience available in the 1950s.
10. Two mid-20th century fluorescent work lights remain.
11. A new electrical panel is located on the left wall.

Recommendations for Treatment

1. See Exterior sections of this report for recommendations relating to the foundation, wall and roof panels, gutters and downspouts, door to the breezeway and aluminum awning window.
2. The concrete floor slab should be kept in its existing condition and not painted or sealed.
3. Do not paint or provide an interior finish over the existing wood framing.
4. The fiberglass batt insulation is in fair to poor condition. However, the insulation dates from the period of the building's historic significance and bears the distinctive "NEW! Owens-Corning Fiberglas Building Insulations" trademark. The remaining Fiberglas batt insulation should be protected in place from further deterioration. This could be done by applying panels of clear non-yellowing polycarbonate over the top of the insulation. Some space at the top and bottom of the panel should allow for ventilation of the stud cavity.
5. Re-secure the fiberboard panels on the rear wall.
6. The porcelain enamel roof panels are designed to fit against a straight structural frame. The sag in the roof framing has caused the roof panels and ridge roll panels to be misaligned. If the roof panels are removed for restoration, a supplemental top section could be added to the existing top chord to restore the original plane of the framing. Supplemental reinforcing of the center trusses may be required if a structural analysis indicates that they were not adequately designed in the first place. It should not be attempted to jack the existing structure into its original shape. This will damage the building and likely crack the original framing members. Wood that has obtained a shape over nearly 70 years will not go back to its original shape. The approach should be to save all original materials and allow supplemental framing to restore the plane of the roof.
7. See recommendation number 3. The same approach can be used for the ceiling insulation.
8. Restore the finish on the garage door.
9. Remove the automatic garage door opener.
10. Maintain the historic work lights in the garage.
11. The installation of a new 200 amp electrical service to the building would not have been able to utilize the location in the Kitchen for the primary service panel. Given that, the location in the garage is the best alternative. No change is recommended.

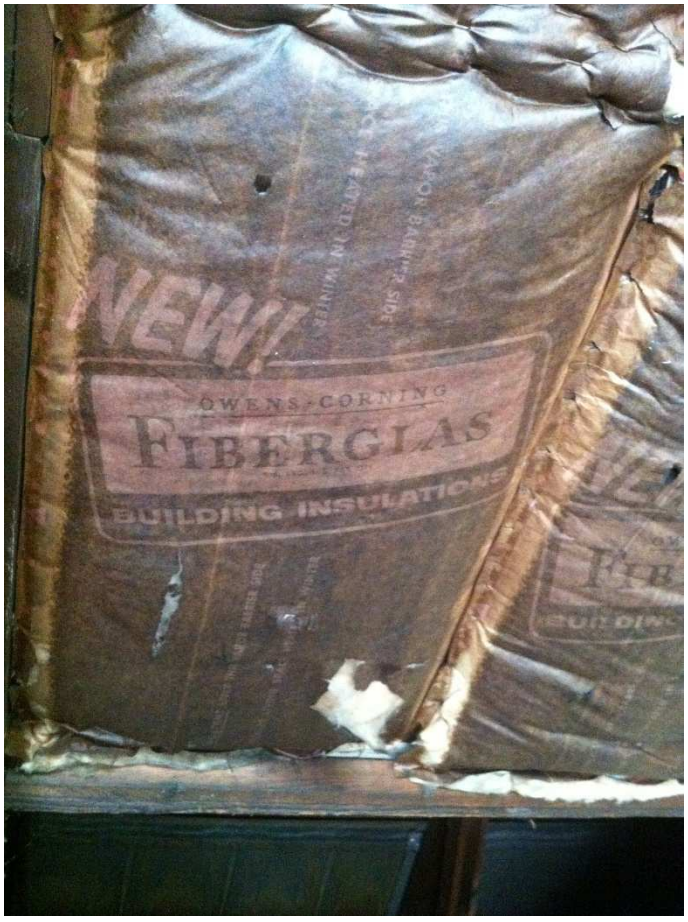


Fig. 116 – Fiberglas batt insulation which appears to date from the mid-20th century, photo taken June 2017.

Fig. 117 – The fiberboard panels should be re-attached, photo taken looking east, June 2017.

Fig. 118 – One of the truss members has been damaged by raccoon or rodent gnawing, photo taken looking west, June 2017.

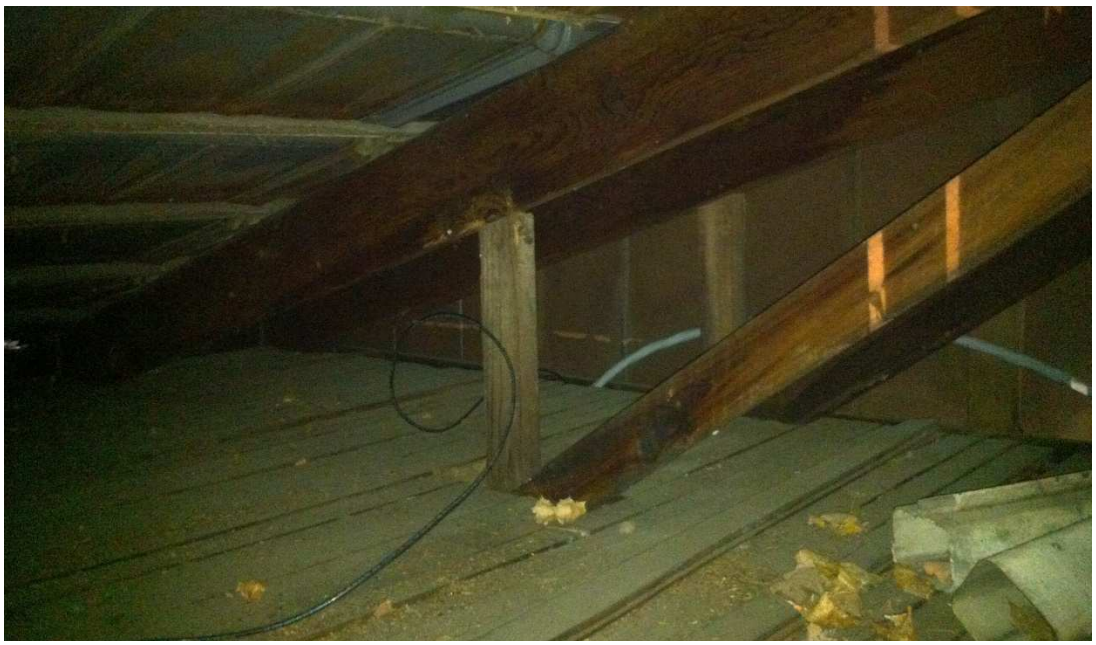


Fig. 119 – Jacking of the roof trusses to straighten the ridge should not be attempted, photo taken looking west, June 2017. Note the original downspouts stored in the garage attic.

Fig. 120 – The garage door requires painting, photo taken looking north, June 2017.

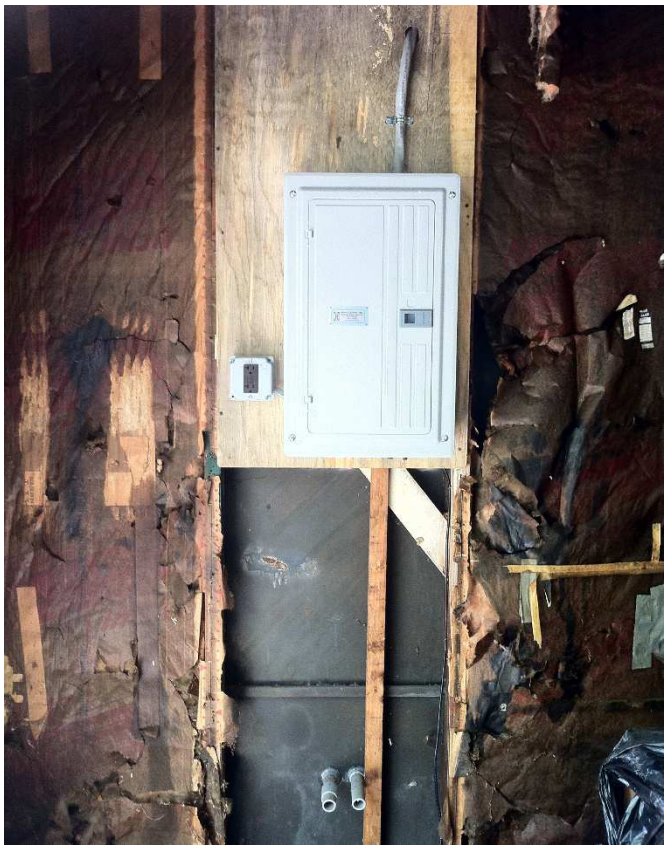


Fig. 121 – View of new electrical service panel, photo taken June 2017.

Structural Evaluation

House

The structure of the Harold Hess Lustron House is in very good condition. The Lustron House design was well-conceived and the house is very sturdy. All of the steel parts work together to create the structure.

There are no signs of settlement, and no structural cracking in the exposed concrete foundation. The condition of the flooring throughout the house shows no sign of cracks in the underlying concrete slab-on-grade. There is a hole which was chipped through the concrete foundation and floor slab in the Bedroom No. 2 closet. This will require repair but poses no structural concern.

For this report, the condition of the roof trusses is based on what could be observed from the scuttle access. Access into the attic space for a more thorough examination risked damage to the hot air plenum. The steel roof trusses exhibit mild surface corrosion which would not compromise the structural integrity at this time. However, the corrosion will begin to accelerate now that the finish has been compromised. The surface corrosion should be removed and the trusses provided with a new anti-corrosive coating and paint finish. See the Attic section of this report on pages 125 to 132 for additional information.

No probes were done to expose any of the exterior steel wall framing for this report. If panels are removed in the future which expose the exterior wall framing to view, they should be examined at that time.

The 3” x 4” porcelain enameled steel column on the corner of the front porch is rusted at the base. This must be repaired. If the original column cannot be restored to a load-bearing condition, then the original column could serve as a sleeve over a new galvanized steel column within and the base of the original column restored.

If any additional weight is added to the structure of the attic, including the installation of additional insulation or new mechanical equipment, the structure of the attic will need to be evaluated by a structural engineer. If supplemental structure is required it should be installed in such a way that it is readily reversible in the future.

Breezeway

The breezeway was not supplied by the Lustron Corporation but rather constructed by the contractor who erected the house in 1950. It was originally an open air breezeway providing covered passage between the house and garage. In 1952, the breezeway was enclosed. It was also expanded, presumably at the same time.

The floor of the original breezeway is a concrete slab-on-grade and shows no sign of settlement. The floor of the expanded area has settled toward the rear but this does not appear to be actively settling. It likely happened shortly after construction.

The roof was originally supported by two wood posts in the front and rear of the breezeway. When it was expanded, the wood post in the rear nearest the garage was removed and the roof re-framed. The base of the remaining wood post in the rear shows definite signs of rot at its base and must be repaired. The two remaining front posts should be examined for rot as well. This would require removal of trim which was added in 1952 and should be done carefully to salvage for re-installation.

The breezeway has short brick walls with what is likely concrete block back-up with a cement interior parging. The exterior brickwork remains in good condition. The concrete block wall adjacent to the rear wood post may require some repair when the post is repaired.

The roof is framed with wood rafters, likely supporting plywood roof sheathing. These materials may have been water damaged due to on-going leaks in the breezeway roof and should be examined when the roof is replaced. Any deteriorated framing can be replaced at that time.

Garage

The garage is constructed of Lustron porcelain enameled wall and roof panels over 2 x 4 wood stud wall framing and five (5) wood roof trusses that span the length of the garage. It has a cast-in-place concrete foundation and a concrete slab-on-grade floor.

The concrete foundation exhibits a small crack, approximately 1/8" wide, on the left side near the garage door. It appears to be an old crack and no sign of differential settlement was observed. The concrete slab-on-grade appears to be in excellent condition.

No rot or damage was observed in the 2x4 wood stud walls.

There has been settlement within the roof trusses which has caused a sag in the plane of the ridge. The porcelain enamel roof panels are designed to fit against a straight structural frame. The sag in the roof framing has caused the roof panels and ridge roll panels to be misaligned. If the roof panels are removed for restoration, a supplemental top section could be added to the existing top chord to restore the original plane of the framing. Supplemental reinforcing of the center trusses may be required if a structural analysis indicates that they were not adequately designed in the first place. It should not be attempted to jack the existing structure into its original shape. This will damage the building and likely crack the original framing members. Wood that has obtained a shape over nearly 70 years will not go back to its original shape. The approach should be to save all original materials and allow supplemental framing to restore the plane of the roof.

One of the framing members within one truss has been damaged from raccoon or rodents gnawing on the wood.

Fig. 122 – The base of the porch column is rusted and requires repair, photo taken looking west, June 2017.

Fig. 123 – The concrete floor slab in the breezeway expansion has settled toward the rear wall, photo taken looking north, June 2017.

Building Systems Evaluation

Heating System

The heating system is one of the most unique features of a Lustron house. A furnace located in a ceiling mounted enclosure in the Utility Room provided hot air to a sealed plenum above the ceiling of the house. This warmed the steel ceiling panels which radiated the heat back down to the rooms. The system took up no floor space and had no air diffusers in the ceiling.

Page 13 of 18 of the Master Specifications, included in The Lustron Home Master Specification Appendix to this report, specifies:

> *"K-Heating*
>
> 1. *The System shall be a radiant heating system, using the porcelain enameled ceiling panels as the radiating surface. Heated air which warms these panels is confined between the ceiling panels and in (sic) insulated surface approximately 6-7/8 inches above the ceiling panels. The heated air is forcibly circulated by a centrifugal fan and directed by means of a sheet metal duct and a series of baffle plates in such a manner as to provide a proper distribution of heat to the entire ceiling radiation surface.*
>
>   *Circulated air is returned to the heater by the above described baffle plate system for re-circulation.*
>
>   *The baffle plates and supports for asbestos-cement board are cleaned, bonderized and given a dip coat of black Japan enamel, then baked for thirty (30) minutes at 450^{o} F.*
>
> 2. *Heating Unit shall be enclosed in a porcelain enameled steel cabinet, located at or near the ceiling line of the Utility Room.*
>   a. *The heating unit shall be a Williams Oil-O-Matic oil fired unit, with burner mechanism model K-150-L and furnace model 6050 or a Lustron approved equal."*

The Master Specification further noted that, *"The heating unit shall have a capacity of 75,000 BTU per hour."*

The enclosure for the system can be seen in Figure 67 on page 85 of this report.

In 2001, Michele Anne Boyd noted on page 73 of *Preserving The Lustron House: Authenticity and Industrial Production* that, "they removed the original Thor dishwasher/clotheswasher and kitchen sink and replaced the hanging furnace with a floor unit many years ago."

Today, a floor-mounted hot-air furnace is located in the rear of the Utility Room along the right side. Sheet metal ducts connect the furnace to the ceiling plenum. The unit has not been operated recently and it is unknown whether it still functions. The gas service was removed from the building several years ago and the building has been without a working heating system since.

The lack of heat in the building required the water service to be turned off. Additionally, the lack of heat allows high humidity levels, and potentially condensation, to occur which is detrimental to the steel building fabric. This may be responsible for some of the finish deterioration evidenced of the steel cabinetry.

Re-establishing a heating system in the building is a top priority. The gas service will need to be re-established and a determination made whether the existing furnace is viable to re-use in the short-term. If re-establishing gas service cannot be completed immediately, temporary measures should be investigated. An electrician could investigate the potential for utilizing portable electric heaters until a permanent solution can be realized. The interior temperature of the house should be maintained above 50^{o} F during the winter months.

Before any hot air system can be activated, two things must occur. An Environmental Engineer must complete an assessment of the attic and determine whether the existing air plenum must be abated as an asbestos hazard. If it must be abated a new air plenum must be created. If it does not require abatement, the collapsed panel in the top of the plenum must be sealed. The Attic section of this report addresses both issues.

Once the air plenum has been repaired or rebuilt, the hot air radiant ceiling system can be utilized. If the existing furnace can be made operational, it can serve that purpose.

However, the Utility Room is an important part of the Lustron House story and the area which has undergone the most change over time. This room should be restored to its original condition, similar to what is seen in Figure 67 and other early photographs of Lustron House Utility Rooms available, to the maximum extent possible. This would include restoring the missing porcelain enamel paneled enclosure for the heating unit and replacing the existing floor mounted furnace and exposed ductwork.

Any re-design of the existing heating system should be done by a licensed Mechanical Engineer with guidance from a Historic Architect.

The enclosure panels could be original salvaged Lustron panels or new recreated porcelain enameled panels that match the original design. If an original Lustron heating unit cannot be located, a modern horizontal unit could be utilized. Ideally, this would be located within the available space provided for this purpose. If this is not possible due to the limitations of equipment currently available and meeting current energy code requirements, a unit could be located in the attic. This would require a structural analysis to insure that the equipment is adequately supported without damaging the original structural elements. Installing anything in the attic would be part of a larger restoration project as it would require removal of roofing panels or the ceiling panels and plenum.

Gas Service

The gas service to the building was removed several years ago in anticipation of the building being demolished. Since that time, the Borough of Closter has obtained the building. In 2016, a new gas line was routed from the street to the rear of the building, adjacent to the end of the utility wall in the kitchen. Because there was concern of possible asbestos contamination in the utility wall, and a determination by a local plumber that the existing furnace was not operational, a final connection was not made.

In order to provide a natural gas connection to the furnace, routing through the utility wall is the best solution. This will require that the utility wall cavity be tested for asbestos contamination by an Environmental Engineer. If contamination is present, either abatement of the hazard or appropriate precautions will need to be followed in order to complete the installation. It is recommended to route the gas line underground and through the foundation wall to gain access to the utility wall and not to drill through an existing wall panel which would damage historic fabric that is not repairable, create a visual intrusion, and prohibit the rear breezeway door from completely opening.

The gas meter should be located outside the house in the least conspicuous location possible.

Air Conditioning

The building is cooled by four portable electric air conditioners which are located in each of the large windows of the house. The Dinette, Living Room, and both bedrooms have an air conditioner located in one of the side casements of the tri-partite windows. The other casement remains operable to allow for natural ventilation.

The original design of the Lustron House did not include air conditioning. These units were added by the Hess family. The existing units appear to date from the mid-20th century.

The window air conditioners should be preserved in place. They are an important part of post-WWII American life-style and how the Hess family adapted the Lustron house to meet their own needs.

Plumbing System

The building does not currently have running water because of the lack of a heating system. Once there is heat in the building again the plumbing system should be made operational. The plumbing piping remains throughout the house.

The house retains its original tub and toilet but the bathroom lavatory and Thor combination dishwasher/clothes washer have been replaced. The restoration of these missing items are important to restore the house to its original condition.

The additional plumbing piping which was installed in the Utility Room for a later washing machine should be removed and the water heater relocated to its original location in the rear left corner of the Utility Room.

There is an original hose bibb connection on the exterior of the house at the end of the utility wall.

The sewer piping is in place and presumed to be in working order.

Electrical System

The original 60-amp electrical service was provided by overhead electric lines which were connected to a weather head above the Dinette window and the service wiring was routed down along the eave and across to the utility wall. This was removed in 2015 when a new 200-amp underground electrical service was installed. The new panel is located in the garage and feeds a 100-amp sub-panel in the Kitchen which replaced the original 60-amp panel.

The new service wiring is routed through the garage and breezeway into the attic and down into the utility wall. Some of this wiring was chewed by raccoons or rodents in the attic of the house and will need to be inspected by an electrician. When the breezeway roof is replaced, this wiring should be removed from the breezeway ceiling and installed in conduit between the house and garage.

Some new branch wiring was run, duplex receptacles replaced, and combination exit and emergency lighting installed as part of the electrical work completed in 2015.

Fire Detection System

There is a wall-mounted battery powered smoke detector in the Hallway outside Bedroom No. 1. A combination carbon monoxide and smoke detector should be installed. This can also be a battery powered unit per Code.

Sprinkler System

There is no sprinkler system in the building. None is required by Code.

Security System

There is no security system in the building. None is required by Code.

Part II – Treatment and Use

Treatment Philosophy

The Harold Hess Lustron House is an outstanding example of a very rare building type. According to the Ohio History Connection, there were approximately 2,680 Lustron homes built and only about 1,500 survive today. The Harold Hess Lustron House is serial number 01918.

The Lustron Corporation had several variations of their design. Models included the Newport, Meadowbrook, Westchester Standard, and Westchester Deluxe. Each model came in either two or three bedroom versions. The Harold Hess Lustron House was a 2-Bedroom Westchester Deluxe model. Despite their impressive sounding names, all of the Lustron houses were modest homes built to address the housing shortage after World War II. The Hess house is just over 1,000 square feet in size.

The house has had remarkably few changes since it was originally constructed in 1950. In 1952, the original breezeway was enclosed and enlarged. In the 1970s, the original dishwasher / clothes washer combination unit was removed from the kitchen, the original bathroom sink was replaced and a glass doors were added to the tub, the original furnace was replaced, and some of the asphalt tile floors were covered over. As of 2001, only 8 Lustron houses remained in the State of New Jersey.

Of the approximately 1,500 Lustron houses that remain today only a few are open to the public, and none of these remain on their original site. There are Lustron houses that have been disassembled and re-erected in the Ohio History Museum in Columbus, OH; Grand Forks County Historical Society Museum in Grand Forks, ND; and at the Museum of History in Overland Park, KS. At this time, only the Harold Hess Lustron House has the potential to interpret a Lustron house in its original suburban setting.

The Hess House is not only important as a Lustron House, but it is also an important cultural asset to interpret life in post - World War II America.

There are very few museums anywhere in the United States that interpret the lives of an ordinary middle-class family in post-War America. The Harold Hess Lustron House has the ability to interpret both the Lustron story and how ordinary Americans lived in the mid-20th century.

The recommendation of this Preservation Plan is that the building's Period of Significance be treated as 1950 – 1970.

During this period the Hess family made few changes to their still-new home. Restoring the home to this period would serve both to interpret the original Lustron house design while maintaining the elements which the Hess family thought most important to change to meet their own needs. It allows the home to be interpreted in the context of an incredible period of change in American

history. Items such as air conditioners, television, and numerous household appliances developed during this period. The car took on an ever greater importance.

The period also saw the Civil Rights movement, the Cold War, the space race, the Women's Rights movement, and the Vietnam War, and Rock-N-Roll.

The Recommendations for Treatment included throughout this Preservation Plan take this period into account. The Preservation Plan recommends that where Hess family interventions did not occur until the 1970s or later, that they be removed and the earlier condition restored. By this time the family had lived with the earlier condition for 20 years and both the interpretation of the building as an "ideal" Lustron House, as well as the family's life in the post-War period can best be interpreted. It also allows for some distinctive Lustron elements to be restored.

The potential disadvantage of this approach is that in the future those limited elements that are recommended for removal could be seen as historic in their own right. The advantage of this approach is that the original design of the Lustron would be evident including the technologically advanced kitchen unit and heating system.

The Secretary of the Interiors Standards for Preservation would be applied to elements which are original or were likely installed within the Period of Significance. The Standards for Restoration would be applied to the elements that were lost since 1970 and original elements which might otherwise deteriorate without more significant repair than a preservation approach might entail.

In all circumstances, original fabric will be maintained.

Use and Interpretation of the Resource

The Harold Hess Lustron House should be used as a historic house museum. It should be interpreted both as a Lustron House, and as a museum of the Post-World War II American lifestyle.

There are currently no examples of a Lustron House being open to the public and interpreted in their original context, and there are very few examples of museums which show what a typical suburban home was like in the 1950-1970 period, an extraordinarily important and transformative time in our nation's history.

This use will maintain the historic integrity of the existing building while serving as an educational resource for schools, scholars, and tourists alike. There has been a significant increase in interest in the post-War period in recent years. As the Baby Boom generation ages into retirement there is a natural nostalgia of many for the things they grew up with.

The house can certainly be used for guided and self-guided tours, educational programs, living history enactments, and even small gatherings to watch early television programming or newscasts. Educational programs could be centered around the "news of the day".

The house could be decorated for various holidays, as is done in the 1950s Park Forest House Museum run by the Park Forest Historical Society in Illinois. Variety in programming and events will bring visitors back.

Tourism is a significant economic driver and the Harold Hess Lustron House has the potential to become a significant destination if effectively programmed and marketed. Tourism and school groups are not the only potential visitors that could be served.

In Aarhus, Denmark the "Old Town Museum" has a "House of Memories" which is an apartment completely fitted out to represent the 1950s where many people with Alzheimer's disease or dementia are able to visit and have their memories jogged by the familiar sights, sounds, and smells of their youth.

For its long-term success the building will need to be supported within the community for the asset which it truly is. The Harold Hess Lustron House could be used for small community groups as a meeting place to have a book club meeting or to play cards. There could be croquet matches on the lawn or even outdoor grilling for a summer civic event. The more the facility is used by the residents of Closter, the more people will support its restoration and assist in its maintenance.

Ultimately, it would be wise to create, or work with an existing, not-for-profit "Friends" group that could assist the Borough with fund raising, maintenance, and programming for the building.

Ideally, the house would be set up as closely as possible as when the Hess family lived there, however utilizing the smaller bedroom as an office for a volunteer or staff member could allow for better security and extended visitor hours.

Code and Accessibility Review

The New Jersey Uniform Construction Code governs work on buildings within the state.

In 1998, New Jersey adopted the Rehabilitation Subcode to address work on all existing buildings within the state. The Rehabilitation Subcode became a model code for many states across the nation. The fundamental premise of the subcode is to promote incremental improvement to existing buildings rather than require wholesale change to meet modern building code requirements.

The Rehabilitation Subcode addresses requirements for repair, renovation, alteration, reconstruction, changes of use, additions, and historical buildings. The Harold Hess Lustron House is listed in the New Jersey and National Registers of Historic Places. It is therefore considered a Historic Building under the New Jersey Uniform Construction Code Rehabilitation Subcode.

The provisions of N.J.A.C. 5:23-6.33 Historic Buildings allows for Variations from the requirements of the Rehabilitation Subcode if they, "would result in practical difficulties or would detract from the historic character of the building…" Paragraph 5.23-6.33 (a)(2)(ii) notes, "Variations to applicable barrier free requirements may be granted only if the historic character of the building would be threatened or destroyed as determined by the New Jersey State Historic Preservation Office."

5:23-6.3 Definitions

"Alteration" means the rearrangement of any space by the construction of walls or partitions or by a change in ceiling height, the addition or elimination of any door or window, the extension or rearrangement of any system, the installation of any additional equipment or fixtures and any work which reduces the loadbearing capacity of or which imposes additional loads on a primary structural component.

- *Note: If a new furnace was installed in the attic, or there was additional weight on the structure due to the installation of additional insulation or a walking surface for maintenance, these items would be considered Alteration work.*
- *Note: There will be Alterations to the plumbing and gas piping systems.*
- *Note: No other Alteration work is recommended.*

"Change of Use" means a change from one use to another use in a building or tenancy or portion thereof.

- *Note: The building will have a Change of Use unless it remains a single family residence.*

"Reconstruction" means any project where the extent and nature of work is such that the work area cannot be occupied while the work is in progress and where a new certificate of occupancy is required before the work area can be reoccupied. Reconstruction may include repair, renovation, alteration or any combination thereof. Reconstruction shall not include projects comprised only of floor finish replacement, painting or wallpapering, or the replacement of equipment or furnishings. Asbestos hazard abatement and lead hazard abatement projects shall not be classified as reconstruction solely because occupancy of the work area is not permitted.

- *Note: Any of the work anticipated for the Lustron House could be accomplished without vacating the building (assuming it was occupied) except for the potential removal of the asbestos in the attic and floor tiles. Based on the exception noted above for asbestos hazard abatement, there is no anticipated Reconstruction work.*

"Renovation" means the removal and replacement or covering of existing interior or exterior finish, trim, doors, windows, or other materials with new materials that serve the same purpose and do not change the configuration of space. Renovation shall include the replacement of equipment or fixtures.

- *Note: Renovation work would include the replacement of the existing furnace, kitchen sink, and bathroom sink.*

"Repair" means the restoration to a good or sound condition of materials, systems and/or components that are worn, deteriorated or broken using materials or components identical to or closely similar to the existing.

- *Note: Most work recommended to be done on the Harold Hess Lustron House would be classified as Repair work.*

Basic information about the house which is needed to know before attempting to define Building Code requirements include:

Building Area:	House:	1,007 sf
	Breezeway:	90 sf +/-
	Garage:	345 sf
	Total	1,442 sf +/-
Number of Stories:	One Story	
Building Height:	14'-6" to ridge +/-	
Occupancy Group:	B Group for house museum under 50 occupancy	
	B Group if used for offices	
	R3 Group if used as caretaker housing	
Occupancy Load:	100 gross sq. ft. per occupant for Group B	

1442 gross (includes garage) / 100 gross sf = 15 people

Construction Classification: House is Type II B non-combustible construction
Breezeway and garage are Type V construction

Fire Suppression: Non-sprinklered

General Building Heights and Areas:

Table 504.3 Allowable bldg. height for Type V B non-sprinklered for B or R occupancy = 40 ft
Type II B non-sprinklered = 55 ft

Table 506.2 Allowable bldg. area for Type V non-sprinklered for Group B = 9,000 sf
Allowable bldg. area for Type V non-sprinklered for Group R3 = unlimited
Allowable bldg. area for Type II non-sprinklered for Group B = 23,000 sf
Allowable bldg. area for Type II non-sprinklered for Group R3 = unlimited

Based on the information above and the Recommendations for Treatment identified in this report, the following requirements from the subcode are particularly pertinent:

Selected Code Requirements

5:23-6.4 Repairs

(g) In buildings containing a fuel burning appliance or having an attached garage, carbon monoxide detection equipment shall be installed in accordance with Section 915 of the building subcode or Section R315 of the one- and two-family dwelling subcode, as applicable.

1. Exception: Battery powered or plug-in devices shall be accepted for purposes of meeting the requirements of this section.

5:23-6.5 Renovations

(e) The following products and practices shall be required, when applicable:

2. In buildings required by Chapter 11 of the building subcode to be accessible, when bathrooms or toilet rooms are renovated, the following requirements for providing accessibility shall apply unless the requirements of Chapter 11 of the building subcode have been met:
    ii. When bathroom fixtures or hardware are replaced, the replacement fixtures or hardware shall comply with ICC/ANSI A117.1, Sections 603 through 608, as applicable, for non-residential buildings or ICC/ANSI A117.1, Chapter 10 for residential buildings required by Chapter 11 of the building subcode to be accessible.
    iii. Where full compliance is technically infeasible, compliance shall be achieved to the maximum extent possible.

(Also see 5:23-6.8 (g))

10 When the work being performed creates or exposes the roof decking/sheathing or the framing of any wall, floor, ceiling, or roof assembly that is part of the thermal envelope (encloses conditioned space), any accessible voids in insulation shall be filled using insulation meeting the R-values of Table R402.1.2 (N1102.1.2) of the residential energy code for wood framing and of Table R402.2.6 (N1102.2.6) of the residential energy code for metal framing equivalents or of Table 5.5-4 or 5.5-5 of the commercial energy code, as applicable.

5:23-6.6 Alterations

There is no alteration of space that would trigger requirements for increased accessibility.

5:23-6.7 Reconstruction

Not applicable.

5:23-6.17 Basic Requirements – Group B

(k) Plumbing Fixtures: Plumbing fixtures shall be provided as follows: Where the plumbing subcode allows for the substitution or omission of fixtures, such substitutions or omissions shall also be permitted under this section.

- *Note: Based on the Group B occupancy of a House Museum granted under 5:23-6.33 (a)3, Section 5:23-6.17 (k) would require the building to have 1 toilet, 1 lavatory, 1 drinking water, 1 service sink*

5:23-6.17A Supplemental Requirements – Group B

Manual fire alarm system not required

5:23-6.31 Change of use

Table B – Relative Group Hazard – Going from a Relative Group Hazard of 5 (Group R-3 lowest) to Group Hazard of 3 (B occupancy) so need to meet 5:23-6.17 Basic Requirements – Group B

Table C – Means of Egress – Hazard index stays same at 4 between R3 and B

(h) Fire Alarm and Detection Systems – Group B: A manual fire alarm system shall be installed and maintained as required by Section 907.2.2 of the building subcode

- *Note: not required by Section 907.2.2 because we have a low occupancy load.*

(o) Accessibility Requirements – See accessibility requirements of Renovation and Alteration work

Recommendations for Treatment

The Harold Hess Lustron House is an outstanding example of a very rare building type. According to the Ohio History Connection, there were approximately 2,680 Lustron homes built and only about 1,500 survive today. The Harold Hess Lustron House is serial number 01918.

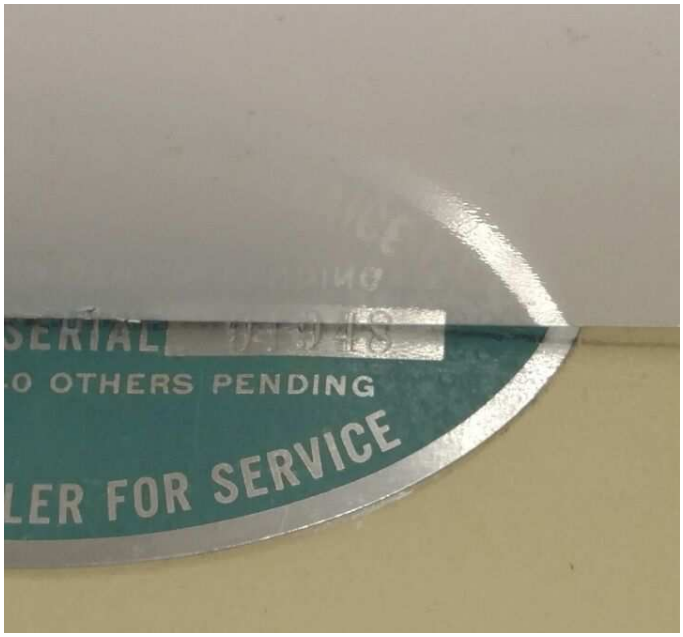


Fig. 124 – View of the Lustron Serial Number tag installed looking east in the Utility Room of the Harold Hess Lustron House. Photo courtesy of Jennifer Rothschild.

Utilizing the house as a historic house museum is a perfect use for the house. There are few original elements which are missing, and the building can serve an important part in telling the story of post-World War II America and the development of our 20th century suburban lifestyle which followed.

As work is done on the house it is important to maintain as much of the original fabric of the house as possible.

The approach to meeting the requirements of the New Jersey Rehabilitation subcode should be to engage a Historic Architect to work with Code officials, the New Jersey State Historic Preservation Office, and advocates for the disabled and find reasonable solutions that ensure public safety, restore an important Historical Building within the state, and provide access into the house for everyone.

Providing an accessible route to the building can be easily accomplished by gently sloping the pathway from the driveway to the front porch. Once inside the house, the Living Room, Dinette, Kitchen, and Utility Room all have an accessible route to them. The Hallway is only 3'-0" wide and doors into the bedrooms and bath are not wide enough to provide for wheelchair access. It is technically infeasible to remedy this, however the sliding doors can be left open and many guests will be able to see into the rooms.

The Rehabilitation subcode does not require that the interior doors be widened, and it would harm the historic integrity of the building to do so, but dialogue with advocates for the disabled can help develop solutions that provide a great experience for all future guests to the house.

It is a recommendation of this report that the house be restored to the extent possible, including replacement of the existing kitchen sink, bathroom sink, and Utility Room equipment. These may need Variations with the support of the New Jersey State Historic Preservation Office.

Property Treatment Recommendations

These property treatment recommendations are also provided in the Site and Landscaping Section in Part 1 of this report. They are provided here for ease of reference.

Site

1. The site of the Harold Hess Lustron House is an important part of the building's historic context. If the building were ever moved from the site it could be removed from the National Register of Historic Places. The building and remaining site should be restored to the post-World War II period where possible. The house should not be moved to another location.
2. The Borough of Closter should consult with the New Jersey Historic Preservation Office to determine if ground disturbance on the site will require an archaeological assessment.

Landscape Elements

3. What the plantings were like in the 1950s has not been determined. Before further changes are made in the landscaping, research should be undertaken to determine what plantings were installed shortly after the construction of the home in 1950. This might be determined through interviews with family members, former neighbors, or photographs. Figure 5 shows the large trees on the site in 1953, shortly after construction.
4. If it is determined that there were plantings but the species cannot be determined, then species which were commonly being used in the 1950s should be considered.
5. The trees will continue to mature. When trees need to be removed, new specimens of the same species should be planted nearby.
6. Recent plantings which are determined not to have been on-site during the post-War period should be removed.
7. Any plantings that are placed near the house should be kept far enough away to avoid contact with the building.

Hardscape Elements

8. The asphalt driveway should be repaired and sealed. The paving in front of the garage should be removed and new paving installed which allows for drainage away from the garage.
9. The flagstone paving in front of the breezeway should be re-laid with a firm sub-base.
10. The flagstone walkway to the front door should be re-graded and the stones set in a concrete sidewalk to provide a handicapped accessible pathway to the front porch from the driveway.

Fig. 125 – View of the Harold Hess Lustron House as it appeared with landscaping in Spring 2009. Photo courtesy of Jennifer Rothschild.

The grade along the foundation should remain unchanged except where the walkway meets the front porch and the gentle slope each side of the walkway.

11. The walkway out the rear of the breezeway should be restored.
12. The vitreous tiles along the rear of the garage foundation should be reset.
13. The concrete housekeeping pad on the north side of the house should be removed.

Architectural Treatment Recommendations

These architectural treatment recommendations are also provided in the Architectural Descriptions and Problems of Repair Section in Part 1 of this report. They are provided here for ease of reference.

Exterior

Foundation

Recommendations for Treatment

1. The hole in the foundation requires repair. The repair would include in-kind replacement of the damaged concrete foundation wall and slab-on-grade within the closet.
2. The exposed foundation should be re-painted its original turquoise color with an exterior paint suitable for cement or concrete surfaces.
3. The crack in the foundation should be filled using a cementitious flowable grout.

Walls

Recommendations for Treatment

1. The latex paint which was applied over the original factory finish should be removed and the original surfaces cleaned. This process should be done using the mildest methods without damaging the original porcelain enamel finish.
2. The ultraviolet fading of the original "Maize Yellow" color is part of the building's natural aging process and is a patina, much like the fading of a natural slate roof or an old tapestry. No attempt should be made to change it.
3. Where the porcelain has chipped, the steel needs to be protected from corrosion. Where the steel has not rusted through and remains structurally sound the surface rust should be removed and coated with a zinc-rich primer. The porcelain surface can be repaired using an epoxy product similar to those used for repairs to tubs and appliances and then spot painted with an epoxy paint color-matched to the existing color of the panel. Repainting of the entire panel should not be attempted. Where the steel panel has rusted through, an auto body repair filler can be used to first repair the damaged or missing steel.
4. Where the polyvinylchloride seals have deteriorated a waterproof seal needs to be re-established. Since most seals remain intact, it is recommended that repairs be made in place without removal of panels. This could be accomplished using the same technique described in the original Lustron Master Specification by the injection of a liquid

preparation of polyvinylchloride, until all joints are filled. This would only be recommended where there is obvious deterioration.

5. The Lustron House has minimal insulation within the exterior walls. However, the steel components within the exterior wall are susceptible to corrosion if exposed to moisture over a period of time. This can easily happen if condensation occurs within a wall cavity. The current construction allows air movement within the wall cavity which allows moisture to evaporate. It is not recommended that any change be made at this time to increase insulation within the walls of the Lustron house.
6. If wall panels are removed at some future date and the presence of corrosion is detected within the wall cavity, repairs will need to be made and the surfaces will need to be treated with an anti-corrosive coating. Before decisions are made which might change the movement of moisture vapor within the wall cavity a thorough analysis would need to be completed to analyze where condensation could occur. If insulation is added in the future, insulation with hygroscopic characteristics such as cellulose should be considered. Open-cell spray foam should never be used. The use of closed-cell spray-foam insulation is not recommended at this time. While it provides a superior thermal performance it is not reversible.
7. Repair the damaged gable end panels on the garage.

Windows

Recommendations for Treatment

1. The aluminum window sash and frame components should be thoroughly cleaned and the finish restored. This should be done using the gentlest means possible. Polishes designed specifically for aluminum and techniques such as using an SOS pad can be effective but care must be taken not to not leave a scratched finish. Experimentation on materials that are not part of the historic fabric of the house first should be undertaken to insure a satisfactory result. Once the aluminum finish is clean an automobile wax can be applied to help protect the finish.
2. Once the frames, sash, and hardware are thoroughly cleaned they should operate better. Using a spray silicone lubricant on moving parts will allow easier movement and reduce wear.
3. It was noted during the examination of the house that several windows did not completely close by cranking from the inside. Cleaning and lubricating should address this issue. There does not appear to be any settlement causing the windows to bind.
4. The cranks should be cleaned and lubricated. Some may require repair. If the cranks cannot be adequately repaired they should either be replaced with original Lustron components from other disassembled Lustron houses or simply maintained in place.
5. Lustron Drawing AP2-H-103 does not show the use of joint sealant around the perimeter of the windows but rather relies on a polyvinylchloride extrusion on the interior side of the window frame to create a seal. It is not known whether the failure of those seals caused the owner to caulk the edge of the windows to prevent air infiltration. As the existing joint sealant has failed it should be removed. If it is determined that air

infiltration is a problem, an injection of liquid polyvinylchloride could be provided. Any use of joint sealant around the perimeter of the window will fail again because the joint is not designed to accept it.

6. The window air conditioners should be preserved in place. They are an important part of post-WWII American life-style and how the Hess family adapted the Lustron house to meet their own needs.

Doors and Hardware

Recommendations for Treatment

1. The paint should be removed from the aluminum storm doors and the original finish restored.
2. The front entry door finish should be restored. This would entail removing the existing paint finish, removing rust and filling any pitting caused by the rust, and recoating with a sprayed enamel coating which matches the original color.
3. The front storm door on the breezeway should be re-hung so that it closes properly within the opening.
4. The utility pipe should be relocated to allow the rear breezeway door to fully open.
5. The black paint across the interior bottom of the rear entry door and frame should be removed.

Roofs and Chimney

Recommendations for Treatment

1. The breezeway roof should be replaced. This roof needs to be able to take foot traffic so replacement with a 5-ply built-up roof or another modified bitumen roof is reasonable. A white corrugated translucent fiberglass roof panel should be re-installed to match the section which is stored in the breezeway.
2. The Lustron roof panels have several issues which should be addressed, however the roofs are not currently leaking. Immediate maintenance to clean the roof of all debris and biological growth should be undertaken. Ideally, this would include all remaining latex paint as well. This work could be done from a personnel lift to avoid potential damage to the panels.
3. Permanent repairs to fill holes from rust and treating the underside of the panels to remove surface rust and provide an anti-corrosive coating could best be accomplished under shop conditions which would require the removal, restoration, and reinstallation of the existing roof panels. If this cannot be done at this time, temporary repairs should be undertaken to fill any rust holes and touch up and spots where the original porcelain enamel finish has been lost.
4. The original porcelain enamel plumbing vent should be re-installed.

5. See the Structural Analysis section of this report for recommendations relating to the sag in the garage roof.
6. Remove the remaining paint from the chimney casing and repair the rust damage.
7. Restore the rusted TV antennas at both the house and garage roofs.

Gutters and Downspouts

Recommendations for Treatment

1. Restore the remaining original downspouts, including those stored in the garage attic.
2. Provide regular maintenance to all gutters and downspouts.
3. Replace aluminum gutters and downspouts with enameled steel replicas of the original elements.

Breezeway

Recommendations for Treatment

1. The National Register of Historic Places Registration Form lists the Period of Significance for the house as 1946-1950 which are the years that the Lustron Corporation was in business. The property was listed in the National Register in May 2000, just 50 years after its construction. Normally, a property must be 50 years or older to be listed. So the enclosed breezeway was not yet 50 years old at the time the property was listed.

   However, the property is listed under both Criteria A and C of the National Register Criteria. Criteria C states that the "Property embodies the distinctive characteristics of a type, period, or method of construction…." This author would argue that the breezeway meets that criteria and it is now over 50 years old. The breezeway certainly is post-War II mid-century modern construction and it is a character-defining feature of the "Harold Hess" Lustron House. It is part of what makes this Lustron unique to the family that lived here for over 50 years.

   It is the recommendation of this Preservation Plan that the enclosed enlarged breezeway be restored as a character-defining feature of the house.

2. The breezeway roof needs to be replaced. This roof needs to be able to take foot traffic so replacement with a 5-ply built-up roof or another modified bitumen roof is reasonable. A white corrugated translucent fiberglass roof panel should be re-installed to match the section which is stored in the breezeway.
3. The base of the rotted post adjacent to the rear door will need to be exposed and a determination made as to the needed repair. If only the base of the post is deteriorated then only that section should be replaced. The adjacent surfaces will have to be restored in-kind.
4. Settlement in the floor slab should be monitored but it is unlikely still settling. No further action should be needed once the side wall is repaired.
5. Repair water-damaged ceiling and wall finishes.

6. When the breezeway roof is replaced a conduit can be located between the house and garage through the breezeway roof framing to provide an alternative route for the electrical service. The ceiling in the breezeway can then be restored.
7. The posts on either side of the door should be examined for rot at the base. If there is rot, the same treatment would apply as to the rear post. If the post is sound, the front storm door on the breezeway should be re-hung so that it closes properly within the opening.
8. Repaint breezeway elements matching the earliest paint layer evidence.

Interior

Kitchen

Recommendations for Treatment

1. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.
2. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
3. The original Dove Gray enamel finish on the cabinets exhibits significant surface rust. The finish on these cabinets should be restored. The ceramic tile finishes in the Kitchen / Dinette pass-through china cabinet should be maintained as a historic element within the Harold Hess Lustron House.
4. The existing kitchen sink appears to date from the late-20th century. If a Thor combination clothes / dishwasher unit with sink can be obtained, the existing sink, counter, and cabinets should be replaced.
5. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Utility Room

Recommendations for Treatment

1. The Utility Room is an important part of the Lustron House story and the area which has undergone the most change over time. This room should be restored to its original condition, similar to what is seen in Figure 67 and other early photographs of Lustron

House Utility Rooms available, to the maximum extent possible. This would include restoring the missing porcelain enamel paneled enclosure for the heating unit and replacing the existing floor mounted furnace and exposed ductwork.

2. Any re-design of the existing heating system should be done by a licensed Mechanical Engineer with guidance from a Historic Architect.
3. The enclosure panels could be original salvaged Lustron panels or new recreated porcelain enameled panels that match the original design. If an original Lustron heating unit cannot be located, a modern horizontal unit could be utilized. Ideally, this would be located within the available space provided for this purpose. If this is not possible due to the limitations of equipment currently available and meeting current energy code requirements, a unit could be located in the attic. This would require a structural analysis to insure that the equipment is adequately supported without damaging the original structural elements. Installing anything in the attic would be part of a larger restoration project as it would require removal of roofing panels.
4. Any additional structure required should be readily reversible in the future, meaning that connections to existing structure would be clamped as opposed to through-bolted or welded connections.
5. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.
6. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
7. If the original scuttle panel for the attic cannot be located, a replacement panel will need to be obtained. This could be an original salvaged Lustron piece or a new recreated porcelain enameled scuttle panel that matches the original design.
8. The original Dove Gray enamel finish on the closet door exhibits significant surface rust. The finish should be restored. Repair top door to swing freely.
9. The non-original wall and base cabinets should be removed.
10. The plumbing piping added for the washing machine should be removed and a duplex receptacle reinstalled which matches the appearance of the original missing receptacle.
11. The water heater was always located in the Utility Room. It is appropriate for it to remain.

Dinette

Recommendations for Treatment

1. The floor should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. Once it is determined whether the flooring material contains asbestos, a decision should be made whether or not to maintain or

replace the flooring. If there is no requirement for its removal the original floor tile could be cleaned and waxed and kept in good repair. The floor tile is not a friable material.

2. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.
3. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.

4. The original Dove Gray enamel finish on the China Cabinet exhibits surface rust. The finish on the cabinet should be restored. The ceramic tile finishes in the Kitchen / Dinette pass-through china cabinet should be maintained as a historic element within the Harold Hess Lustron House.
5. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Living Room

Recommendations for Treatment

1. The Living Room floor should be restored to its original appearance. The existing sheet vinyl flooring is not historic and should be removed.
2. However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.
3. If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.
4. If the original tiles cannot be restored, new 12” x 12” vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Living Room tiles to make that determination and there information cannot be confirmed with the Hess family, then the color should either be the dark brown which remains in the Hallway closet which seems most likely, or black based on the interview that Michele Anne Boyd conducted with the Hess family in 2001. Given the dark brown color remaining in the adjacent closet it seems unlikely to this author that there was an actual black color in the Living Room.
5. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.

6. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
7. The original Dove Gray enamel finish on the Bookcase exhibits surface rust. The finish should be restored. If there are remaining Hess family members that can be interviewed
8. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Hallway

Recommendations for Treatment

1. The Hallway floor should be restored to its original appearance. The existing sheet vinyl flooring is not historic and should be removed. The Guest and Linen Closets retain their original 12" x 12" dark brown vinyl tile floors. Some tiles in the Guest closet are loose and need to be re-glued.
2. However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.
3. If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.
4. If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Hallway tiles to make that determination and there information cannot be confirmed with the Hess family, then the color should either be the dark brown which remains in the closets which seems most likely, or black based on the interview that Michele Anne Boyd conducted with the Hess family in 2001. Given the dark brown color remaining in the adjacent closets it seems unlikely to this author that there was an actual black color in the Hallway.
5. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.
6. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
7. The original Dove Gray enamel finish on the linen closet and all of the doors in the Hallway exhibit surface rust. The finish should be restored.
8. The doors and hardware should be adjusted to properly slide and latch.
9. The finish on the original light fixture also exhibits surface rust and should be restored. Replacement lamps used in the fixture should not be higher than the glass shade.

Bath

Recommendations for Treatment

1. The Bathroom floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.
2. However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The existing vinyl flooring can then be appropriately removed.

3. If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.
4. If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Bathroom tiles to make that determination, then the color should be the dark brown which remains in the adjacent Hallway guest closet.
5. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.
6. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
7. The ceramic tiles around the edge of the tub should be removed and any damage to the wall panels repaired. Liquid polyvinylchloride should be injected where panel seals have deteriorated.
8. The original Dove Gray enamel finish on the bathroom vanity and entry door exhibit surface rust. The finish should be restored.
9. The door and hardware should be adjusted to properly slide and latch.
10. The chrome finish on the original accessories should be restored.
11. The shower doors should be removed.
12. The vanity should be removed and a lavatory and faucets that match the original should be installed.
13. A shower head matching the original should be installed.

Bedroom No. 1

Recommendations for Treatment

1. The Bedroom No. 1 floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.

2. However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.
3. If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.
4. If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. If there is physical evidence of the original color then that color should be matched. If there is no remaining original Bedroom tiles to make that determination, then the color should be the dark brown which remains in the Hallway guest closet.
5. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.
6. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
7. The original Dove Gray enamel finish on the vanity and closet doors and panels exhibit surface rust. The finish should be restored.
8. The closet doors should be reinstalled and any repairs made to put them in good working order.
9. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.
10. Any new electrical wiring that is required in the future should be routed as inconspicuously as possible and minimize any damage to original fabric of the building.

Bedroom No. 2

Recommendations for Treatment

1. The Bedroom No. 1 floor should be restored to its original appearance. The existing vinyl tile flooring is not historic and should be removed.
2. However, before any work is done on the floor, the flooring should be tested for asbestos with a sample taken by a licensed asbestos contractor from an inconspicuous location. The sheet vinyl flooring can then be appropriately removed.
3. If the original vinyl tile flooring remains in salvageable condition, and if there is no requirement for its removal, the original floor tile could be stripped of mastic residue, cleaned and waxed and kept in good repair.
4. If the original tiles cannot be restored, new 12" x 12" vinyl tiles to match the original tile color and pattern should be installed. The color should be the dark brown which remains in the closet.

5. The hole in the closet floor requires repair of the concrete and installation of new vinyl tile flooring to match the original color.
6. Original base that has separated from the wall panels due to the failure of the adhesive can be reattached. Damaged or missing base should be replaced with new base which matches the original.
7. Clean the wall and ceiling panels with a mild detergent to remove surface soiling. Touch-up any small rust spots with an epoxy paint that is color-matched to the existing panel colors.
8. The original Dove Gray enamel finish on the vanity and closet doors and panels exhibit surface rust. The finish should be restored.
9. The closet doors should be adjusted and any repairs made to put them in good working order.
10. Modern receptacle cover plates should be replaced with ones that match the design of the remaining original receptacles. The color of any new replacement outlets should match the original color of the outlets.

Attic

Recommendations for Treatment

1. The attic should be surveyed to determine whether there is asbestos contamination of materials that are not otherwise identified as being asbestos containing materials in the original drawings and specifications. An Environmental Engineer will need to determine whether the asbestos in the attic is in a friable condition and poses any threat to health which would require its abatement.
   Once a determination has been made whether there is asbestos contamination in any adjacent materials, and whether or not there is friable asbestos containing material (ACM) that must be removed, a determination can be made how to proceed.
   If the determination is made that the attic does not require abatement, then the section of plenum which is broken must be sealed so that hot air from the furnace is contained within the plenum and cannot escape to the attic. A determination will also need to be made if there are any additional areas where the plenum might be compromised and similar repairs made. This is a top priority in order to provide heat back into the house.
   If the determination is made that the asbestos in the attic must be removed, this will be a significant project that should be directed by a Historic Architect with the assistance of an Environmental Engineer. In order to remove the cement-asbestos board which forms the top of the plenum, and the corrugated asbestos insulation between the underside of the roof trusses and the top of the plenum, the porcelain enamel ceiling panels will need to be removed, as well as the insulation above.
2. If this work is required, it will be the most cost effective time to provide an anti-corrosive coating to the roof trusses and roof panels.
3. It would also provide access to the attic to install a new furnace if one cannot be identified that could fit within the heating enclosure within the Utility Room. This would also be the time to replace original electrical wiring.

4. The new surface which forms the top of the plenum will need to be designed to be mildew and mold-resistant and support the weight of insulation above. A walking surface could be designed above that is supported directly off the trusses so that future access for maintenance would not risk damage to the plenum or disturb the insulation.
5. The underside of the roof panels should have surface rust removed and a new anti-corrosive coating applied such as ZRC Cold Galvanizing Compound. Ideally, this would be done with the panels removed so that a complete restoration of each panel could be accomplished. If it is not financially viable to do a complete restoration of the roof panels within the next five years the underside could still be treated with an anti-corrosive coating except for the overlap of panels which could be completed at a later date.
6. Surface rust should be removed from the roof trusses and a new anti-corrosive coating applied such as ZRC Cold Galvanizing Compound. The trusses could then receive a new high quality paint finish.
7. The existing insulation should be removed and new insulation provided over the plenum. The amount of insulation should be increased to R-38 in the attic. This will improve the efficiency of the radiant ceiling heating system. The recommended insulation is sprayed cellulose. This product is fire-resistant and will absorb atmospheric moisture vapor in the attic thus minimizing the potential for condensation to form. Spray-foam insulation should NOT be used.
8. The original water heater flue can be reused if the water heater returns to its original location within the Utility Room.
9. The electrical wiring damaged from raccoons or rodents should be inspected. If only the exterior jacketing is damaged it may be able to be taped, if not the damaged section will need to be replaced.
10. The original porcelain enamel plumbing vent should be restored and re-installed.
11. Raccoon and rodent droppings should be removed.

Garage

1. See Exterior sections of this report for recommendations relating to the foundation, wall and roof panels, gutters and downspouts, door to the breezeway and aluminum awning window.
2. The concrete floor slab should be kept in its existing condition and not painted or sealed.
3. Do not paint or provide an interior finish over the existing wood framing.
4. The fiberglass batt insulation is in fair to poor condition. However, the insulation dates from the period of the building's historic significance and bears the distinctive "NEW! Owens-Corning Fiberglas Building Insulations" trademark. The remaining Fiberglas batt insulation should be protected in place from further deterioration. This could be done by applying panels of clear non-yellowing polycarbonate over the top of the insulation. Some space at the top and bottom of the panel should allow for ventilation of the stud cavity.
5. Re-secure the fiberboard panels on the rear wall.
6. The porcelain enamel roof panels are designed to fit against a straight structural frame. The sag in the roof framing has caused the roof panels and ridge roll panels to be

misaligned. If the roof panels are removed for restoration, a supplemental top section could be added the existing top chord to restore the original plane of the framing. Supplemental reinforcing of the center trusses may be required if a structural analysis indicates that they were not adequately designed in the first place. It should not be attempted to jack the existing structure into its original shape. This will damage the building and likely crack the original framing members. Wood that has obtained a shape over nearly 70 years will not go back to its original shape. The approach should be to save all original materials and allow supplemental framing to restore the plane of the roof.

7. See recommendation number 3. The same approach can be used for the ceiling insulation.
8. Restore the finish on the garage door.
9. Remove the automatic garage door opener.
10. Maintain the historic work lights in the garage.
11. The installation of a new 200 amp electrical service to the building would not have been able to utilize the location in the Kitchen for the primary service panel. Given that, the location in the garage is the best alternative. No change is recommended.

Furnishings & Interior Decoration Recommendations

If the Harold Hess Lustron House is being restored to a Period of Significance from 1950 – 1970 as recommended in the Treatment Philosophy Section of this report, then the furnishings and interior decoration should reflect the same.

Ideally, furnishings would not only be representative of the period but also representative of how the Hess family actually furnished and decorated the house. This could be based on evidence provided by the Hess family in the form of photographs or information from oral interviews. If that is not possible, then representative furnishings and decoration of the period would be appropriate.
Certainly, tastes changed dramatically between 1950 and 1970 but household furnishings were not likely to change quite so quickly. Ideally, there might be some items that are able to be changed out between the 1950s and 1960s when programming was focusing on one topic or another. Things like a Time magazine about the Cuban Missile Crisis, posters in their son's bedroom, a jar of Tang breakfast drink, can all add to the sense of place and time.

The "House of Memories" in Aarhus, Denmark uses numerous household and personal items from the period. Things like household cleaners, perfume bottles, foods all bring back memories.

Anything that is put on the walls should utilize magnets and nothing should be screwed into the existing panels.

The garage is also an important part of the story of post-War America and should not be ignored. If it was determined what kind of cars Harold Hess owned one might be found to put in the garage along with 1950s–60s era tools. Perhaps an owner of an antique car would be willing to store the car in the garage.

Fig. 126 – Lustron Corp. advertisement circa 1949

Prioritization and Cost Estimate

The following cost estimate provides costs for all of the recommendations in this Preservation Plan. The costs were developed by Danda, Inc., an independent professional cost estimating firm in consultation with Mark Thaler of Lacey Thaler Reilly Wilson Architecture & Preservation.

The pricing is based on prevailing wage rates in Bergen County and estimated for a 2018 construction period. As work is completed in future years, appropriate escalation factors will have to be used for inflation.

The items in the cost estimate correspond to the recommendations in the Preservation Plan. Each item is listed as Priority 1, Priority 2, or Priority 3.

Priority 1 recommendations should be completed within the next year, the sooner the better. These are items that are most critical from either an immediate concern, such as getting temporary heat in the building this winter, or because they are necessary first steps in the planning process, such as completing an asbestos hazard assessment.

Priority 2 recommendations should be completed within the next three years. These are generally recommendations to ensure the existing fabric of the building is stabilized and repairs made to halt further deterioration.

Priority 3 recommendations should be completed within the next five years. These are recommendations relating to the restoration of the building that will be necessary to fully interpret the building.

Certain maintenance items may be appropriate for Borough employees or volunteers to complete. However, it is vitally important to have work supervised by someone with experience working with historic buildings. Tasks must be carried out using the gentlest means possible without damaging the existing building! This includes drilling holes through panels or using aggressive cleaning agents.

HAROLD HESS
LUSTRON HOUSE

CLOSTER, NEW JERSEY

FEASIBILITY COST ANALYSIS

LACEY THALER REILLY WILSON

ESTIMATE PREPARED BY:

danda inc.
CONSTRUCTION COST CONSULTANT

SEPTEMBER 28, 2017

HAROLD HESS LUSTRON HOUSE

FEASIBILITY COST ANALYSIS

LACEY THALER REILLY WILSON

LIST OF DOCUMENTS

SEPTEMBER 28, 2017

LUSTRON CORPORATION PLANS	4-21-49
THE LUSTRON HOME - MASTER SPECIFICATIONS	5-06-49
PRESERVATION PLAN	SEPT 2017

HAROLD HESS LUSTRON HOUSE

FEASIBILITY COST ANALYSIS

LACEY THALER REILLY WILSON

LIST OF ASSUMPTIONS

SEPTEMBER 28, 2017

PRICING BASED UPON CURRENT 3RD QUARTER 2017 PREVAILING WAGE RATES FOR BERGEN COUNTY NEW JERSEY, BENEFITS, PAYROLL TAXES & INSURANCES; MARKET PLACE MATERIAL PRICING AND RENTAL COSTS FOR EQUIPMENT INCLUSIVE OF TRADE CONTRACTORS OH&P

THIS ESTIMATE REFLECTS A 2018 CONSTRUCTION TIMEFRAME

THE PRICING FOR EACH OF THE INDIVIDUAL LINES ITEMS OF EACH SCOPE ITEM ARE BASED UPON THAT SCOPE PROCEEDING AS PART OF THE CONTRACT SCOPE OF WORK

HAROLD HESS LUSTRON HOUSE

LACEY THALER REILLY WILSON

SEPTEMBER 28, 2017

FEASIBILITY COST ANALYSIS

ITEM	SCOPE / DESCRIPTION	QUANTITY	U/M	UNIT PRICE	EXTENSION	SUB-TOTAL	GENERAL CONDITION / INSURANCE / BOND / FEE 21.00%	SUB-TOTAL	DESIGN & CONSTRUCTION CONTINGENCY 15.00%	SUB-TOTAL	ESCALATION 4.20%	TOTAL	PRIORITY #1	PRIORITY #2	PRIORITY #3
LANDSCAPING															
1	PROVIDE PLANTINGS IN BEDS	1	LSA	$2,000.00	$2,000	$2,000	$420	$2,420	$363	$2,783	$117	$2,900			$2,900
2	SITE CLEARING	1	LS	$1,260.00	$1,260	$1,260	$265	$1,525	$229	$1,753	$74	$1,827			$1,827
HARDSCAPING															
1	REPAIR ASPHALT DRIVE AND SEAL	1	LSA	$2,000.00	$2,000	$2,000	$420	$2,420	$363	$2,783	$117	$2,900		$2,900	
2	FLAGSTONE PAVING IN FRONT OF BREEZEWAY - REMOVE + NEW BASE + RE-INSTALL	1	LS	$2,070.00	$2,070	$2,070	$435	$2,505	$376	$2,880	$121	$3,001		$3,001	
3	FLAGSTONE WALK TO THE FRONT DOOR - REMOVE + NEW BASE + RE-INSTALL	1	LS	$5,175.00	$5,175	$5,175	$1,087	$6,262	$939	$7,201	$302	$7,503		$7,503	
4	RESTORE WALKWAY OUT THE REAR OF THE BREEZEWAY - REMOVE + NEW BASE + RE-INSTALL	27	SF	$39.00	$1,053	$1,053	$221	$1,274	$191	$1,465	$62	$1,527		$1,527	
5	REMOVE + NEW BASE + NEW TILES ALONG GARAGE FOUNDATION	15	LF	$92.00	$1,380	$1,380	$290	$1,670	$250	$1,920	$81	$2,001		$2,001	
6	REMOVE CONCRETE PAD AT NORTH SIDE OF HOUSE	1	LS	$345.00	$345	$345	$72	$417	$63	$480	$20	$500			$500
FOUNDATION															
1	REPAIR HOLE IN FOUNDATION	1	LS	$518.00	$518	$518	$109	$627	$94	$721	$30	$751	$751		
2	CLEAN EXPOSED FOUNDATION AND REPAINT IN ORIGINAL COLOR	132	LF	$19.00	$2,508	$2,508	$527	$3,035	$455	$3,491	$147	$3,637			$3,637
3	FILL CRACK IN FOUNDATION	1	LS	$158.00	$158	$158	$33	$191	$29	$220	$9	$229		$229	
WALLS															
1	SCRAP AND CLEAN FAÇADE	1,077	SF	$5.00	$5,387	$5,387	$1,131	$6,518	$978	$7,495	$315	$7,810		$7,810	
2	CLEAN RUST SPOTS, APPLY ZINC PRIMER AND EPOXY PAINT	130	SF	$19.00	$2,470	$2,470	$519	$2,988	$448	$3,436	$144	$3,581		$3,581	
3	REPAIR DAMAGED WALL PANEL INSITU	60	SF	$150.00	$9,000	$9,000	$1,890	$10,890	$1,634	$12,524	$526	$13,049		$13,049	
4	APPLY INJECTION OF LIQUID SEALANT	323	LF	$19.00	$6,139	$6,139	$1,289	$7,428	$1,114	$8,542	$359	$8,901		$8,901	
5	REMOVAL AND RESTORATION OF WALL PANELS (IF CORROSION IS DETECTED)					TO BE DETERMINED						TO BE DETERMINED			$0
6	REPAIR THE DAMAGED GABLE END PANELS ON THE GARAGE IN-SITU	7	LF	$115.00	$805	$805	$169	$974	$146	$1,120	$47	$1,167		$1,167	
7	GARAGE DOOR FRAME REPAIR AND REPAINT	1	EA	$1,212.00	$1,212	$1,212	$255	$1,467	$220	$1,686	$71	$1,757		$1,757	
WINDOWS															
1	CLEAN AND POLISH ALUMINUM WINDOWS	10	EA	$375.00	$3,750	$3,750	$788	$4,538	$681	$5,218	$219	$5,437		$5,437	
2	MAKE HARDWARE OPERATE PROPERLY AT ALL EXTERIOR WINDOWS	10	EA	$225.00	$2,250	$2,250	$473	$2,723	$408	$3,131	$131	$3,262		$3,262	
3	REMOVE CAULKING AT EXTERIOR WINDOWS AND INSTALL LIQUID PVC LIQUID	10	EA	$300.00	$3,000	$3,000	$630	$3,630	$545	$4,175	$175	$4,350		$4,350	
DOORS AND HARDWARE															
1	REMOVAL OF PAINT FROM STORM DOORS AND RESTORE ORIGINAL FINISH	3	EA	$606.00	$1,818	$1,818	$382	$2,200	$330	$2,530	$106	$2,636			$2,636
2	REMOVAL OF FRONT DOOR, RESTORE AND REINSTALL	1	EA	$4,515.00	$4,515	$4,515	$948	$5,463	$819	$6,283	$264	$6,546		$6,546	
3	REMOVAL OF BLACK PAINT FROM REAR ENTRY DOOR	1	EA	$122.00	$122	$122	$26	$148	$22	$170	$7	$177			$177
ROOFS AND CHIMNEYS															
1	REMOVE AND REPAIR BREEZEWAY ROOF WITH 5-PLY BUILT UP ROOF	90	SF	$62.00	$5,580	$5,580	$1,172	$6,751	$1,013	$7,764	$326	$8,090	$8,090		

HAROLD HESS LUSTRON HOUSE

LACEY THALER REILLY WILSON

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ITEM	SCOPE / DESCRIPTION	FEASIBILITY COST ANALYSIS QUANTITY	U/M	UNIT PRICE	EXTENSION	SUB-TOTAL	GENERAL CONDITION / INSURANCE / BOND / FEE 21.00%	SUB-TOTAL	DESIGN & CONSTRUCTION CONTINGENCY 15.00%	SUB-TOTAL	ESCALATION 4.20%	TOTAL	PRIORITY #1	PRIORITY #2	PRIORITY #3
2	NEW WHITE CORRUGATED TRANSLUCENT ROOF PANEL AT BREEZEWAY	18	SF	$21.00	$378	$378	$79	$457	$69	$526	$22	$548	$548		
3	CLEAN ALL ROOF PANELS OF PAINT AND BIOLOGICAL GROWTH	1,145	SF	$5.00	$5,721	$5,721	$1,201	$6,923	$1,038	$7,961	$334	$8,295	$8,295		
4	REMOVAL OF EXISTING ROOF PANEL, RESTORATION AND RE-INSTALLATION	1,145	SF	$121.00	$138,548	$145,419	$30,538	$175,957	$26,394	$202,351	$8,499	$210,849			$210,849
4	TEMPORARY ROOF PROTECTION	1,145	SF	$6.00	$6,871										
5	RE-INSTALL ORIGINAL PLUMBING VENT	1	EA	$245.00	$245	$245	$51	$296	$44	$341	$14	$355			$355
6	REMOVAL OF PAINT FROM CHIMNEY AND REPAIR RUST	1	EA	$1,940.00	$1,940	$1,940	$407	$2,347	$352	$2,700	$113	$2,813			$2,813
7	RESTORE RUSTED TV ANTENNAS	2	EA	$500.00	$1,000	$1,000	$210	$1,210	$182	$1,392	$58	$1,450		$1,450	
GUTTERS AND DOWNSPOUTS															
1	RESTORE THE REMAINING DOWN SPOUTS	1	LS	$2,366.00	$2,366	$2,366	$497	$2,863	$429	$3,292	$138	$3,431		$3,431	
2	REPLACE ALUMINUM GUTTERS WITH ENAMELED STEEL REPLICAS	62	LF	$273.00	$16,926	$16,926	$3,555	$20,481	$3,072	$23,553	$989	$24,542			$24,542
BREEZEWAY															
1	REMOVE AND REPAIR BREEZEWAY ROOF WITH 5-PLY BUILT UP ROOF					SEE ABOVE						**SEE ABOVE**	$0		
2	REPAIR POST INSITU AND ADJACENT SURFACES	1	EA	$3,456.00	$3,456	$3,456	$726	$4,182	$627	$4,809	$202	$5,011		$5,011	
3	REPAIR DAMAGE TO WALL AND CEILING FINISHES	1	LS	$6,000.00	$6,000	$6,000	$1,260	$7,260	$1,089	$8,349	$351	$8,700		$8,700	
4	REPLACEMENT OF CONDUIT	1	LS	$1,512.00	$1,512	$1,512	$318	$1,830	$274	$2,104	$88	$2,192	$2,192		
5	RE-HANG BREEZEWAY DOOR TO OPEN PROPERLY	1	LS	$450.00	$450	$450	$95	$545	$82	$626	$26	$652		$652	
6	REPAINT BREEZEWAY ELEMENTS	1	LS	$4,848.00	$4,848	$4,848	$1,018	$5,866	$880	$6,746	$283	$7,029		$7,029	
KITCHEN															
1	HAZMAT INSPECTION / SURVEY AND TEST REPORT - ALLOWANCE	1	LSA	$5,000.00	$5,000	$5,000		$5,000		$5,000		$5,000	$5,000		
2	CLEAN, RESTORE BUFF AND WAX FLOOR	126	SF	$2.00	$252	$252	$53	$305	$46	$351	$15	$366		$366	
2	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	401	SF	$12.00	$4,812	$4,812	$1,011	$5,822	$873	$6,696	$281	$6,977		$6,977	
3	REMOVE DOVE GRAY KITCHEN & DINETTE CABINET, RESTORE AND RE-INSTALL	6	LF	$3,929.00	$23,574	$23,574	$4,951	$28,525	$4,279	$32,803	$1,378	$34,181			$34,181
4	REPAIRS TO CERAMIC TILE	1	LS	$1,824.00	$1,824	$1,824	$383	$2,207	$331	$2,538	$107	$2,645		$2,645	
5	REMOVE KITCHEN SINK ASSEMBLY , RESTORE AND RE-INSTALL			INCL W/#3								INCL W/#3			$0
6	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / EACH AS A MATERIAL ALLOWANCE)	10	EA	$78.00	$780	$780	$164	$944	$142	$1,085	$46	$1,131			$1,131
UTILITY ROOM															
1	RESTORE TO ORIGINAL CONDITION	1	LS	$16,320.00	$16,320	$16,320	$3,427	$19,747	$2,962	$22,709	$954	$23,663			$23,663
2	REPLACE OF HEATING UNIT INCLUDE GAS PIPING AND ELECTRICAL HOOKUP	1	EA	$19,584.00	$19,584	$25,152	$5,282	$30,434	$4,565	$34,999	$1,470	$36,469		$36,469	
2	PROVIDE TEMPORARY HEAT	1	LS	$5,568.00	$5,568								$0		
3	CLEAN, RESTORE BUFF AND WAX FLOOR	64	SF	$2.00	$128	$128	$27	$155	$23	$178	$7	$186		$186	
4	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	192	SF	$12.00	$2,304	$2,304	$484	$2,788	$418	$3,206	$135	$3,341		$3,341	
5	REPLACEMENT FOR SCUTTLE PANEL	1	EA	$2,437.00	$2,437	$2,437	$512	$2,949	$442	$3,391	$142	$3,534			$3,534

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6	REMOVE DOVE GRAY CABINETS, RESTORE AND RE-INSTALL	2	LF	$5,420.00	$10,840	$10,840	$2,276	$13,116	$1,967	$15,084	$634	$15,717			$15,717
7	REMOVAL OF NON-ORIGINAL CABINET	1	LS	$150.00	$150	$150	$32	$182	$27	$209	$9	$217			$217
8	REMOVE PLUMBING PIPING AND INSTALL DUPLEX RECEPTACLE	1	EA	$261.00	$261	$261	$55	$316	$47	$363	$15	$378			$378
9	RELOCATE HOT WATER TANK AND RE-PIPE	1	EA	$1,632.00	$1,632	$1,632	$343	$1,975	$296	$2,271	$95	$2,366			$2,366
10	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	28	LF	$7.00	$196	$196	$41	$237	$36	$273	$11	$284	$284		
11	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / AS A MATERIAL ALLOWANCE)	2	EA	$78.00	$156	$156	$33	$189	$28	$217	$9	$226			$226
DINETTE															
1	CLEAN, RESTORE BUFF AND WAX FLOOR	88	SF	$2.00	$176	$176	$37	$213	$32	$245	$10	$255		$255	
2	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	25	LF	$7.00	$175	$175	$37	$212	$32	$243	$10	$254	$254		
3	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	290	SF	$12.00	$3,480	$3,480	$731	$4,211	$632	$4,842	$203	$5,046		$5,046	
4	REMOVE DOVE GRAY CHINA CABINET, RESTORE AND RE-INSTALL	6	LF	$8,204.00	$49,224	$49,224	$10,337	$59,561	$8,934	$68,495	$2,877	$71,372			$71,372
5	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / EACH AS A MATERIAL ALLOWANCE)	2	EA	$78.00	$156	$156	$33	$189	$28	$217	$9	$226			$226
LIVING ROOM															
1	CLEAN, RESTORE BUFF AND WAX FLOOR	224	SF	$2.00	$448	$448	$94	$542	$81	$624	$26	$650		$650	
2	IF NOT RESTORABLE - REMOVE EXISTING FLOORING, PREPARE SURFACE ND INSTALL NEW 12" X 12" VINYL TILES TO MATCH ORIGINAL TILE COLOR AND PATTERN (ALLOW $5.00 / SF FOR MATERIAL)	224	SF	$14.00	$3,137	$3,137	$659	$3,795	$569	$4,365	$183	$4,548			$4,548
3	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	46	LF	$7.00	$322	$322	$68	$389	$58	$448	$19	$467	$467		
4	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	638	SF	$12.00	$7,656	$7,656	$1,608	$9,264	$1,390	$10,653	$447	$11,101		$11,101	
5	REMOVE DOVE GRAY BOOKCASE ASSEMBLY , RESTORE AND RE-INSTALL	12	LF	$1,110.00	$13,320	$13,320	$2,797	$16,117	$2,418	$18,535	$778	$19,313			$19,313
6	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / EACH AS A MATERIAL ALLOWANCE)	6	EA	$78.00	$468	$468	$98	$566	$85	$651	$27	$679			$679
BATHROOM															
1	REMOVAL OF NON-HISTORIC FLOOR	45	SF	$9.00	$405	$405	$85	$490	$74	$564	$24	$587			$587
2	IF NOT RESTORABLE - REMOVE EXISTING FLOORING, PREPARE SURFACE ND INSTALL NEW 12" X 12" VINYL TILES TO MATCH ORIGINAL TILE COLOR AND PATTERN (ALLOW $5.00 / SF FOR MATERIAL)	45	SF	$14.00	$630	$630	$132	$762	$114	$877	$37	$914			$914
3	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	16	LF	$7.00	$112	$112	$24	$135	$20	$156	$7	$162	$162		
4	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	290	SF	$12.00	$3,480	$3,480	$731	$4,211	$632	$4,842	$203	$5,046		$5,046	
4	REMOVAL OF CERAMIC TILE AT EDGE OF TUB AND REPAIR WALL DAMAGE	10	LF	$22.70	$227	$227	$48	$275	$41	$316	$13	$329			$329

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5	REMOVE DOVE GRAY BATHROOM VANITY ASSEMBLY , RESTORE AND RE-INSTALL	2	LF	$1,855.00	$3,710	$3,710	$779	$4,489	$673	$5,162	$217	$5,379			$5,379
6	ADJUST BATHROOM DOOR OPERATION	1	EA	$300.00	$300	$300	$63	$363	$54	$417	$18	$435		$435	
7	RECHROME TOILET ACCESSORIES	1	LS	$4,500.00	$4,500	$4,500	$945	$5,445	$817	$6,262	$263	$6,525			$6,525
8	REMOVE SHOWER DOOR	1	EA	$150.00	$150	$150	$32	$182	$27	$209	$9	$217			$217
9	REMOVAL OF EXISTING VANITY; LAVATORY WITH FAUCETS AND SHOWER HEAD TO BE INSTALLED TO MATCH EXISTING (ALLOW $1500 TO PURCHASE ORIGINAL MATCHES)	1	EA	$5,064.00	$5,064	$5,064	$1,063	$6,127	$919	$7,047	$296	$7,343			$7,343
BEDROOM NO. 1															
1	REMOVAL OF NON-HISTORIC FLOOR	216	SF	$9.00	$1,945	$1,945	$408	$2,353	$353	$2,706	$114	$2,820			$2,820
2	IF NOT RESTORABLE - REMOVE EXISTING FLOORING, PREPARE SURFACE ND INSTALL NEW 12" X 12" VINYL TILES TO MATCH ORIGINAL TILE COLOR AND PATTERN (ALLOW $5.00 / SF FOR MATERIAL)	216	SF	$14.00	$3,025	$3,025	$635	$3,660	$549	$4,209	$177	$4,386			$4,386
3	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	38	LF	$7.00	$266	$266	$56	$322	$48	$370	$16	$385	$385		
4	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	520	SF	$12.00	$6,240	$6,240	$1,310	$7,550	$1,133	$8,683	$365	$9,047		$9,047	
5	REMOVE DOVE GRAY BEDROOM VANITY WALL ASSEMBLY , RESTORE AND RE-INSTALL	12	LF	$3,683.00	$44,196	$44,196	$9,281	$53,477	$8,022	$61,499	$2,583	$64,082			$64,082
6	ADJUST BED ROOM DOOR OPERATION	1	EA	$300.00	$300	$300	$63	$363	$54	$417	$18	$435		$435	
7	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / EACH AS A MATERIAL ALLOWANCE)	5	EA	$78.00	$390	$390	$82	$472	$71	$543	$23	$565			$565
BEDROOM NO. 2															
1	REMOVAL OF NON-HISTORIC FLOOR	147	SF	$9.00	$1,323	$1,323	$278	$1,601	$240	$1,842	$77	$1,919			$1,919
2	IF NOT RESTORABLE - REMOVE EXISTING FLOORING, PREPARE SURFACE ND INSTALL NEW 12" X 12" VINYL TILES TO MATCH ORIGINAL TILE COLOR AND PATTERN (ALLOW $5.00 / SF FOR MATERIAL)	147	SF	$14.00	$2,058	$2,058	$432	$2,491	$374	$2,864	$120	$2,985			$2,985
3	REATTACH VINYL BASE. REPLACE DAMAGED SECTIONS	49	LF	$7.00	$343	$343	$72	$415	$62	$477	$20	$497	$497		
4	CLEAN WALL AND CEILING PANELS AND TOUCHUP SMALL RUSTED AREAS	539	SF	$12.00	$6,468	$6,468	$1,358	$7,826	$1,174	$9,000	$378	$9,378		$9,378	
5	REMOVE DOVE GRAY BEDROOM TRIPLE CLOSET ASSEMBLY , RESTORE AND RE-INSTALL	7.7	LF	$7,044.00	$54,239	$54,239	$11,390	$65,629	$9,844	$75,473	$3,170	$78,643			$78,643
6	ADJUST BED ROOM DOOR OPERATION	1	EA	$300.00	$300	$300	$63	$363	$54	$417	$18	$435		$435	
7	REMOVE CURRENT RECEPTACLES AND REPLACE WITH ORIGINALS (ALLOW $15 / EACH AS A MATERIAL ALLOWANCE)	4	EA	$78.00	$312	$312	$66	$378	$57	$434	$18	$452			$452
ATTIC															
1	SEAL HOLE IN PLENUM	1	EA	$150.00	$150	$150	$32	$182	$27	$209	$9	$217	$217		
2	REMOVAL OF CEILING PANELS	1,007	SF	$14.30	$14,400	$95,652	$20,087	$115,738	$17,361	$133,099	$5,590	$138,689			$138,689
2	REMOVAL OF ASBESTOS CEMENT BOARD (ACM MATERIAL)	740	SF	$33.00	$24,422										

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2	REMOVAL OF CORRUGATED ASBESTOS INSULATION AT TRUSS CORDS (ACM MATERIAL)	256	LF	$47.00	$12,031										
2	ANTI-CORROSIVE COATING TO TRUSSES	256	LF	$43.00	$11,008										
2	NEW SURFACE TO REPLACED CEMENT BOARD	740	SF	$9.00	$6,659										
2	NEW INSULATION	1,007	SF	$4.00	$4,028										
2	RE-INSTALL REMOVED CEILING PANELS	1,007	SF	$19.00	$19,130										
2	ALLOW FOR WALKWAY SURFACE	150	SF	$26.50	$3,975										
3	ROOF PANEL RUST REMOVAL AND ANTI-CORROSIVE COATING IN SITU IN LIEU OF ROOF REPLACEMENT (SEE ROOFING ABOVE ITEM # 4)	1,145	SF	$24.00	$27,481	$27,481	$5,771	$33,252	$4,988	$38,240	$1,606	$39,846			$39,846
4	ORIGINAL WATER HEATER FLUE	1	EA	$1,632.00	$1,632	$1,632	$343	$1,975	$296	$2,271	$95	$2,366			$2,366
5	REPAIR OF ELECTRICAL WIRE DAMAGE	1	EA	$1,512.00	$1,512	$1,512	$318	$1,830	$274	$2,104	$88	$2,192	$2,192		
6	RACCOON AND RODENT DROPPING REMOVED			INCL W/ ITEM #2								INCL W/ ITEM #2			
GARAGE															
1	INSTALL NON-YELLOWING POLYCARBONATE OVER TOP OF BATT INSULATION	380	SF	$4.00	$1,519	$1,519	$319	$1,838	$276	$2,114	$89	$2,202		$2,202	
2	RE-SECURE FIBERBOARD PANELS TO REAR WALL	120	SF	$5.00	$600	$600	$126	$726	$109	$835	$35	$870		$870	
3	CORRECT SAGGING TRUSSES	1	LS	$6,912.00	$6,912	$6,912	$1,452	$8,364	$1,255	$9,618	$404	$10,022			$10,022
4	RESTORE FINISH TO GARAGE DOOR - SCRAPE, PRIME AND PAINT	1	EA	$2,424.00	$2,424	$2,424	$509	$2,933	$440	$3,373	$142	$3,515	$3,515		
5	REMOVE GARAGE DOOR OPENER	1	EA	$150.00	$150	$150	$32	$182	$27	$209	$9	$217			$217
STRUCTURAL															
1	FRONT PORCH POST WITH PORCELAIN ENAMEL FINISH TO MATCH EXISTING	1	EA	$4,976.00	$4,976	$4,976	$1,045	$6,021	$903	$6,924	$291	$7,215		$7,215	
BUILDING SYSTEMS															
1	CONNECT OF INCOMING CAPPED GAS LINE TO NEW FURNACE; CONNECT ELECTRICAL POWER TO NEW FURNACE			INCL W/ UTILITY ITEM #2 (SEE ABOVE)										$0	
TOTAL					**$712,146**	**$712,146**	**$148,501**	**$860,646**	**$128,347**	**$988,993**	**$41,328**	**$1,030,321**	**$32,851**	**$201,394**	**$796,076**

Appendix A

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Hedgpeth, Dana (23 January 2006). "Housing History for the Taking at Quantico". The Washington Post. p. D3. Retrieved 8 May 2017.

Miroff, Nick. "A House of Dreams but Few Takers. Despite Inspiring Many, Quantico's Lustrons Hard to Unload," *The Washington Post*. 25 Mar. 2007: T1

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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.

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

Prudon, Theodore H. M. *Preservation of Modern Architecture*. New York: John Wiley & Sons, 2008.

Cynthia Liccese-Torres, Kim A. O'Connell. *The Illustrious Lustron: A Guide for the Disassembly and Preservation of America's Modern Metal Marvel*. Community Planning, Housing and Development, Neighborhood Services Division, Historic Preservation Program, 2007

Historical Documents

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

Lustron Corporation. "Answers to your Questions about The Lustron Home", "Lustron: A New Standard for Living" Company brochures.

Photographs

Historical American Buildings Survey (HABS). Library of Congress, Prints and Photographs Division, Washington, D.C. digital queries can be made at: http://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 cliccese@arlingtonva.us

WOSU-TV (Columbus, OH) and KDN Videoworks, Inc. "Lustron - The House America's Been Waiting for." Film synopsis: http://lustron.org/images/Lustronfilm.pdf

A Lustron Legacy - Arlington Virginia's effort to move and preserve a Lustron House. The house is expected to be shipped to New York's Museum of Modern Art. Published on May 15, 2008.

WTTW Chicago Tonight Lustron Home Special from 2004. Rich Samuels

Web Sites

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

Ohio History Connection. Ohio History Central Lustron Homes: http://www.ohiohistorycentral.org/w/Lustron_Homes

WOSU.TV video archive: http://wosu.org/2012/archive/lustron/index.php

Lustron owners, future owners and historians of these Homes of Steel discuss their past, future and preservation. Includes news items, repair and maintenance, photo sharing, Lustron ownership discussions: https://groups.yahoo.com/neo/groups/LustronHomes/info

The story of Arlington, Virginia's Lustrons, and their "Krowne Lustron" which was donated, disassembled, stored, and then partially reconstructed inside the New York Museum of Modern Art for a three-month exhibit in 2008: http://www.arlingtonarts.org/cultural-affairs/heritage-arts/uncommon_places_Lustron_Houses.aspx

National Trust for Historic Preservation. Lustrons: Building an American Dream House: https://savingplaces.org/stories/lustrons-building-an-american-dream-house#.WcGF4LJ96Uk

The Illustrious Lustron, A Guide for the Disassembly and Preservation of America's Modern Metal Marvel: http://www.ncmodernist.org/final-lustron-documentation-booklet.pdf

Examples of other Lustron preservation projects:

Barton County, Kansas: The Barton county Historical Society Museum & Village web site. “Lustron News.” Available from: www.bartoncountynuseum.org/buildings.html

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

Whitehall, Ohio: www.freewebs.com/whitehallhistoricalsociety/aurlustronhome.htm

Overmyer, Beverly; Coambs, Norris and Harriet Lustron House, Coambs-Morrow House; 92001165; National Register Inventory—Nomination Form, September 17, 1992, in digital files of National Park Service, Washington, D.C.

Appendix B

Glossary – Definitions of Preservation Treatments

Preservation as a Treatment

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Standards for Preservation

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Rehabilitation as a Treatment

"Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

The Standards (Department of Interior regulations, 36 CFR 67) pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building's site and environment as well as attached, adjacent, or related new construction. The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

Standards for Rehabilitation

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the

old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Restoration as a Treatment

"Restoration" is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

When the property's design, architectural, or historical significance during a particular period of time outweighs the potential loss of extant materials, features, spaces, and finishes that characterize other historical periods; when there is substantial physical and documentary evidence for the work; and when contemporary alterations and additions are not planned, Restoration may be considered as a treatment. Prior to undertaking work, a particular period of time, i.e., the restoration period, should be selected and justified, and a documentation plan for Restoration developed.

Standards for Restoration

1. A property will be used as it was historically or be given a new use that interprets the property and its restoration period.
2. Materials and features from the restoration period will be retained and preserved. The removal of materials or alteration of features, spaces and spatial relationships that characterize the period will not be undertaken.
3. Each property will be recognized as a physical record of its time, place and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period will be physically and visually compatible, identifiable upon close inspection and properly documented for future research.
4. Materials, features, spaces and finishes that characterize other historical periods will be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize the restoration period will be preserved.

6. Deteriorated features from the restoration period will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials.
7. Replacement of missing features from the restoration period will be substantiated by documentary and physical evidence. A false sense of history will not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
9. Archeological resources affected by a project will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
10. Designs that were never executed historically will not be constructed.

THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES WITH GUIDELINES FOR PRESERVING, REHABILITATING, RESTORING & RECONSTRUCTING HISTORIC BUILDINGS – 2017

Appendix C

RFP / Scope of Work

Lustron House RFP

MARCH 2017

NOTICE

Notice is hereby given that Request for Proposals (RFP) will be reviewed by the Borough of Closter, State of New Jersey, at 295 Closter Dock Road, Closter, New Jersey 07624 on Tuesday, April 4, 2017 no later than 11:00 a.m. local time. At that time, documents will be publicly opened and available for examination.

This proposal is being solicited through a fair and open process in accordance with the N.J.S.A. 19:44A-20.5 et seq.

PROJECT

This Agreement will consist of furnishing all materials and labor associated with the preparation of a Preservation Plan for the Harold Hess Lustron House located at 421 Durie Avenue, Closter, New Jersey in the Borough of Closter, County of Bergen, New Jersey.

RFP's may be submitted by person or by mail. The Borough of Closter accepts no responsibility for lost or non-delivery of any proposal sent in prior to the opening.

The Borough of Closter reserves the right to reject any or all bids/proposals, to waive any informality or to accept any part or all of a bid which, in its judgement, best serves the interest of the Borough.

REQUEST FOR PROPOSAL

HISTORIC ARCHITECT AND/OR
ARCHITECTURAL HISTORIAN SERVICES
FOR THE HAROLD HESS LUSTRON HOUSE IN CLOSTER, NEW JERSEY

The Borough of Closter is seeking the services of a Historic Architect and/or Architectural Historian for the preparation of a Preservation Plan in accordance with the National Park Service Professional Qualification Standards for the Harold Hess Lustron House, located in the Borough of Closter, County of Bergen, New Jersey. The Harold Hess Lustron House is listed in the New Jersey Register of Historic Places under "Harold Hess Lustron House".

The consultant shall submit one original and one copy of the proposal. All proposals shall be submitted no later than 11:00 a.m. on April 4, 2017 to the following address:

Mr. Arthur Braun Dolson, Borough Administrator
Borough of Closter
295 Closter Dock Road
Closter, New Jersey 07624

Project Goal:

The Preservation Plan should briefly document the history of the Lustron House. This history is well established, as are, the existing conditions of the house, so as to guide future repairs and work on the mechanicals as well as the interior and exterior of the house and garage. Additionally, recommendations should be given regarding specific concerns, including treatment of the breezeway, repair or replacement of the garage door, replacement of modern fixtures with period-specific models, possible removal of modern linoleum covering original tiles, and removal of paint from enameled steel surfaces. Additionally, a plan for ADA accessibility is desired, as this space is anticipated to be used for public events. All recommendations should be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties. The Preservation Plan will serve as a guide and planning tool for the property's long-term preservation and use. While the history of the Lustron House has been documented in various sources and existing conditions were mapped out by an architect on the Closter Historic Preservation Commission in 2015, a Preservation Plan has never yet been compiled for this property.

Scope of Services:

The Preservation Plan should follow the guidelines for preparing such a plan as detailed in the New Jersey State Historic Preservation Office's publication "Historic Structure Reports and Preservation Plans: A Preparation Guide," that is available on their website. (http://www.nj.gov/dep/hpo/4sustain/preparehsr.pdf)

The consultant will provide services associated with the preparation of a Preservation Plan. In addition to the specifics listed in the Project Goal, the consultant will do a code review, structural overview, evaluation of the mechanical, electrical, plumbing and fire protection systems and prepare a cost estimate with a list of prioritized recommendations. Services excluded from the Preservation Plan will be investigation, identification and/or mitigation of hazardous materials, civil or geotechnical engineering services, materials conservation services, diagrammatic drawings, and destructive testing or probes. These items may be recommended for future work on an as-needed basis. All work will be conducted by a single, professional cultural resource management or architectural consulting firm that will meet or exceed the minimum professional qualification standards for Architectural Historian and/or Historic Architect, as defined by the NPS in the Code of Federal Regulations, 36 CFR Part 61. The consultant will develop their approach; work plan and project schedule in coordination with the Borough of Closter's specified agent(s) and will attend meetings with key personnel for ongoing project management, coordination and oversight. Public meetings and/or presentations are not required. If additional professional services are necessary, such as engineering, the primary contractor will provide for these under subcontract.

The report should consist of a minimum of 20 pages of text, including maps, photos and drawings. The complete fee for the plan shall not exceed $24,999.00.

As time is of the essence, the consultant must submit a draft report no later than 2 months after the beginning of the contract. The final report must be submitted to the Borough of Closter in digital as well as hard copy no later than Tuesday, August 15, 2017. The digital copy must be submitted on a CD-ROM or flash drive as a Microsoft Word document (.docx) as well as in .pdf format. Photographs shall be submitted as .jpg files separate from the report.

The State Historic Preservation Office (SHPO) shall receive 2 hard copies and one digital copy of the products, due to the SHPO by September 15, 2017 A third copy will be submitted to the Closter Historic Preservation Commission.

Proposals must include the following:

a. Detailed statement of the firms' qualifications and experience with projects of this type.

b. Specific names, resumes, and responsibilities of individuals to be assigned to the project and their specific involvement.

c. Proposed Scope of Work/contract on company letterhead to include all costs of compiling necessary information and data to prepare a Preservation Plan as described above for the Harold Hess Lustron House.

d. All proposals must identify any sub-consultants and the responsibility for completion of work and coordination between disciplines should be detailed.

e. A proposed time schedule for completion of the total project.

For any questions or additional information, please contact Mr. Arthur Braun Dolson, Borough Administrator, Borough of Closter, 295 Closter Dock Road, Closter, NJ 07624; email adolson@closternj.us; or phone 201-784-0600 x 304 Monday through Friday, from 9:00 a.m. to 4:00 p.m.

Appendix D

National Register of Historic Places Registration Form

NPS Form 10-900
(Oct. 1990)

OMB No. 10024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name HAROLD HESS HOUSE

other names/site number _____

2. Location

street & number 421 DURIE AVENUE ☐ not for publication

city or town CLOSTER ☐ vicinity

state NEW JERSEY code NJ county BERGEN code _____ zip code 07624

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. I recommend that this property be considered significant ☐ nationally ☐ statewide ☐ locally. (☐ See continuation sheet for additional comments.)

_____
Signature of certifying official/Title Date

_____
State of Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. (☐ See continuation sheet for additional comments.)

_____
Signature of certifying official/Title Date

_____
State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is: Signature of the Keeper Date of Action

☐ entered in the National Register.
☐ See continuation sheet.

☐ determined eligible for the National Register
☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:) _____

Name of Property

BERGEN CO., NEW JERSEY
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply)

- ☒ private
- ☐ public-local
- ☐ public-State
- ☐ public-Federal

Category of Property
(Check only one box)

- ☒ building(s)
- ☐ district
- ☐ site
- ☐ structure
- ☐ object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
2	1	buildings
		sites
		structures
		objects
2	1	Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing.)

Lustrons in New Jersey

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Domestic
Single Family

Current Functions
(Enter categories from instructions)

Domestic--Single Family

7. Description

Architectural Classification
(Enter categories from instructions)

OTHER: Lustron Westchester

Materials
(Enter categories from instructions)

foundation Concrete
walls Enameled steel
roof Enameled steel
other

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

HESS HOUSE
Name of Property

Bergen Co., New Jersey
County and State

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [X] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [X] G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance
(Enter categories from instructions)

Industry
Architecture

Period of Significance

1946-50

Significant Dates

1950

Significant Person
(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Architects: Roy Blass & Morris Beckman
Builders: Better Living Homes Co.

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- [ ] preliminary determination of individual listing (36 CFR 67) has been requested
- [ ] previously listed in the National Register
- [ ] previously determined eligible by the National Register
- [ ] designated a National Historic Landmark
- [ ] recorded by Historic American Buildings Survey # _____
- [ ] recorded by Historic American Engineering Record # _____

Primary location of additional data:

- [X] State Historic Preservation Office
- [ ] Other State agency
- [ ] Federal agency
- [X] Local government
- [ ] University
- [ ] Other

Name of repository: Closter Hist. Pres. Comm.
Closter, New Jersey

HESS HOUSE
Name of Property

Bergen Co., New Jersey
County and State

10. Geographical Data

Acreage of Property .6710

UTM References
(Place additional UTM references on a continuation sheet.)

1 Zone Easting Northing
2

3 Zone Easting Northing
4

☐ See continuation sheet

Verbal Boundary Description
(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification
(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Patricia Garbe Morillo, Chairman

organization Closter Historic Preservation Commissi date January 2000

street & number CLoster Borough Hall or 68 Taylor Drive telephone 201-767-7974

city or town Closter state NJ zip code 07624

Additional Documentation
Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items
(Check with the SHPO or FPO for any additional items)

Property Owner
(Complete this item at the request of SHPO or FPO.)

name Harold Hess

street & number 421 Durie Avenue telephone

city or town Closter state NJ zip code 07624

Harold Hess House
421 Durie Ave., Closter,
Bergen County, New Jersey

Description

The Harold Hess House was built in 1950 and is located at 421 Durie Avenue, Closter, Bergen County, New Jersey. It is an example of the two-bedroom Westchester Deluxe model with attached breezeway connecting to a one car garage. The house which measures 1,085 square feet, 31' x 35', is constructed entirely of prefabricated porcelain enameled steel. The structural steel panels rest on a concrete slab foundation. The rectangular yellow enameled steel house with dark gray tile roof was one of 2,498 manufactured and sold in the United States by the Lustron Corporation between 1948 and 1950. The house is located in a suburban residential neighborhood and the property retains a high degree of historic integrity and is in excellent condition.

The Westchester Deluxe model was the most popular of all Lustrons manufactured and this is a good example of the most common two-bedroom type. The two-bedroom Westchester is distinguishable from all other Lustrons by the 6' x 12' cutout located on the gable front. The main entrance to the house is located under the cutout. The interior of the two-bedroom Westchester was originally constructed with built-in kitchen cabinets with a pass-through to the china cabinet in the dining room. Other features of the deluxe model were the built-in bookcase and cabinets in the living room, combination dishwasher-clothes washer in the kitchen, automatic water heater, built-in vanity and storage cabinets in the master bedroom, seven large closets and a radiant panel heating system. Most bathrooms in the Westchester and especially the three bedroom Westchester Deluxe model were outfitted with all essential elements for storage like a built-in (antennae like) projection for a washcloth in the shower, swiveling tooth-brush holder, and built-in tissue holder. All that was needed from the owner was a refrigerator, stove and furniture.

The interior doors are enameled steel, sliding pocket doors, which continues the streamline appearance and decreases the need for the space a swing door requires. The original floor covering was resilient asphalt tiles and these have been replaced in the Hess house by linoleum and a new asphalt tile floor in the kitchen. Because of the durability of the enameled steel, the majority of the original features have been retained in the Hess House. The most significant alteration has been the application of yellow paint to the exterior panels and a light coat of black spray paint to the roof tiles. However, just as the porcelain-enameled panels were intended to shed dirt they are now causing the paint to peel. Almost all the applied paint will soon disappear with no harm to the enamel coated original panels. All of the original gutters and down spouts have been replaced.

The house is a one-story, side gabled, ranch type erected on a concrete slab. The exterior of the house contains very little ornamentation. However, the exterior porcelain-enameled yellow steel panels, which measure 2' x 2', the brown enamel tile roof, enameled steel chimney panels, living room bay window and decorative spiral porch-roof support in the cutout, give this house its distinct appearance. Gable ends have 1' wide panels placed vertically. All windows have their original aluminum sashes and have been retained. They are operated by small crank windows. All enamel window surrounds and curved lintels are extant. There are two original gray doors with glass inserts, and original locks. The original entrance porch lamp also remains.

The present front facade faces southwest and features a picture window in the dining room and the inset entrance cutout. This door which was traditionally the main entrance to the living room is not used and the

primary entrance is through the intended rear door through the breezeway and utility area on the northwest side of the house. Generally Lustron site suggestion plans show what is the southeast side in the Hess facade as the main side facing the street. This side features two picture windows. The main picture window for the living room is the bay window which was one of the upgraded features of the "deluxe" package. The other picture window is located in the master bedroom. The rear north side has 2 smaller windows, one in each bedroom.

The side or northwest (traditional rear) facade features one window in the second bedroom and two, smaller, symmetrically-placed aluminum windows for the bathroom and kitchen, flanking the door. This side has the breezeway attachment to the garage and this is used as the primary entrance. The breezeway has been enclosed with brick, wood and has aluminum storm windows. The one car garage measures 15 by 21 feet, and unlike the Lustron house design, it is traditionally framed using balloon construction. The matching yellow 2' x 2' steel panels and dark gray roof tiles were attached to this construction.

The interior of the house features a living room/dining room area, a kitchen, a utility room, a bathroom, two bedrooms, and closet space. The interior is also covered with porcelain enameled steel panels measuring 2' x 8'. The panels are vertically scored to give a paneled appearance. The kitchen and bathroom panels are yellow and all other wall panels are a light gray. Ceiling panels throughout measure 4' x 4' and are white. Panels in the kitchen, utility room, and bathroom are yellow and measure two-feet square. All cabinets in the kitchen, bedroom and bathroom are light gray.

Design features include built-in wall furniture and closet space with sliding doors. Between the dining area and kitchen is a buffet with shelves and drawers on one side and kitchen cabinets with shelves and drawers on the other side. The built-in steel unit between the living room and front (master) bedroom contains a mirrored bookcase on one side and a mirrored vanity and counter top with drawers and doors for closet space on the other side. Exterior and interior wall corners are rounded and contribute to the clean, streamlined look of the Lustron home.

The two bedrooms and bathroom have their original steel porcelain-enameled flush gray pocket doors which slide and roll on overhead tracks. All closet and storage doors are of the bypass sliding type. All doors and cabinet hardware throughout the house is original. The bathroom retains the original stamped steel bathtub measuring 5 ' ½", built-in three drawer counter, mirror and light fixtures, soap dish and other fixtures. The sink and vanity has been replaced and shower doors installed. All of the kitchen cabinets and hardware are original. Only the "Phor" brand dishwasher-clothes washer was removed. The kitchen sink which was attached to this machine was likewise removed. The original gas Tappan range from 1950 still functions.

In the utility room the original Lustron hooks for drying laundry are still in place. The most often changed item in a Lustron house is the heating system and it has been replaced in the Hess House with a gas burner which connects to the old radiant heating system. The original system consisted of a small generator and furnace supplying radiant heat through duct work contained in the attic space located directly above the ceiling panels

and through a plenum chamber radiates the heat into the interior of the house after heating the ceiling panels. The wall identification tag or builder's plate (similar to auto serial number plates) is extant but presently obscured behind new cabinets attached to the utility room wall above the washer and dryer units.

The Hess house is sited diagonally on a corner lot with main facade facing the intersection of Legion Place and Durie Avenue. The main facade is in line with the breezeway and garage. This was not in accordance with the recommendations published in the Lustron "New Standard for Living," planning guide which covered site plans for placement of the houses. The side facing Durie Avenue with projecting bay window was the standard front of the Lustron. Also because the rear of the house is now the side the breezeway and garage are also on the side. The standard planning guide always recommended placing the garage at the rear of the house.

An aluminum storage shed is located on the north side of the property line at the rear of the house and is painted yellow. The lot size is two thirds an acre and the property is very threatened as a subdividable lot. The Hess House is located in close proximity to the Closter Historic District, a pre-automobile late nineteenth and early twentieth century railroad suburb of New York City. Several suburban houses nearby are of like circa 1950 date.

Harold Hess House
421 Durie Ave., Closter
Bergen Co., New Jersey

Significance

The Harold Hess House is an excellent example of the Westchester Deluxe model which was manufactured by the Lustron Corporation and built in 1950. It is significant under criteria A as a representation of the mass production of post-World War II housing. It is also significant under criterion C as an example of a new construction method for residential housing with its entirely enameled steel frame and body as well as its modern design and "ranch-type"open layout. In its day the Lustron house was touted as the most technologically advanced answer to the housing shortage after World War II. It was an innovation born of necessity to meet specific needs such as low cost, quick production, and the use of available post-war materials.

At the close of World War II, the United States faced the most severe housing shortage in its history. The government tried to ease the situation by continuing price controls, offering low interest housing loans and encouraging the development of moderate priced housing. Government statistics estimated that over three million new housing units would be needed at the end of the war, with an additional twelve million needed within a ten year period. In January 1946 the Veterans' Emergency Housing Program was established to deal with these problems. The Veteran's Emergency Housing Act was enacted to set up a program to quickly increase housing units by utilizing surplus war plants. In an effort to build as much as possible and as fast as possible, Congress voted to fund research into prefabricated housing and firms specializing in prefabricated houses were rewarded with access to natural resources and rationed steel-making materials.

The Lustron Corporation (a subsidiary of the Chicago Vitreous Co.) was formed by Carl Strandlund, an engineer who received a patent for his steel panel design. Strandlund, went to Washington, D.C. to request steel to produce all-steel gas stations for the Standard Oil Company, and his plan was rejected on the basis that materials were needed for housing units and not gas stations. Three months later Strandlund returned with plans for an all-steel house designed by Illinois architects Roy Blass and Morris Beckman. Based on an estimate that one hundred houses could be produced in nine months at a retail price of $7,000, the Reconstruction Finance Corporation committed the first $12.5 million dollar loan to production. The first Lustron factory was located in a Curtis-Wright factory near Columbus, Ohio, and later moved to the Tucker Automobile plant which was also in Columbus. In order to make manufacturing more time and cost efficient Strandlund based production on the automobile assembly line.

The Lustron Corporation operated from 1946 to 1950 before government loans were recalled and their business came to a halt. Unfortunately by the time Lustron got production fully underway the housing crisis had subsided. There were major outside obstacles such as pressure from the building trades, local zoning laws, and the novelty of living in a steel house which led to the failure of the company. Despite the major technological production advances and new standard design ideas, the company folded after only producing less than 2,500 by 1950.

The production of the Lustron house is significant in that it contributes to the broad patterns of the suburban housing development in 20th century American history and especially for its association with the post World War II prefabrication efforts of government, industry and technological innovations to comply with these

needs. The major design element of all these houses was that all parts were made of steel. That included studs, trusses, wall frame assemblies, exterior walls, roof shingle panels, rain gutters, window and door frame panels. All interior wall and ceiling panels were coated in porcelain enamel, as were cabinets and every other surface throughout the house. The only different item was the concrete slab floor which was originally covered in asphalt tiles.

The original prototype Luston house, known as the "Esquire," designed by Blass and Beckman was never used in the construction of houses. The modified version became the two bedroom "Westchester" and this model comprised over 90% of the Lustron houses ever manufactured. The Westchester Deluxe was the only model to incorporate all the built-in amenities and was produced in 1949-1950. Breezeway and garage attachments were also made available during this time period, however, only a minimal number were ever produced.

According to Lustron Corporation sales records only sixteen houses were sold in New Jersey and all of these were probably the Westchester Deluxe models. Only 11of these have been identified to date in the State and three are known from Bergen County. In 1998 the Lustron at 22 Division Street in Closter was demolished and only the Hess House at 421 Durie Avenue in Closter and the Hiorth House located at 19 Dubois Avenue in Alpine, Bergen County, remain. Both of the Bergen County Lustrons were purchased from the North Jersey Better Living Homes Company in Maplewood. This Lustron franchise was owned by Arthur Padula, a Newark builder, and it was the first and most important dealership in New Jersey.

The Harold Hess House retains almost all of its original historic fabric and it is an excellent example of the Westchester Deluxe model. Features such as the front bay window, easy-care enameled steel panels, space-saving shelves/bedroom vanity are some of the many architectural features used to create a comfortable, space-saving and modern home.

In 1949, Mr. Harold Hess, a returning World War II veteran and recently married, saw the Palisades Amusement Park model of the Lustron. In 1950 he purchased the "Westchester Deluxe" model with attached breezeway and one-car garage from Art Padula, owner of the Better Living Homes Lustron franchise in Maplewood, New Jersey. Originally he wanted the three bedroom, two-car garage models but felt fortunate to receive what he got, since the company was already headed into bankruptcy.

Mr. Hess, with Lustron engineer Jim Mortimer, faced 6 months of endless planning and zoning board meetings in Fort Lee. They failed to obtain a permit and Hess turned to the northern sections of Bergen County which were less developed and relaxed building codes provided opportunities to build the novel construction of the all-metal, prefabricated house. Hess never lost faith and is still the proud owner in the year 2000. Having raised his family here he remains quite pleased with the house. Only noting that there were some adjustments, such as finding people with enough problem solving creativity to make repairs to a steel house. Other minor matters such as hanging family portraits with industrial magnets and interior spring cleaning with automobile wax were more easily solved.

Lustrons in New Jersey (Partial Listing)

	Model	Color
Alpine		
19 DuBois Ave.	02	Yellow
Clinton		
25 Union Rd.		Tan
Cliffside Park		
(Palisades Amusement Park)	02	Yellow
Closter		
22 Division St. (demolished)	02	Yellow
421 Durie Ave.	02	Yellow
Lake Hapacong (?) (2)		Blue
Maplewood (?)		
Newark (Bamberger's Store)	(Model)	
Red Bank (?)		
Roselle (?) (2)		Yellow
Seabright		
1256 Ocean Ave. (Model)	02	
Wildwood		
1907 Atlantic Avenue	02	
419 14th St.	02	Blue
Woodbury		
246 Queen St.	02	

Hess House
Bergen Co., New Jersey

Lustron houses are significant under Criteria "A" because of their association with broad trends in United States architectural development. The origin of the Lustron Corporation and houses were the direct result of the housing shortage after World War II. Although the Lustron Corporation was not as successful as other companies, such as Levitt & Sons in Long Island and Pennsylvania, it played a major role in the development of post-war housing. In Bergen County their appearance parallels the explosion of development in suburban communities and settlement of former rural areas following the general use of the automobile.

Lustron houses are also significant under Criteria "C." The Lustron home was an innovation in housing design that was developed to meet specific needs; low cost, quick production, and the employment of available post-war materials. The most important thing was the application of porcelain steel enamel to the construction of the housing industry. Other novel design features were the open-space ranch design, combined with built-in cabinets and sliding pocket doors, that made more space available in a smaller and less expensive house.

Short lived and recently qualifying for the fifty year age criteria, all the Lustron's in New Jersey and the United States are still eligible under Criteria Consideration "G," because they have exceptional importance as a contributing component in United States postwar housing history.

Section 9--Bibliography

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Bergen Co., New Jersey

Raflo, Lisa. National Register Nomination: Lustron Houses in Georgia, Georgia Department of Natural Resources, Historic Preservation Division, 1995.

Saxman-Rogers, Michelle C. National Register Nomination: Lustron Houses in South Dakota. South Dakota State Historic Preservation Office, 1997.

Wolfe, Tom and Leonard Garfield. "A New Standard for Living: The Lustron House, 1946-1950." Vernacular Architecture, Vol. 3, 1989, pp. 51-61.

Oral Interview and site inspection with Harold Hess: Lustron owner, 421 Durie Avenue, Closter, New Jersey.

Telephone interviews with John Winkler and Robert Boylan, former Palisades Amusement Park employees, Fort Lee, December 1999.

Section 10--Verbal Boundary Description:

The Harold Hess House is located on Block 1003 of Lot 21 in the Borough of Closter.

Boundary Justification:

The Hess Houses resides on the lot which has been historically associated with the building and originally purchased for the Lustron.

Additional Documentation

Floor Plan: Lustron Westchester Deluxe Model

USGS Map: Yonkers Quadrangle

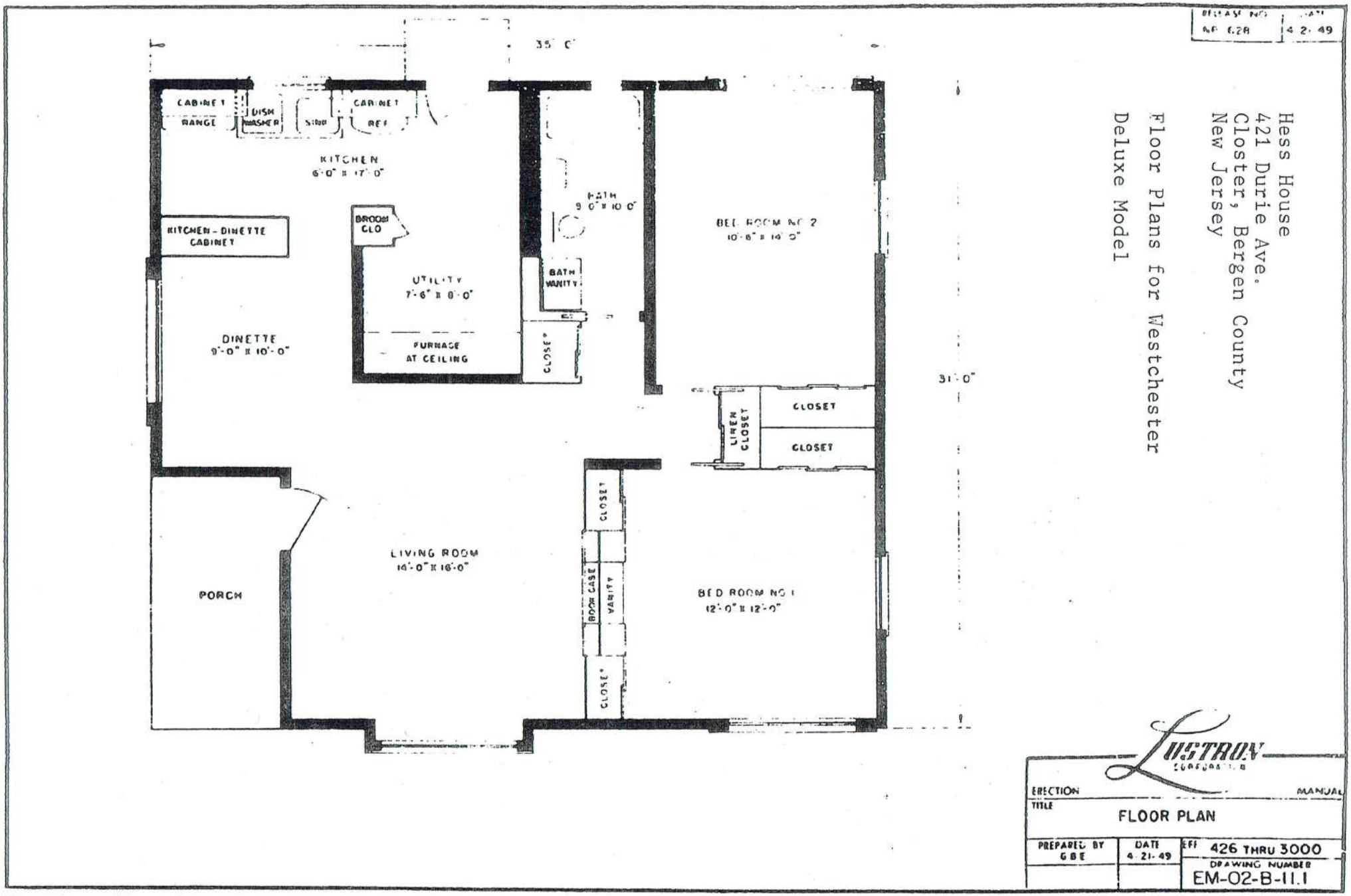
Hess House
Bergen County, New Jersey

Photographs

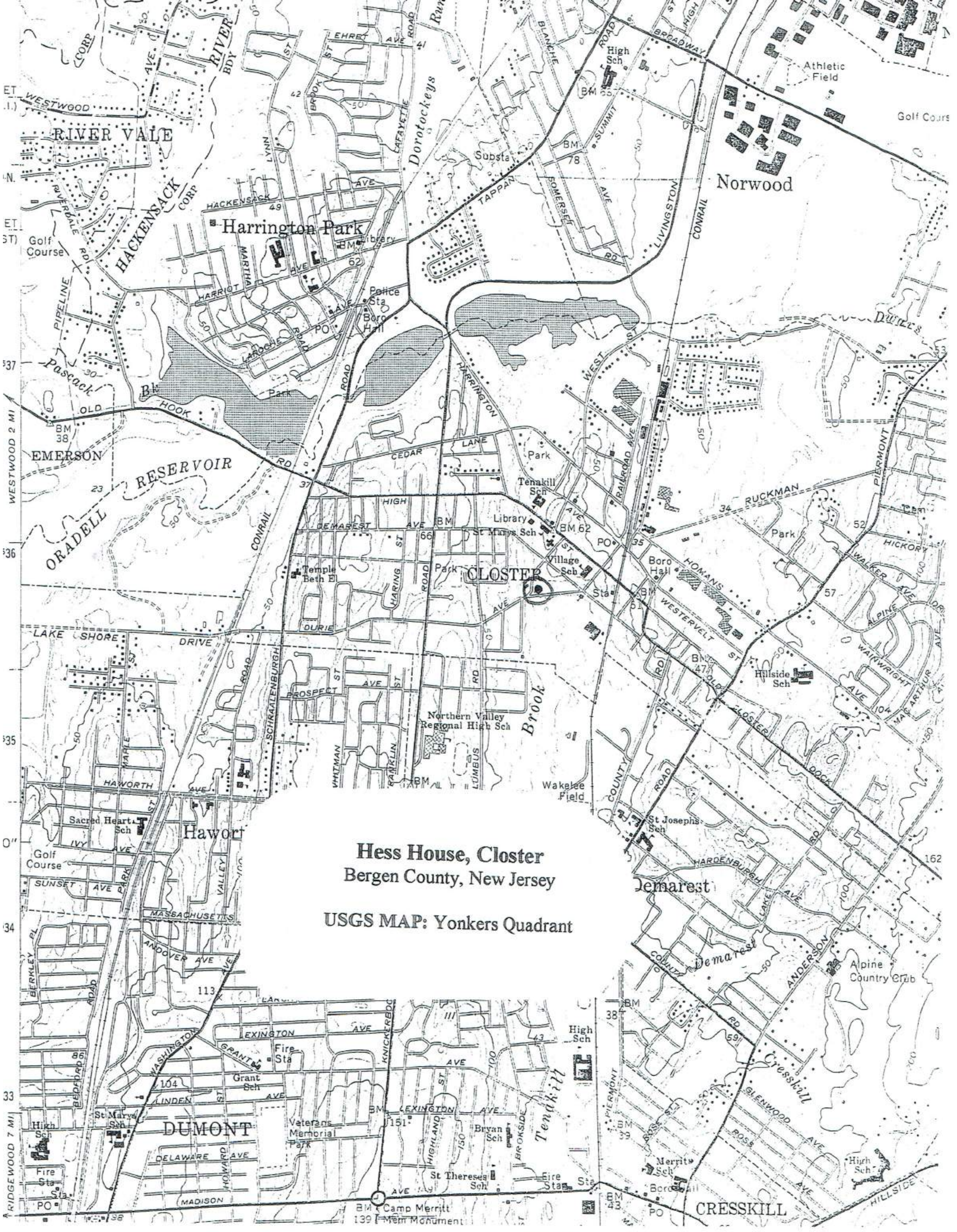
The following information is the same for all photos submitted with the application:
1. Name of property–Harold Hess Lustorn House, 421 Durie Avenue, Closter
2. County and state where located–Bergen County, New Jersey
3. Name of photographer–Uma Reddy
4. Date of photographs–12/99
5. Location of photo negs.–Uma Gallery, 20 West 57 St., NY, NY 10019

Description of each photo:

1. Front, southwest side elevation, camera facing northeast.
2. Front elevation with garage, camera facing east.
3. Southeast elevation, camera facing north.
4. Rear elevation, camera facing southwest.
5. Kitchen, camera.facing south.
6. Dinette, and room divider with kitchen, camera facing west.
7. Living room, built-in mirrored book shelves, camera facing northeast.
8. Hall way, camera facing north.
9. Master bedroom, mirrored vanity, camera facing south.
10. Master bedroom, camera facing north.
11. Second bedroom, camera facing northwest.
12. Bathroom, camera facing west.

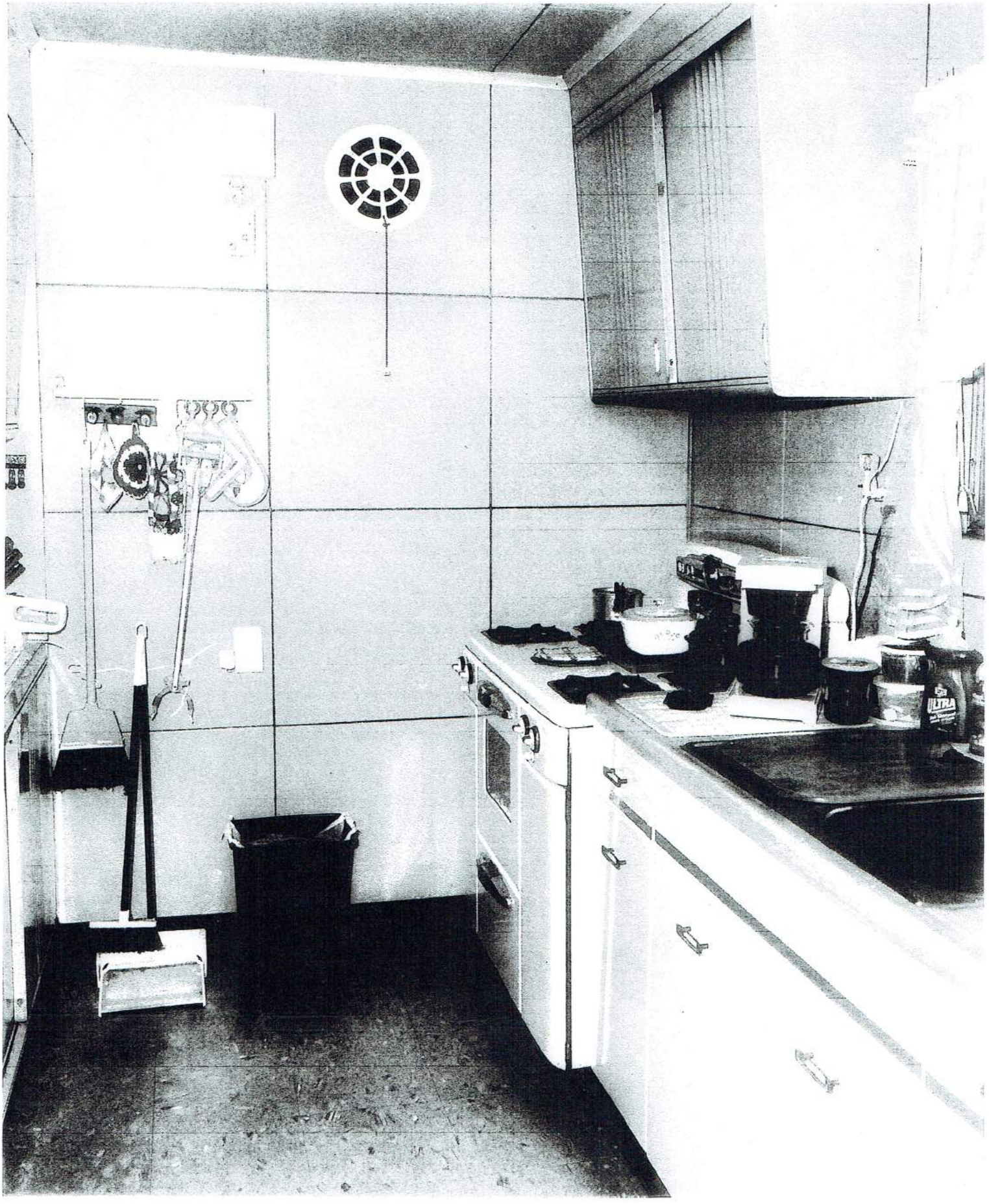


Though small by today's standards, the Lustron homes were promoted as well-planned and efficient. This two-bedroom Lustron home provided approximately 1,000 square feet of living area. (Photo courtesy Robert A. Mitchell, AIA, State Historical Society of North Dakota)



Hess House, Closter
Bergen County, New Jersey

USGS MAP: Yonkers Quadrant


ULTRA

Appendix E

Lustron Corp. Architectural Plans –

Model 02 Home

LUSTRON

CORPORATION

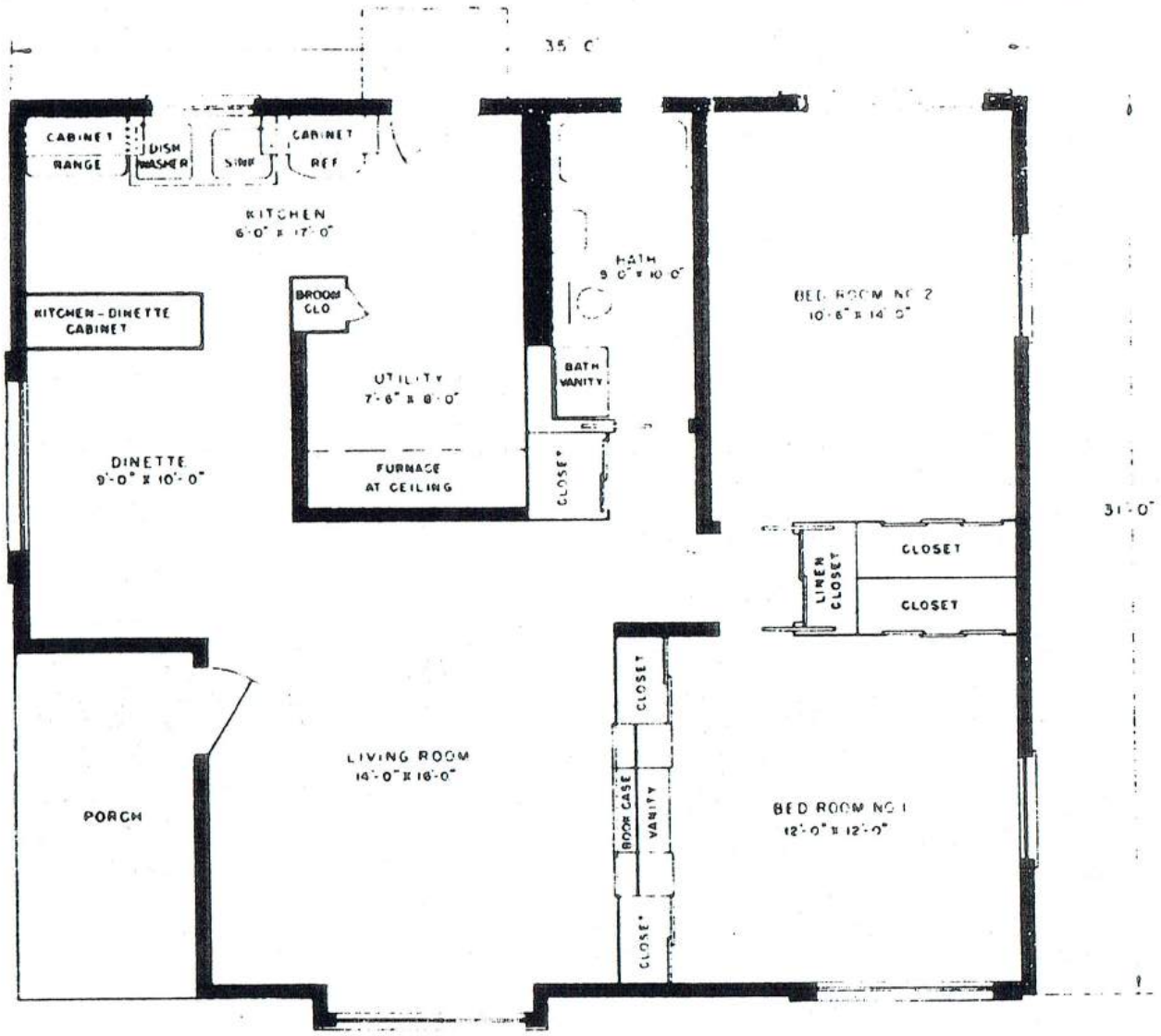
COLUMBUS,
OHIO

ARCHITECTURAL PLANS

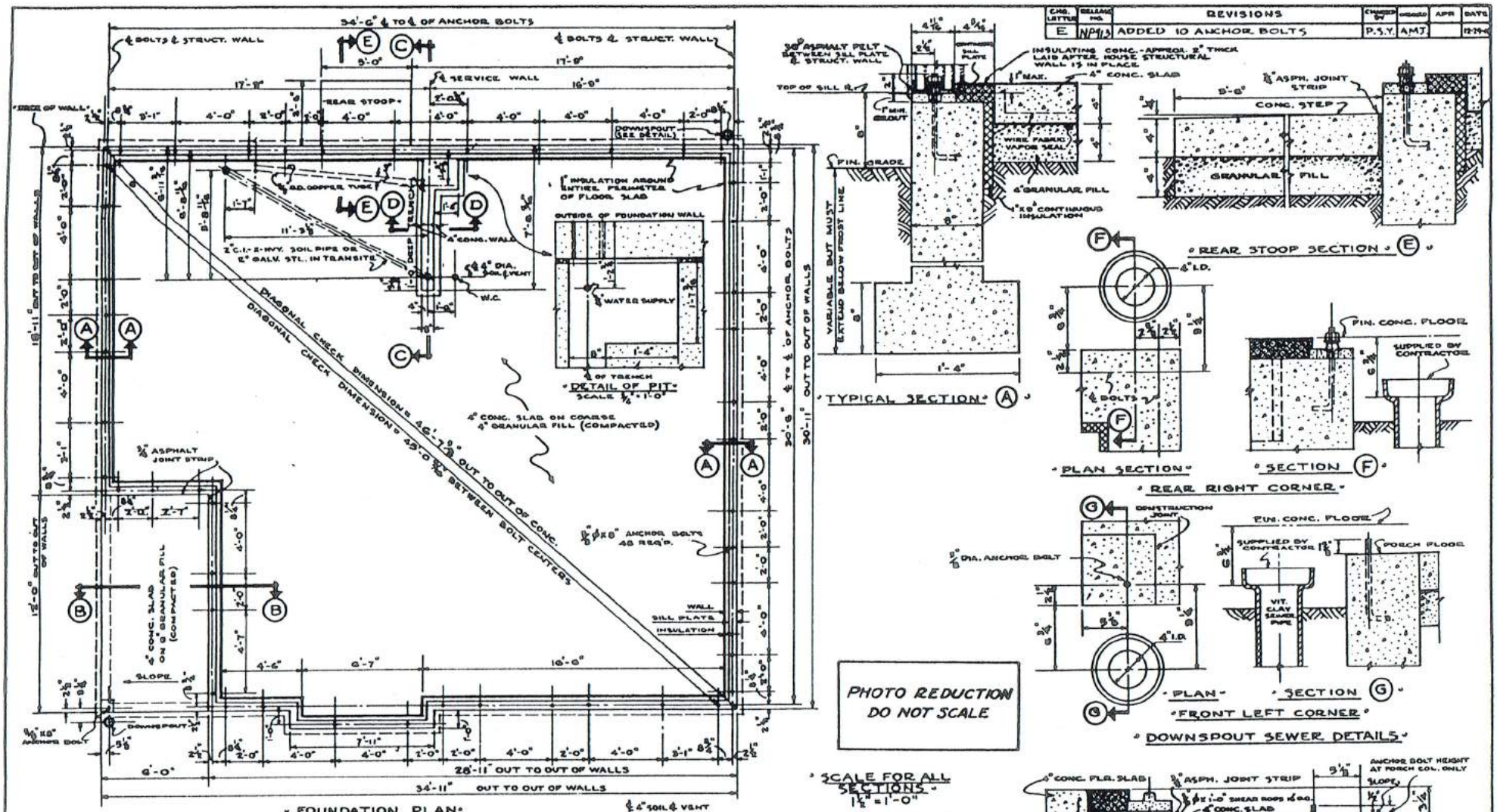
MODEL 02 HOME

DATE OF ISSUE

_____



Though small by today's standards, the Lustron homes were promoted as well-planned and efficient. This two-bedroom Lustron home provided approximately 1,000 square feet of living area. (Photo courtesy Robert A. Mitchell, AIA, State Historical Society of North Dakota)



FOUNDATION PLAN
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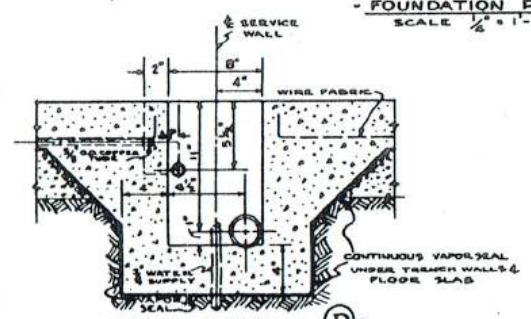
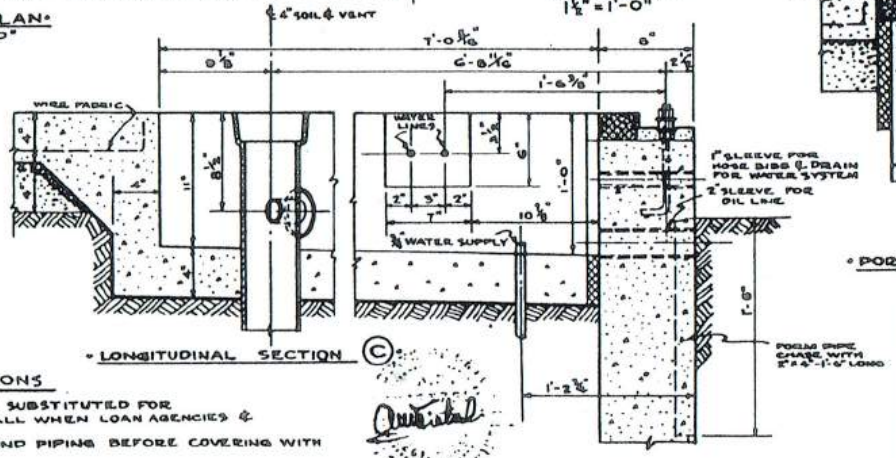


CROSS SECTION (D)



LONGITUDINAL SECTION (C)

SERVICE WALL SECTIONS

NOTES: 1. CONC. OR CINDER BLOCK MAY BE SUBSTITUTED FOR INDICATED CONC. FOUNDATION WALL WHEN LOAN AGENCIES & LOCAL BUILDING CODES PERMIT.
2. PRESSURE TEST ALL UNDERGROUND PIPING BEFORE COVERING WITH EARTH OR CONCRETE.

TYPICAL SECTION (A)

REAR STOOP SECTION (E)

PLAN SECTION (F)

SECTION (F)

REAR RIGHT CORNER

PLAN

SECTION (G)

FRONT LEFT CORNER

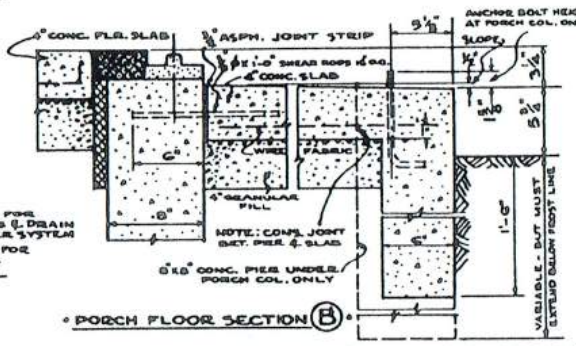
DOWNSPOUT SEWER DETAILS

PHOTO REDUCTION
DO NOT SCALE

DETAIL OF PIT
SCALE ½" = 1'-0"

4" CONC. SLAB ON COARSE 4" GRANULAR FILL (COMPACTED)

SCALE FOR ALL SECTIONS
1½" = 1'-0"



PORCH FLOOR SECTION (B)

NOTE: THIS DWG. SUPERSEDES AP2 DWGS. A-1; A-2; A-3; A-100-1

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO

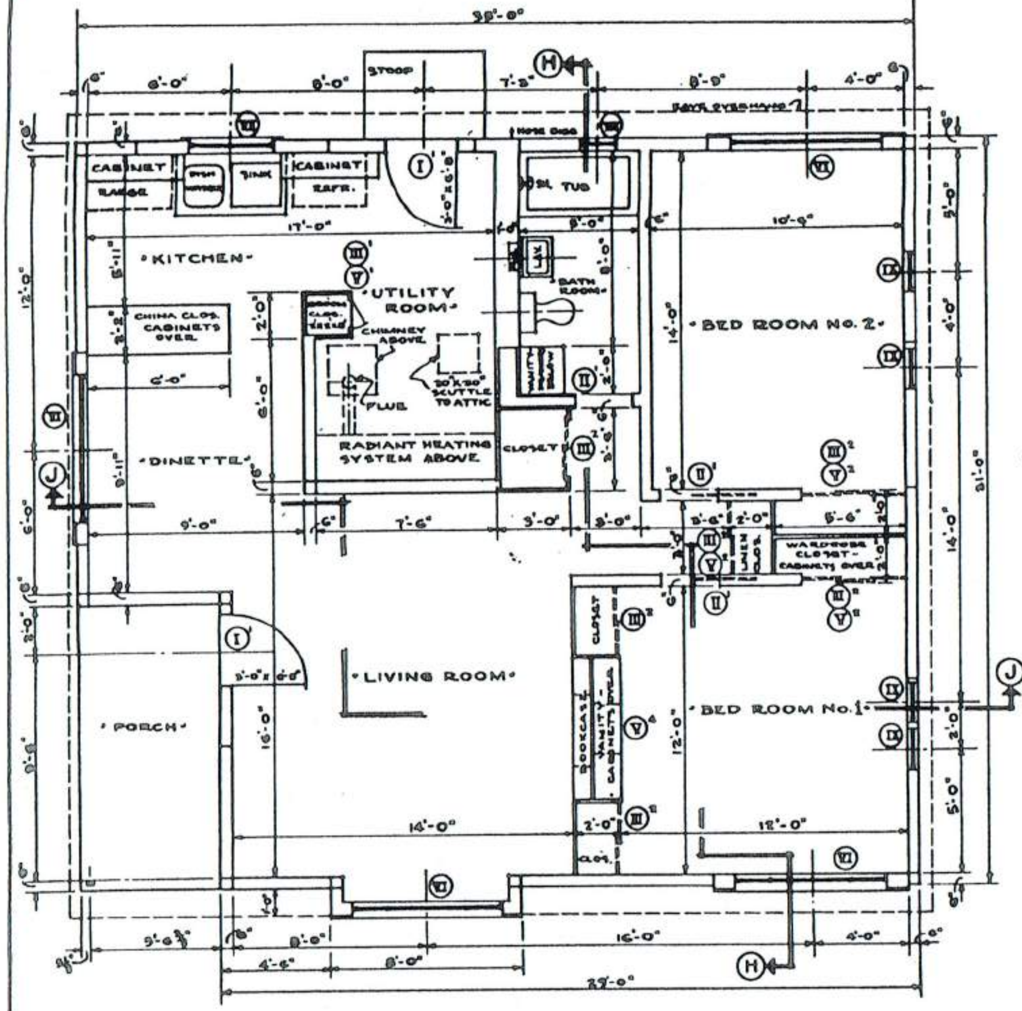
DR: P.S.Y.	8-5-48
CH'D: A.M.T.	8-6-48
APP: A.M.T.	8-6-48
SCALE AS NOTED	
REVISED	12-29-48

FOUNDATION - PLAN & DETAILS

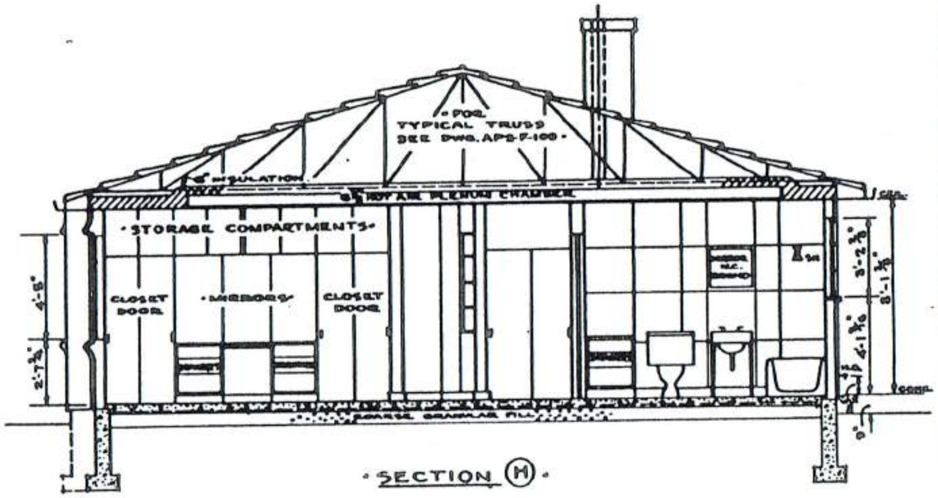
AP2-A-100-2 (DRAWING NUMBER) E (REV.)

CHG. LETTER	BELLANCA NO.	REVISIONS	CHANGED BY	CHECKED	APPR	DATE
E	NP413	ADDED 10 ANCHOR BOLTS	P.S.Y.	A.M.T.		12-29-48

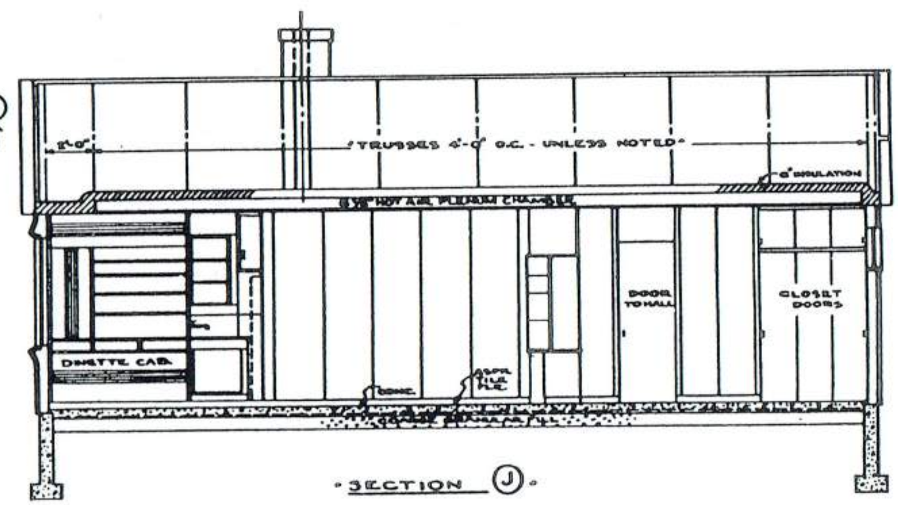
CHG. LETTER	CHANGE NO.	REVISIONS	CHANGED BY	CHECKED	APR	DATE
R	[illegible]	CHANGED POSITION [illegible]	T. Y.	ANT		1-7-49



· FLOOR PLAN ·



· SECTION (H) ·



· SECTION (J) ·

NOTE: ALL INTERIOR WALLS ARE NON-BEARING.

· DOOR AND WINDOW SCHEDULE ·

DESIGNATION ON PLAN	QUANTITY	SIZE	DESCRIPTION
I*	2	3'-0" x 6'-8"	FRONT & REAR DOORS
II	3	2'-8" x 6'-8"	INTERIOR COMMUN. DOORS
III	13	1'-6" x 6'-0"	CLOSET DOORS
V	11	1'-6" x 1'-10"	CLOSET DOORS
VI	4	6'-5" x 4'-5"	LARGE WINDOWS
VII	1	3'-8" x 2'-11"	KITCHEN WINDOWS
VIII	1	1'-6 7/8" x 3'-1 5/8"	BATHROOM WINDOW
IX	4	1'-6 7/8" x 1'-6 7/8"	PORTHOLE WINDOWS

FOR DETAILS SEE APZ-D-100&H-102

* SMALL NO. OUTSIDE CIRCLE DENOTES QUANTITY AT ANY PARTICULAR LOCATION.

PHOTO REDUCTION DO NOT SCALE

NOTE: SUPERSEDES DWG. AP2-B-1 & PART OF APS-A-100

LUSTRON CORPORATION

4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR: R.S.V.	6-14-48
CH'D: M.J.R.	7-29-48
APP.: J.K.D.	8-12-48
SCALE: 1/4" = 1'-0"	
REVISED	1-7-49

FLOOR PLAN & SECTIONS

AP2-B-100 — DRAWING NUMBER

B — REV.

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY			DATE
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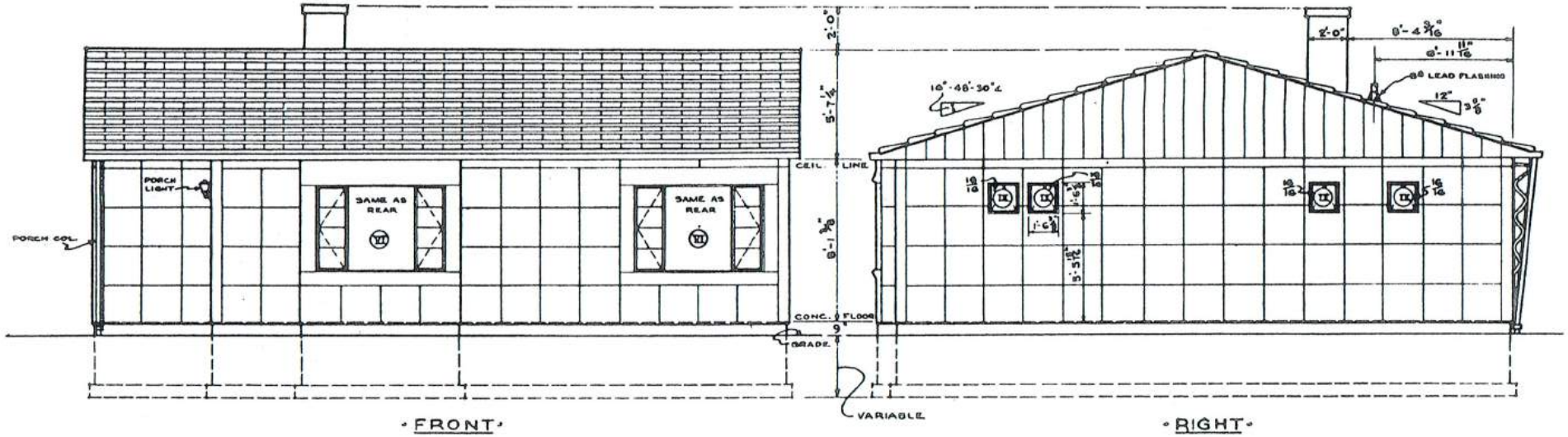
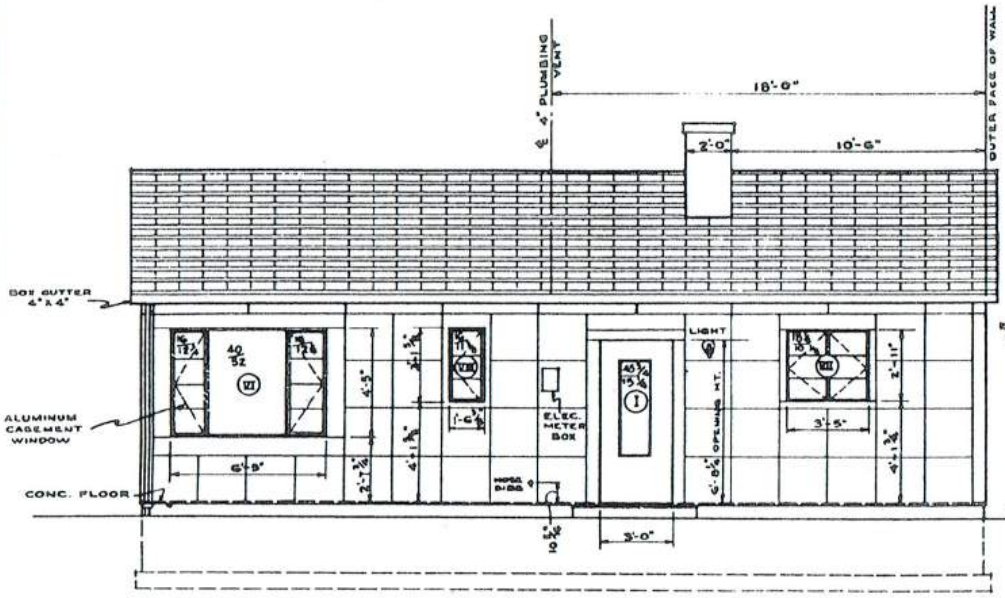


"FRONT"

"RIGHT"



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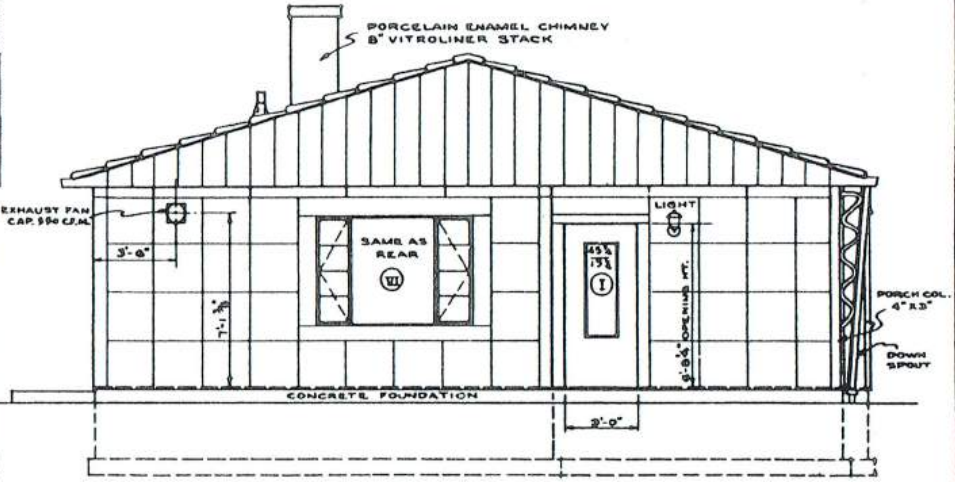

"LEFT"

PHOTO REDUCTION
DO NOT SCALE

NOTE: SUPERSEDES AP2 DWGS. C-1, C-2, C-3 & C-4.

NOTES: 1- ROMAN NUMERALS REFER TO PLAN LOCATIONS (AP2-B-100) AND DOORS & WINDOW DETAILS (AP2-H-102).

2- EXTERIOR & INTERIOR WALL PANELS, CEILING PANELS, ROOF PANELS, GUTTER, DOWNSPOUT, PORCH COLUMN, GABLE ENDS AND CHIMNEY ARE PORCELAIN ENAMEL ON STEEL

3- EXTRUDED POLYVINYL CHLORIDE SEALS IN ALL JOINTS BETWEEN PORCELAIN ENAMEL PANELS - EXTERIOR & INTERIOR

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 13, OHIO

DR: A.M.T.	9-20-48
CHD: J.K.D.	9-24-48
APP: [illegible]	9-24-48
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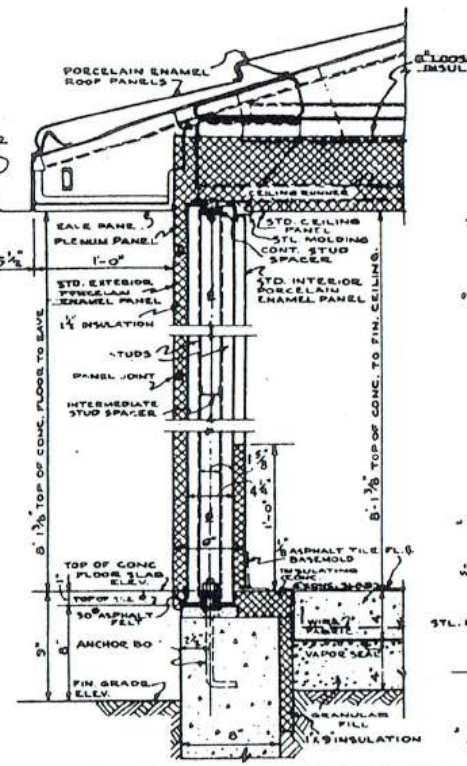
REVISED	12-8-48

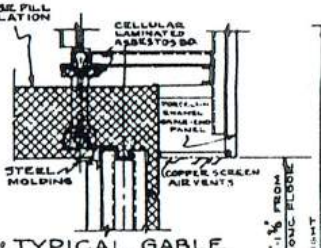
ELEVATIONS EXTERIOR.

AP2-C-100 (DRAWING NUMBER) A (REV.)

4



TYPICAL EXTERIOR WALL SECT.
SCALE 1½" = 1'-0"



TYPICAL GABLE END SECTION
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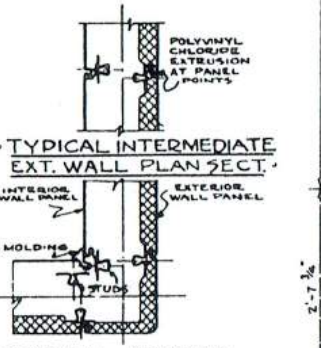

TYPICAL INTERMEDIATE EXT. WALL PLAN SECT.

TYPICAL CORNER EXT. WALL PLAN SECT.
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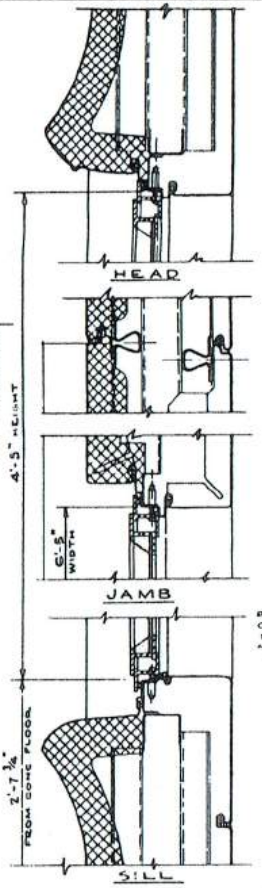

TYPICAL WINDOW SECT.
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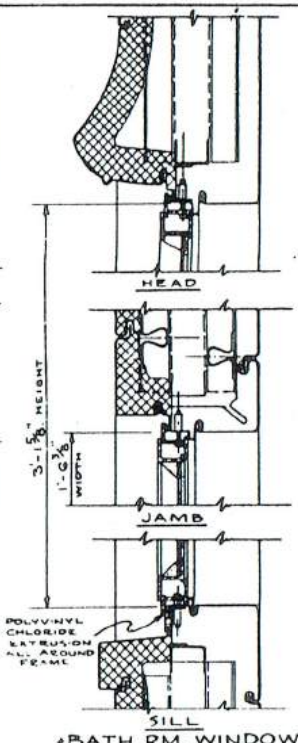
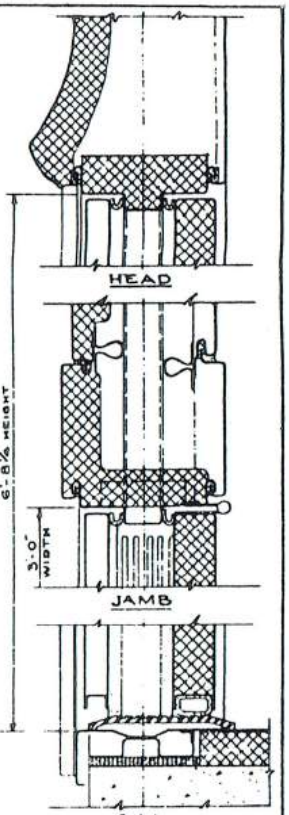


BATH RM. WINDOW
SCALE 3" = 1'-0"

INTERIOR DOOR
SCALE 3" = 1'-0"



EXTERIOR DOOR
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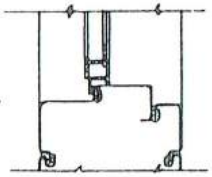
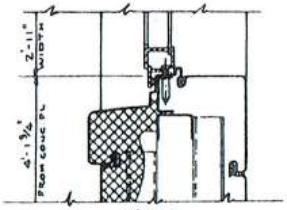


PORTHOLE WINDOW
HEAD, JAMB & SILL SIMILAR
SCALE 3" = 1'-0"



KITCHEN WINDOW SECT.
HEAD & JAMB SIMILAR TO TYPICAL
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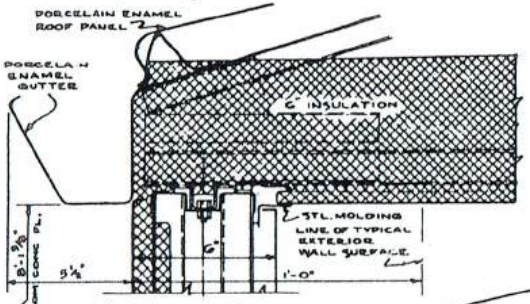

BAY-WINDOW HEAD SECT.
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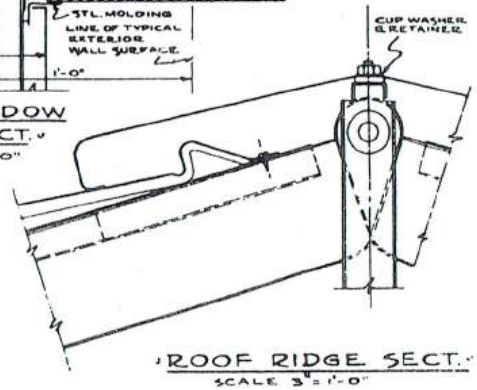
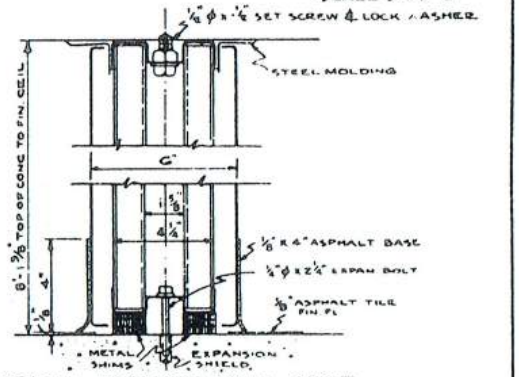


ROOF RIDGE SECT.
SCALE 3" = 1'-0"



TYPICAL INTERIOR WALL SECT.
SCALE 3" = 1'-0"

NOTE: SUPERSEDES APZ DWGS. D-1; D-2; D-3; E-1; E-8; E-11.

NOTE
FOR DETAIL OF JOINT SEALS SEE DWG. APZ-H-103.

PHOTO REDUCTION DO NOT SCALE

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGE BY	CHECK		DATE
A	NF 906	MISCELLANEOUS CHANGES.	PST	AMT		12-8-48

LUSTRON CORPORATION
4700 E. FIFTH AVE., COLUMBUS 16, OHIO.

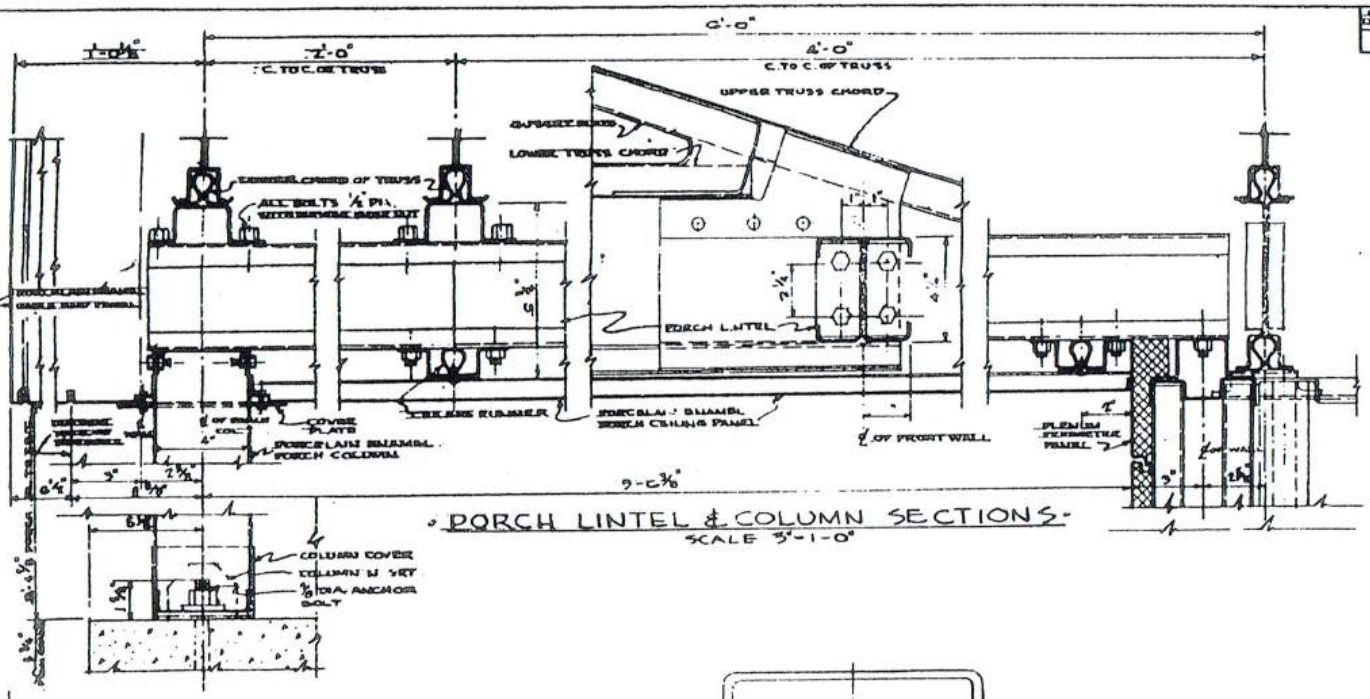
DR. D.H.B.	6-29-48
CHD. P.S.	8-10-48
APP. A.M.T	8-26-48
SCALE AS NOTED	
REVISED	12-8-48

WALL SECTIONS WINDOWS, DOORS, ROOF RIDGE, ETC

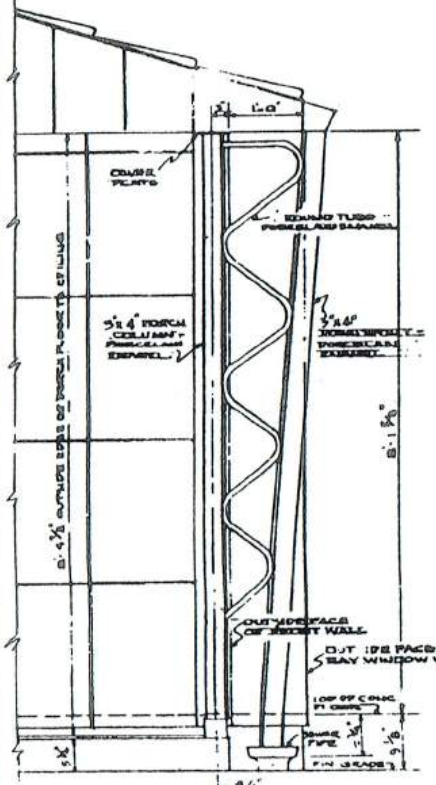
DRAWING NUMBER AP2-D-100

REV. 1

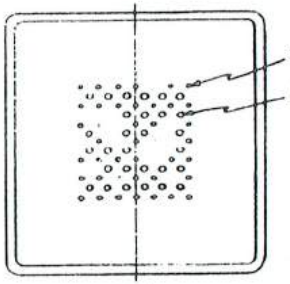
31E-UP



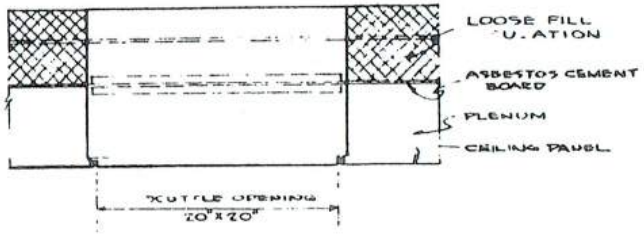
PORCH LINTEL & COLUMN SECTIONS
SCALE 3"-1'-0"



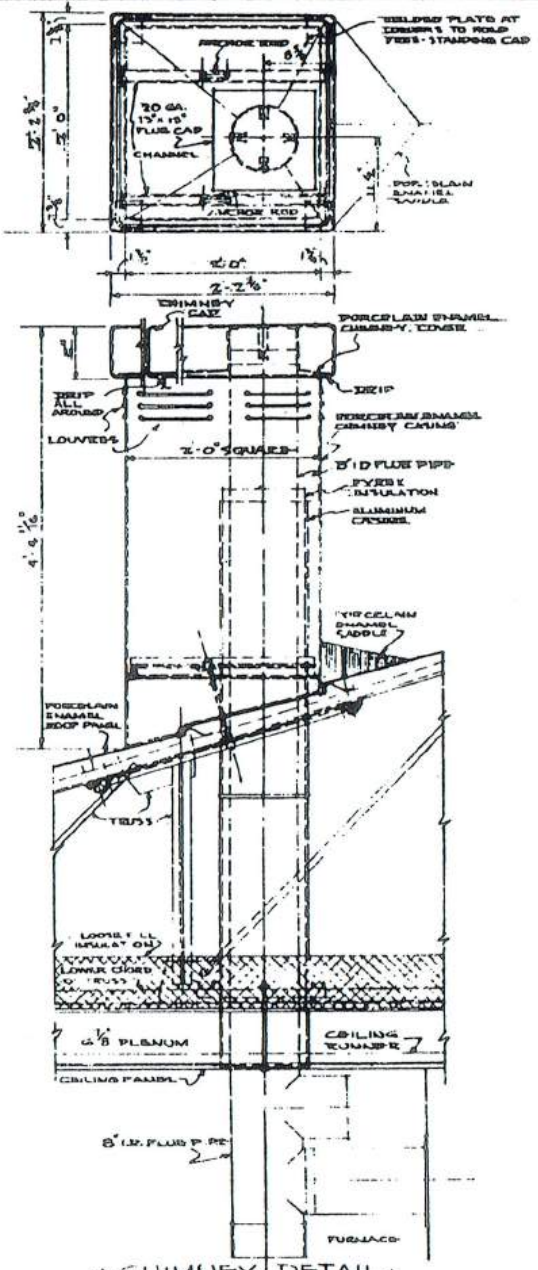
PORCH COLUMN & DOWNSPOUT
DOWNSPOUT AT REAR OF HOUSE SIMILAR
SCALE ½"=1'-0"



VIEW SHOWING PERFORATIONS IN CEILING PANEL



SECTION THRU SCUTTLE
SCALE 1½"=1'-0"



CHIMNEY DETAIL
SCALE 1"=1'-0"

NOTE: SUPERSEDES APT DWGS E-1, 2

PHOTO REDUCTION
DO NOT SCALE

REVISIONS					

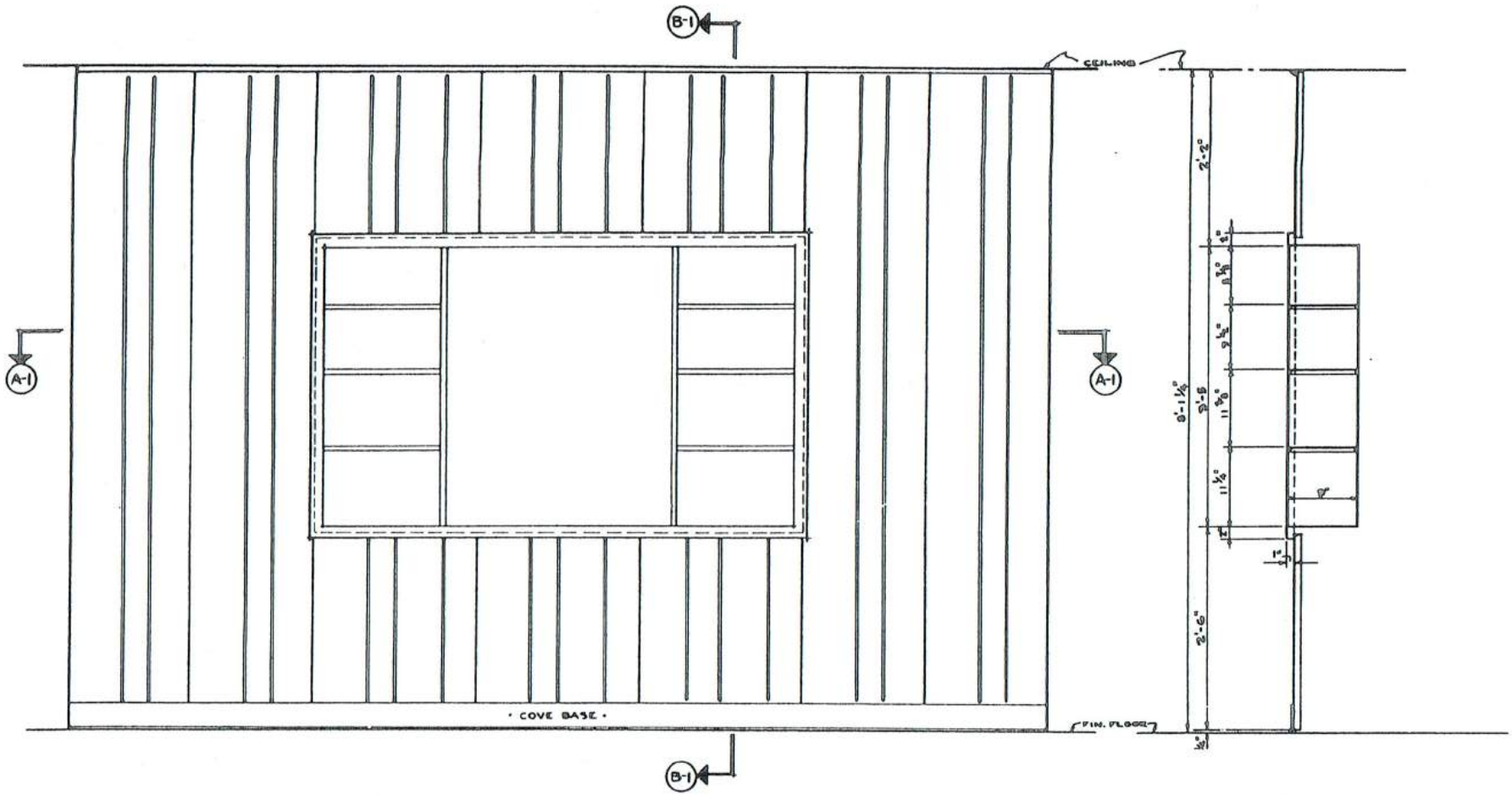
LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO

DR: PSY	10-1-68
CH'D:	
APP	
SCALE AS NOTED	
28-1588	

PORCH & CHIMNEY DETAILS

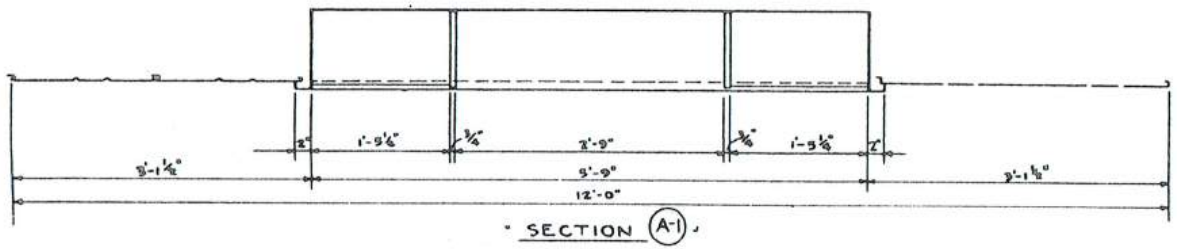
APZ H-100-1
DRAWING NUMBER — REV.

CHG. LETTER	RELEASE NO.	REVISIONS	CHECKED BY	APP.	DATE
A	N1 12		P.S.K.	A.S.T.	1749



ELEVATION

SECTION B-1



SECTION A-1

PHOTO REDUCTION
DO NOT SCALE

NOTE: SUPERSEDES AP2 Dwg. H-1.

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

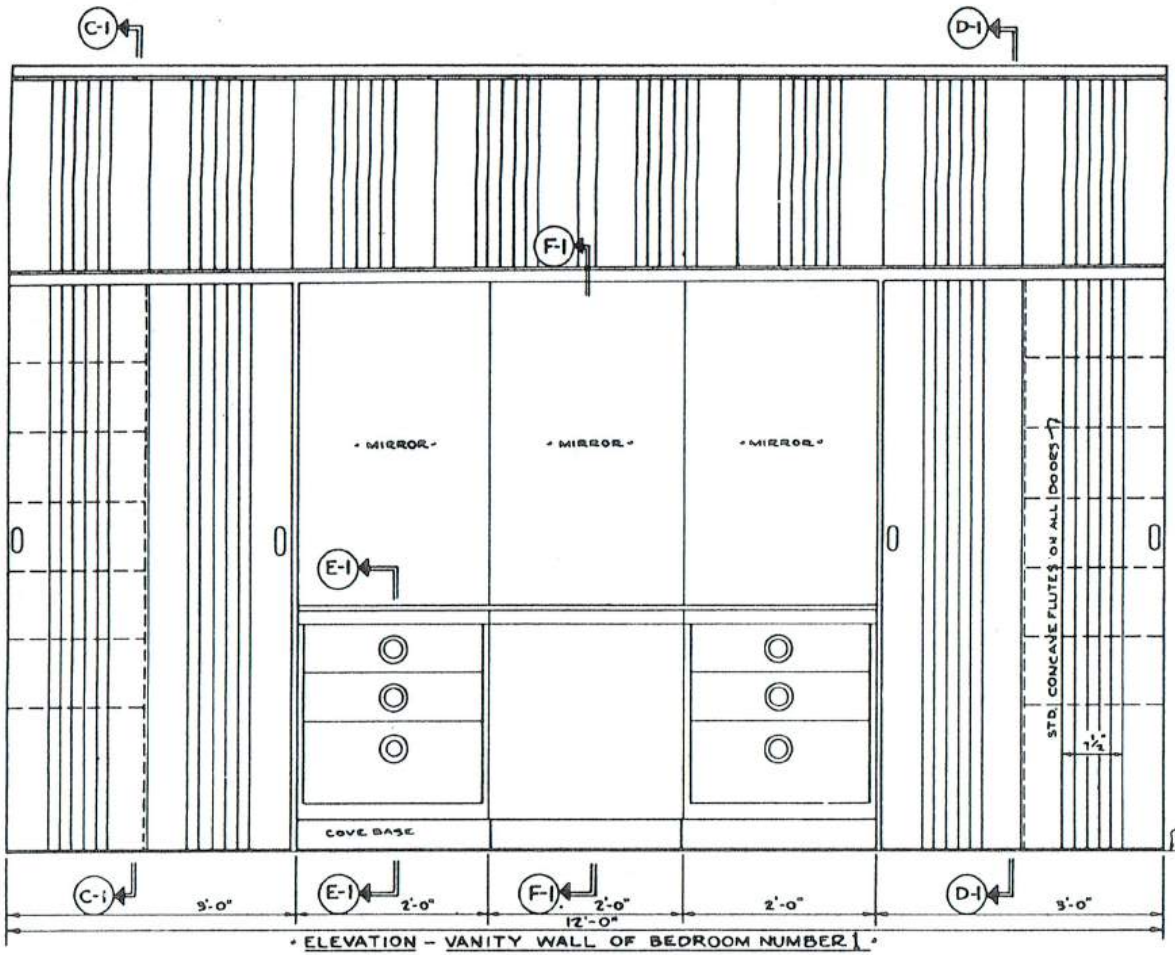
DR: D.H.B.	7-5-48
CHD: M.J.R.	8-16-48
APP: J.K.D.	8-20-48
SCALE: 1" = 1'-0"	
REVISED	

BOOKCASE-
LIVING ROOM

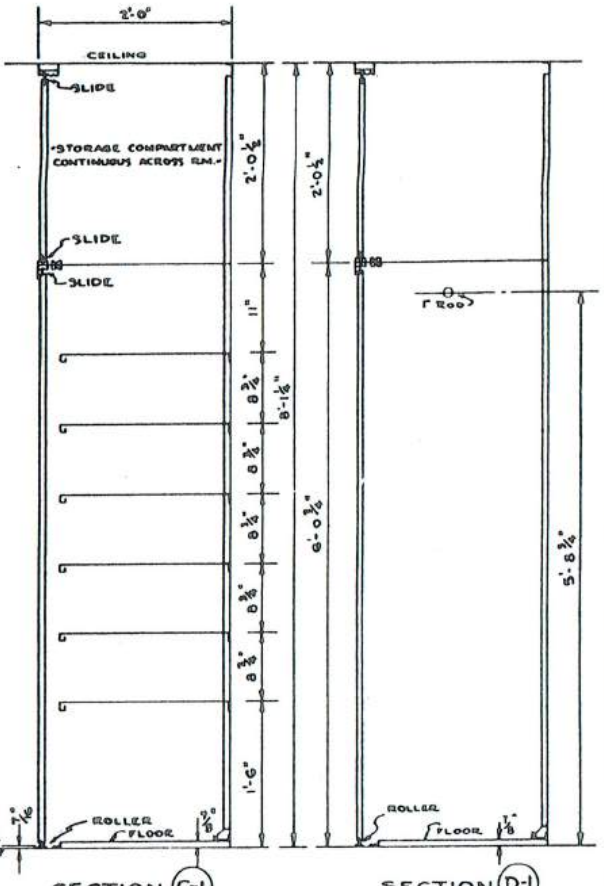
AP2-H-200

DRAWING NUMBER

CHG. LETTER	RELEASE NO.	REVISIONS	CHECKED BY	ENGINEER	APP.	DATE
A	1.1					1-7-49

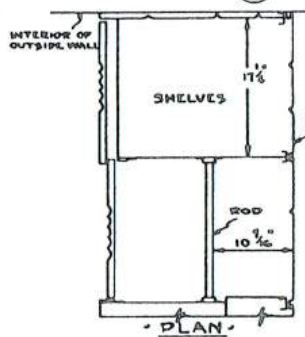


ELEVATION – VANITY WALL OF BEDROOM NUMBER 1



SECTION C-1

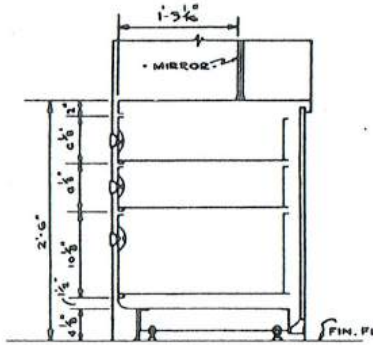
SECTION D-1



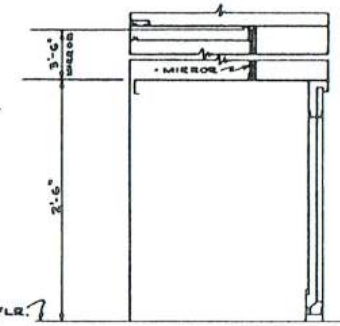
NOTE: PLAN OF CLOSET ON OPPOSITE WALL REVERSED

PLAN

PHOTO REDUCTION DO NOT SCALE



SECTION E-1



SECTION F-1

NOTE: SUPERSEDES AP2 DWG. H-4

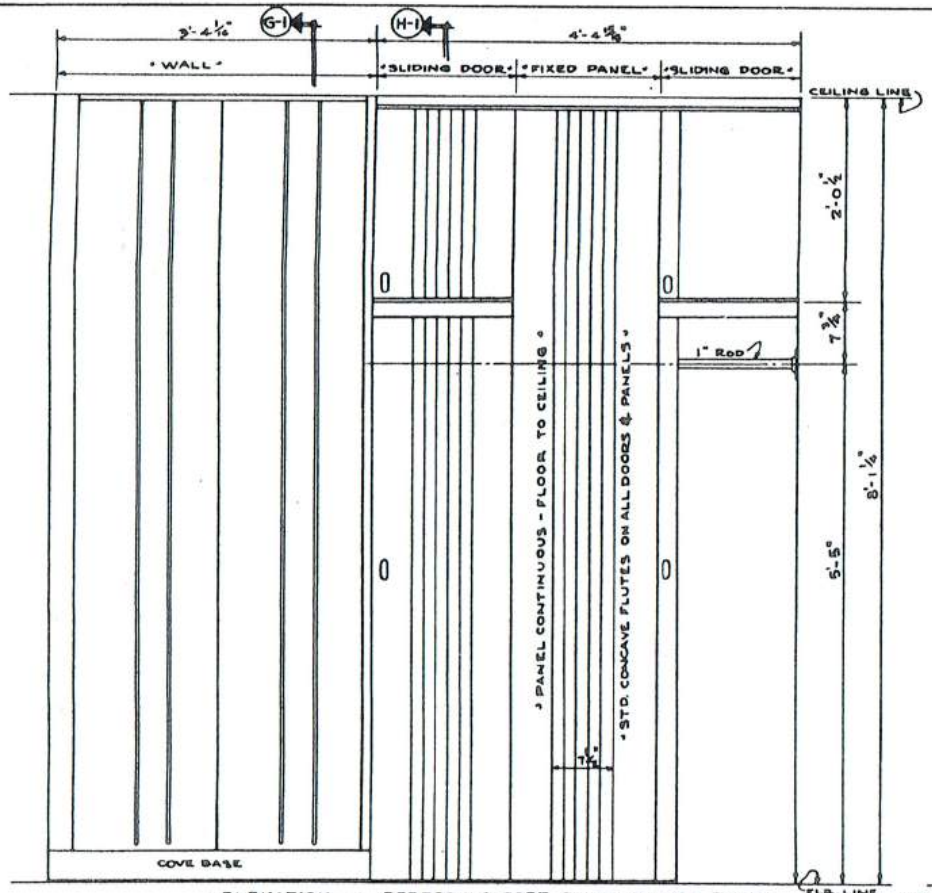
LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO

DR: P.S.Y.	1-7-48
CHD: M.J.R.	8/18/48
APP: J.K.D.	8-20-48
SCALE: 1" = 1'-0"	
REVISED	1-7-49

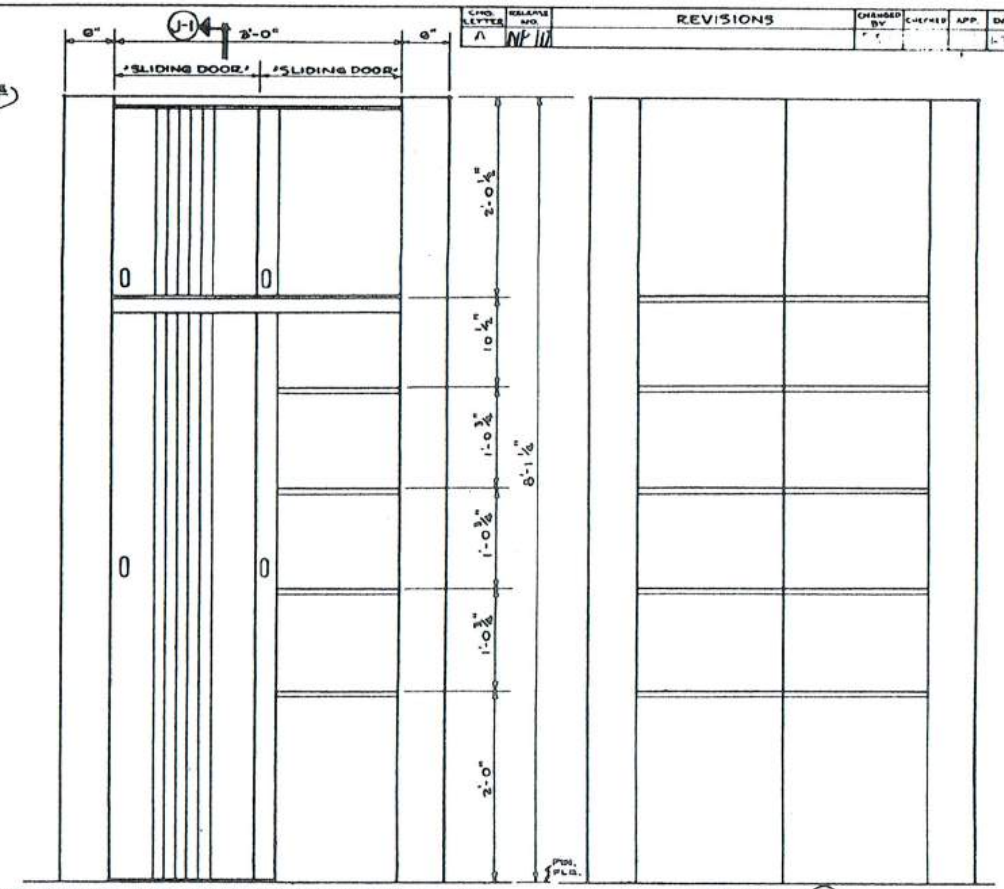
VANITY & CLOSETS BEDROOM NO. 1.

AP2-H-201 — DRAWING NUMBER

A — REV.

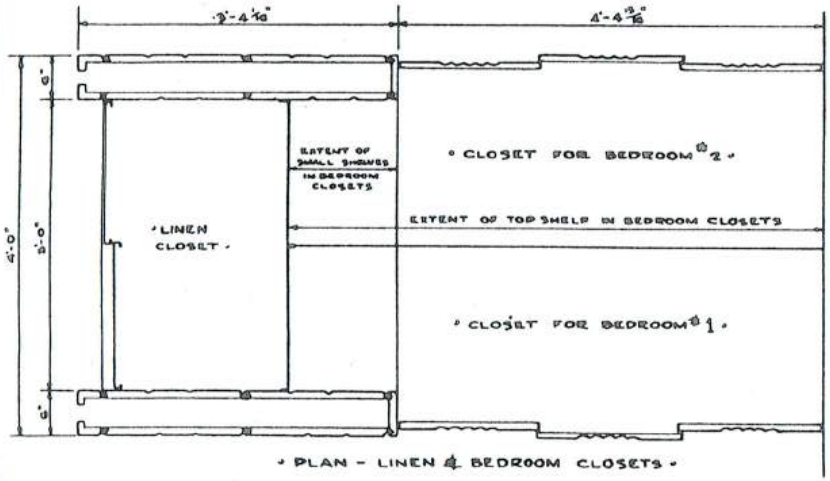


ELEVATION – BEDROOM CLOSET SHOWING OPEN DOOR

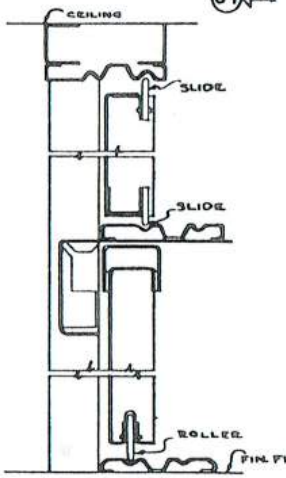


ELEVATION – LINEN CLOSET SHOWING OPEN DOOR

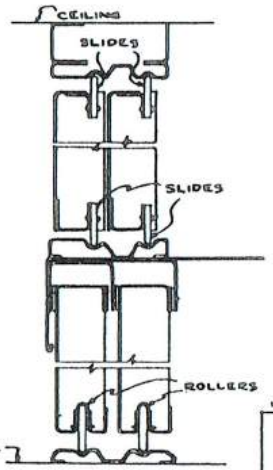
SECTION G-1



PLAN – LINEN & BEDROOM CLOSETS



SECTION H-1
SCALE – HALF SIZE



SECTION J-1
SCALE – HALF SIZE

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
A	NP 111					6-7-51

PHOTO REDUCTION
DO NOT SCALE

NOTE; SUPERSEDES AP2 Dwg. H-6

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

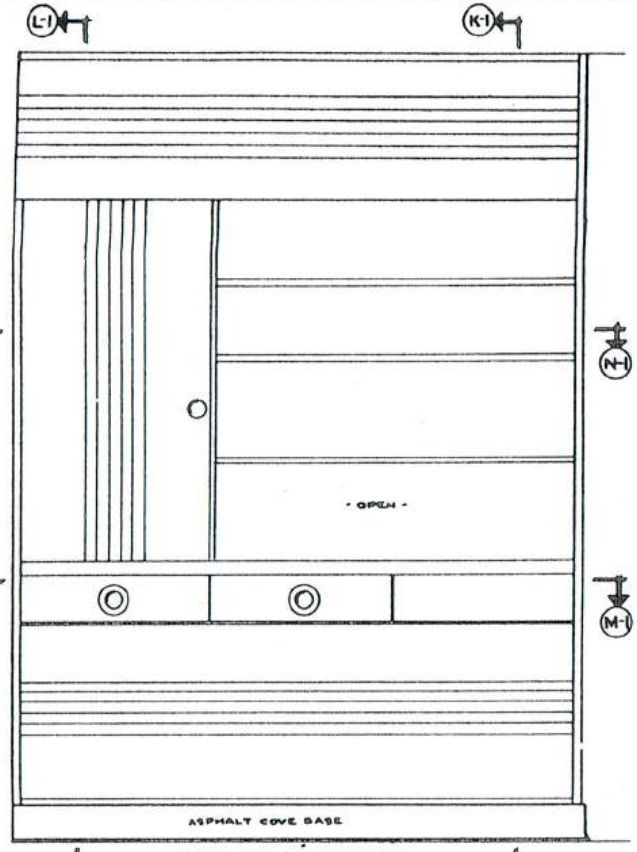
DR: P.S.V.	7-12-48
CH'D: M.J.R.	8-18-48
APP: J.K.D.	8-20-48
SCALE: 1" = 1'-0" EXCEPT AS NOTED	
REVISED	1-7-49

TRIPLE CLOSET UNIT
LINEN & BEDROOMS 1 & 2.

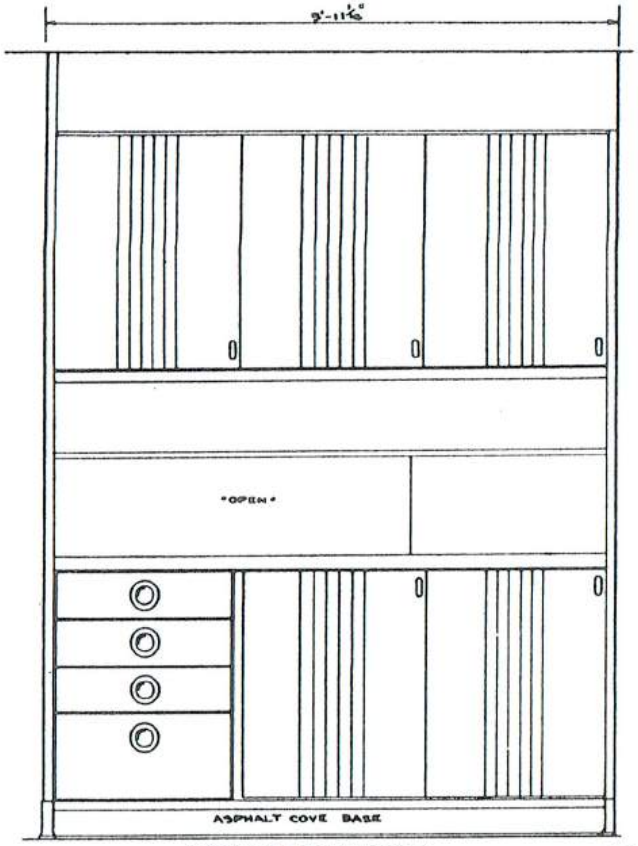
AP2-H-202

DRAWING NUMBER

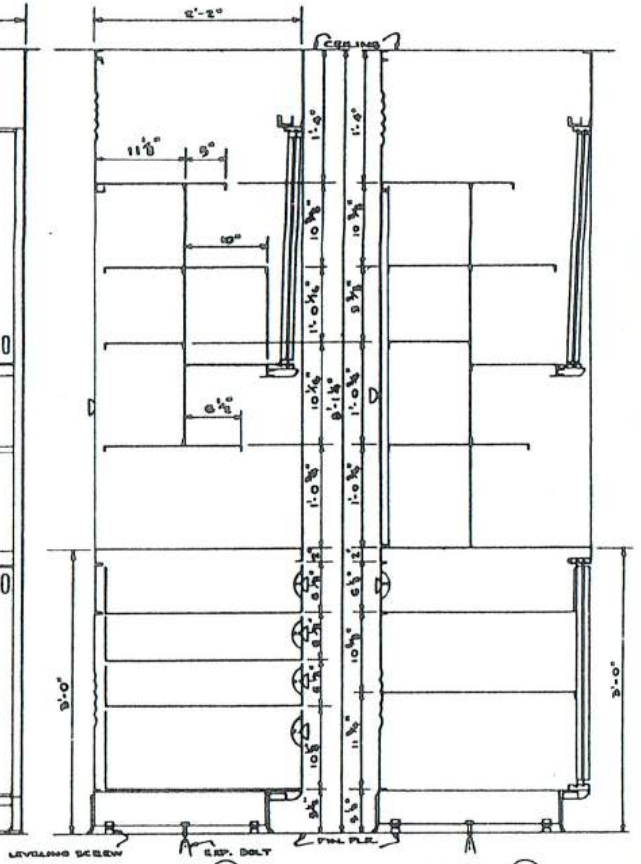
REV.



"DINETTE ELEVATION"

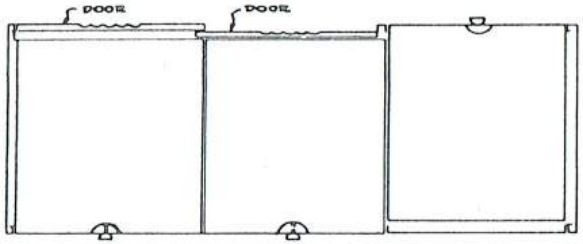


"KITCHEN ELEVATION"

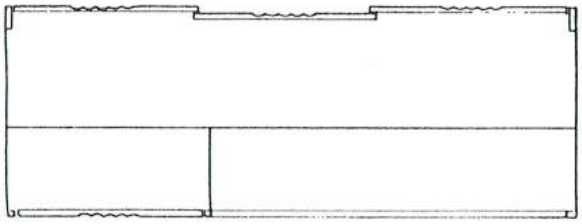


"SECTION (K-1)"

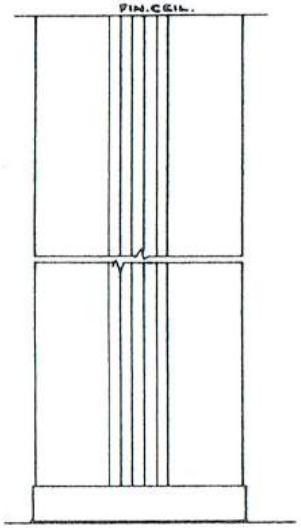
"SECTION (L-1)"



"PLAN (M-1)"



"PLAN (N-1)"



"END ELEVATION"

NOTE:
CABINET DOOR MECHANISM IN KITCHEN SIMILAR TO TOP DOORS IN BEDROOM CLOSETS. SEE SECTION (J-1) ON DWG. NO. AP2-H-202.

PHOTO REDUCTION
DO NOT SCALE

NOTE: SUPERSEDES AP2 DWG. H-2.

CHG. LETTER	RELEASE NO.	REVISIONS	CHECKED BY	ENGINEER	APPR.	DATE
A	NI 1/1		D.S.		AHT	1/49

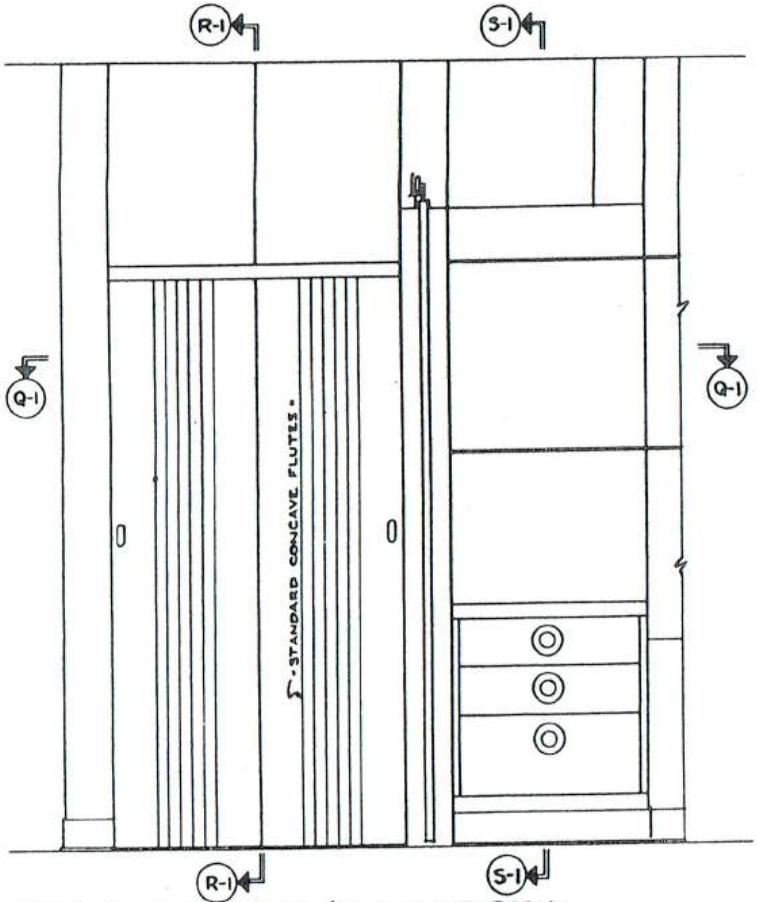
DR: P.S.Y.	1-18-48
CHD: M.J.R.	8-19-48
APP: J.K.D.	8-20-48
SCALE: 1"=1'-0" EXCEPT AS NOTED	
REVISED	1/49

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO.

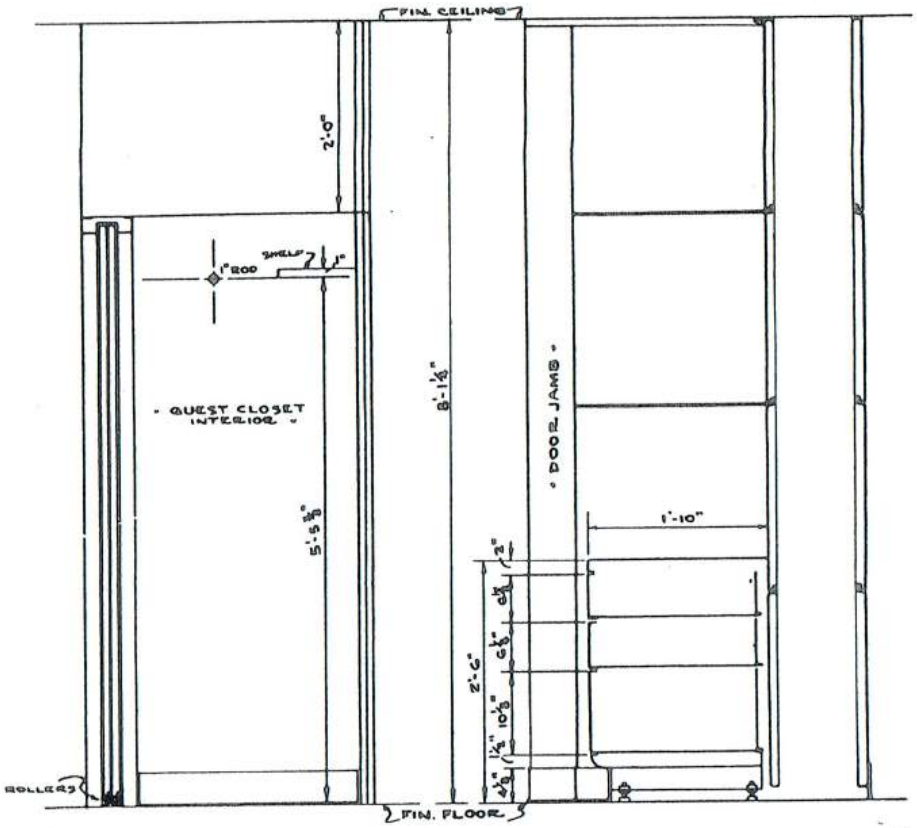
KITCHEN & DINETTE CABINET.

AP2-H-203 A

CHG. LETTER	RELEASE NO.	REVISIONS	DRAWN BY	CHECKED	APP.	DATE
A	AN-123	[illegible]	P.S.Y.		AMT	1749

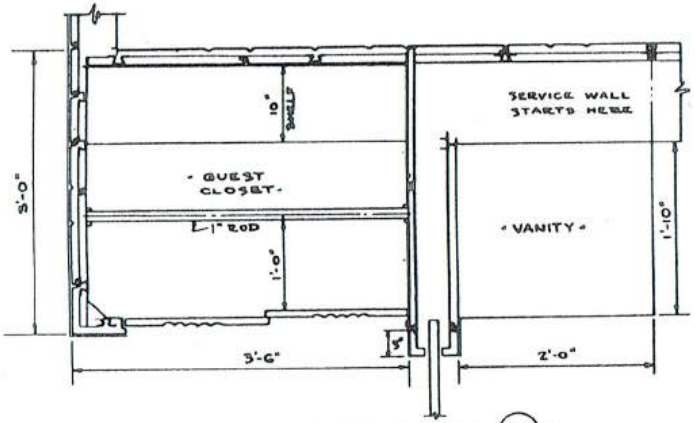


ELEVATION - GUEST CLOSET & END OF BATHROOM



SECTION R-1

SECTION S-1



PLAN SECTION Q-1

PHOTO REDUCTION
DO NOT SCALE

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO

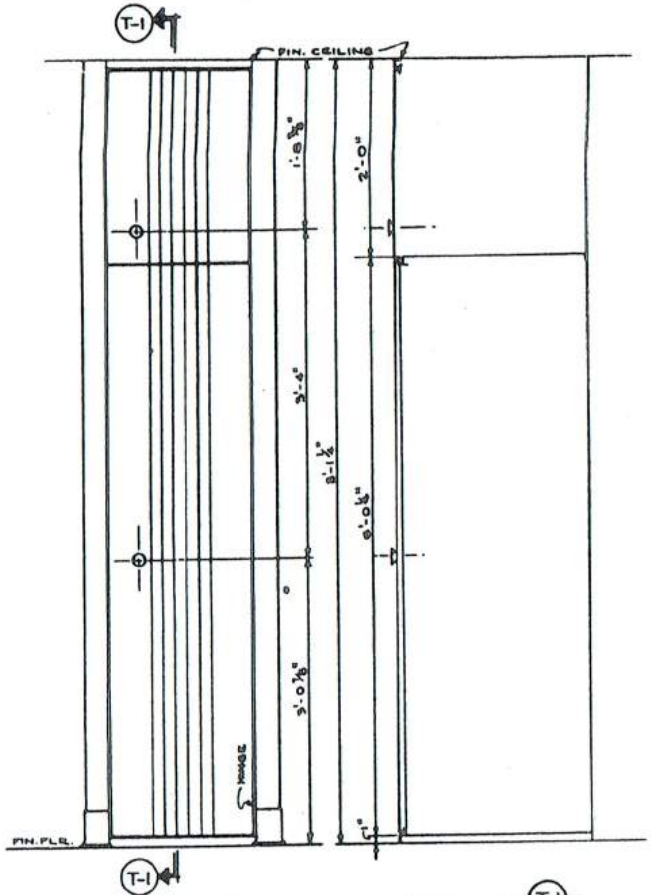
DR.: P.S.Y.	8-12-48
CHK'D. M.J.R.	8-18-48
APP.: J.K.D.	8-20-48
SCALE: 1" = 1'-0"	
REVISED	1749

GUEST CLOSET & BATHROOM VANITY.

AP2-H-204 — DRAWING NUMBER

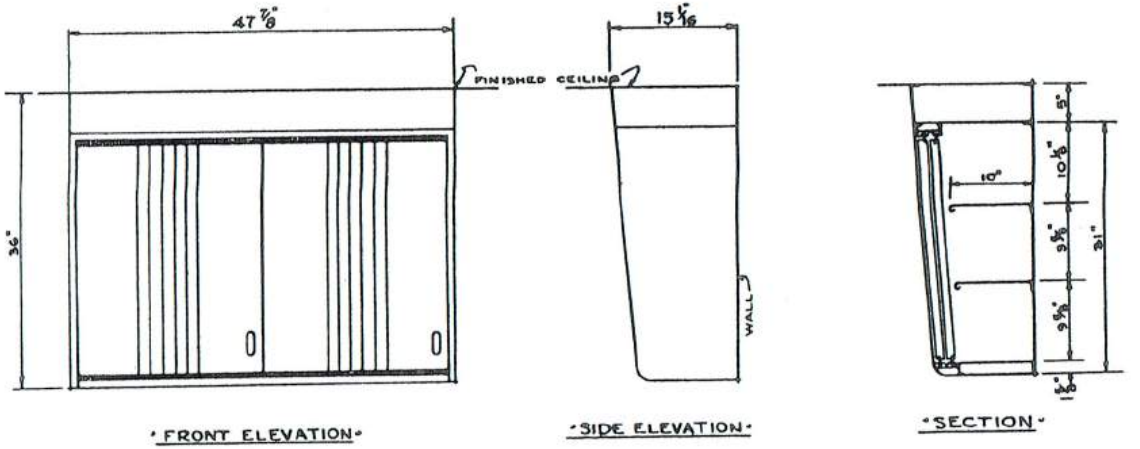
A — REV.

CHG. LETTER	RELEASE NO.	REVISIONS	DRAWN BY	CHECKED	APP.	DATE
A	VIY-1	CHANGED DOOR KNOB & I-B-P DIM'S.	PSY		JKD	7-49



"ELEVATION"

"SECTION T-1"

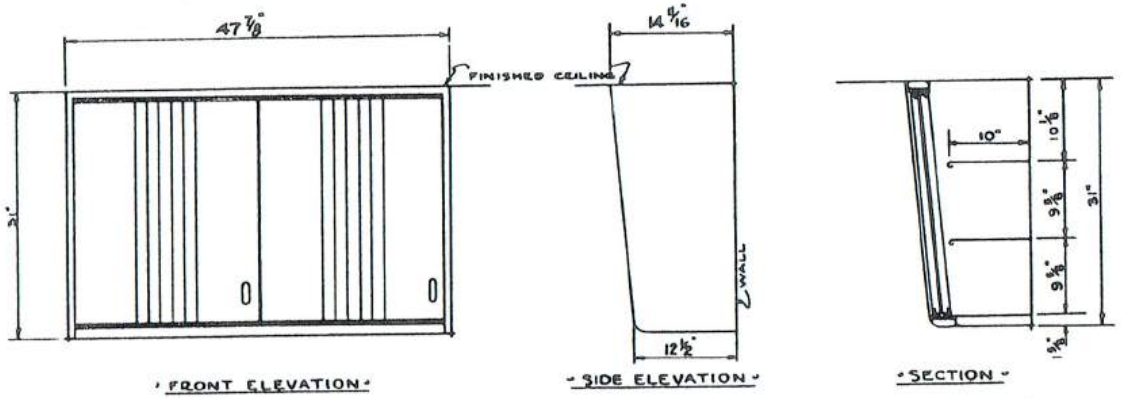


"FRONT ELEVATION"

"SIDE ELEVATION"

"SECTION"

"KITCHEN CABINET OVER STOVE SPACE"

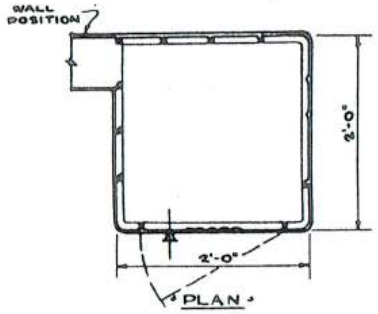


"FRONT ELEVATION"

"SIDE ELEVATION"

"SECTION"

"KITCHEN CABINET OVER REFRIGERATOR SPACE"



"BROOM CLOSET"

"PLAN"

PHOTO REDUCTION
DO NOT SCALE

J. K. Drumbaugh

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO.

DR: P.S.Y.	1-26-48
CHD: M.J.R.	8-18-48
APP: J.K.D	8-20-48
SCALE: 1" = 1'-0"	
REVISED	

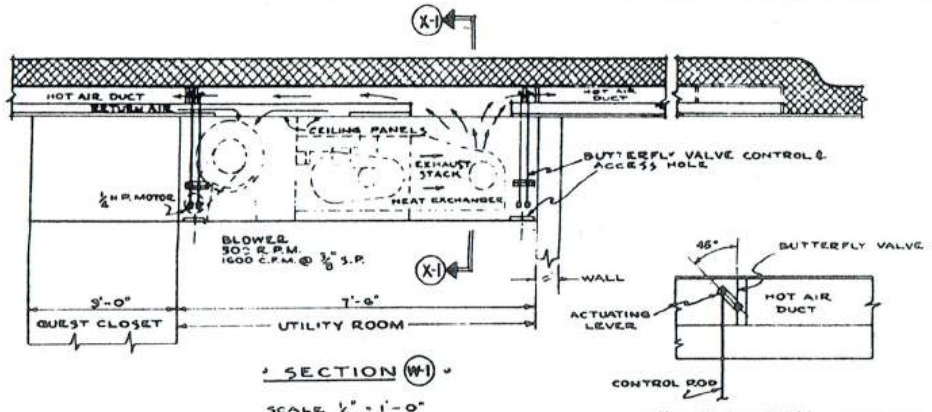
KITCHEN CABINETS & BROOM CLOSET.

AP2-H-205 (DRAWING NUMBER)

A (REV.)

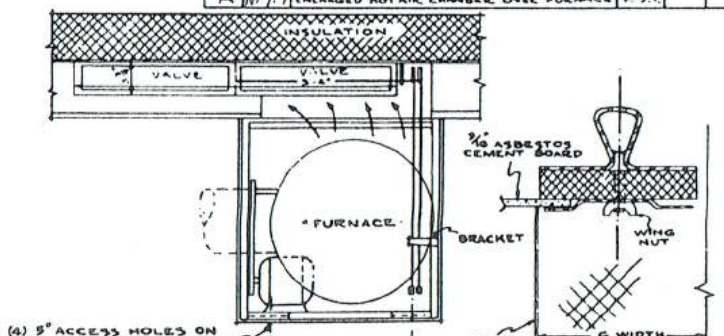
2.

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
A	N°9.9	ENLARGED HOT AIR CHAMBER OVER FURNACE	P.S.Y.			12/31/48



SECTION W-1
SCALE 1/2" = 1'-0"

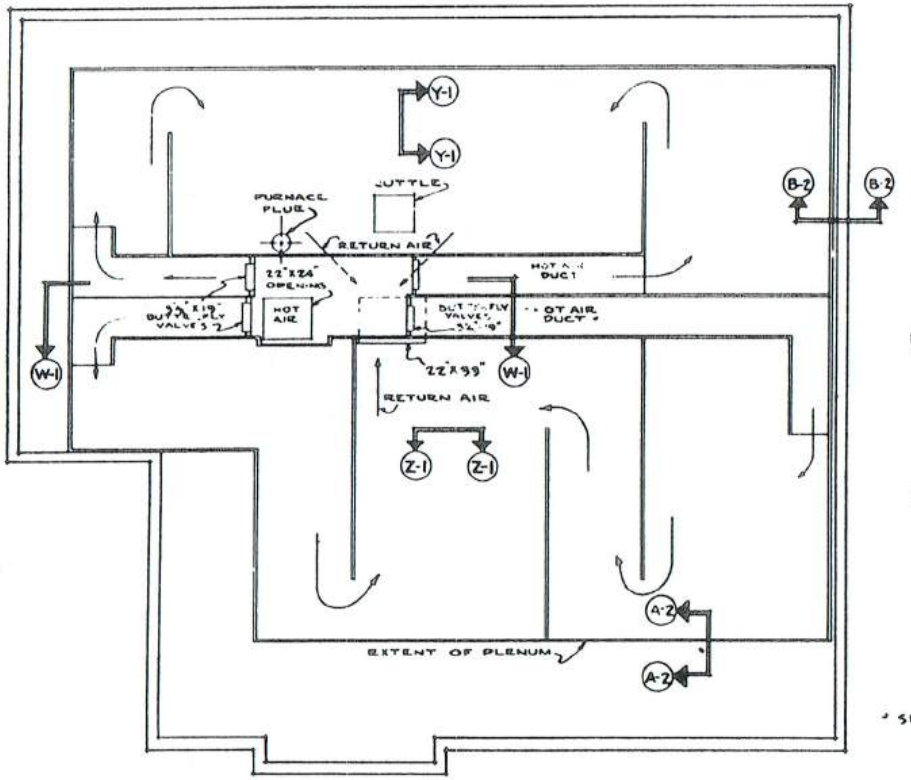
VALVE CONTROL LINKAGE
SCALE 1 1/2" = 1'-0"



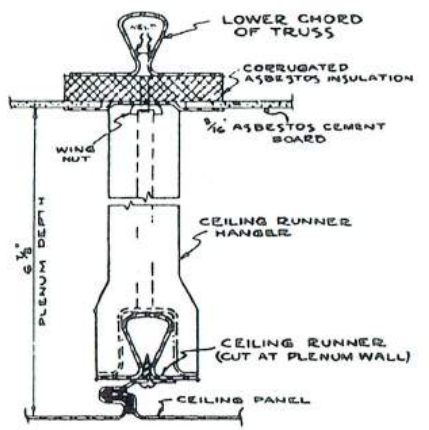
SECTION X-1
SCALE 1" = 1'-0"

SECTION Y-1
THRU ASBESTOS BOARD JOINT AT TOP OF PLENUM

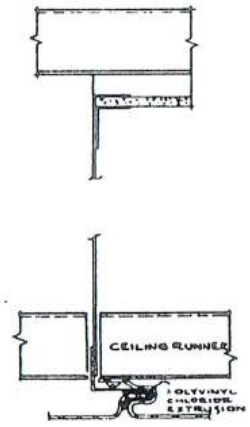
SECTION B-2
THRU PLENUM WALL



PLAN
RADIANT HEATING SYSTEM
SCALE 1/4" = 1'-0"



SECTION Z-1
SHOWING TYPICAL CONSTRUCTION OF PLENUM AT TRUSS



SECTION A-2
THRU PLENUM WALL

SCALE FOR SECTION DETAILS — HALF SIZE —

NOTE: SUPERSEDES AP2 DWGS. J-1; L-100.

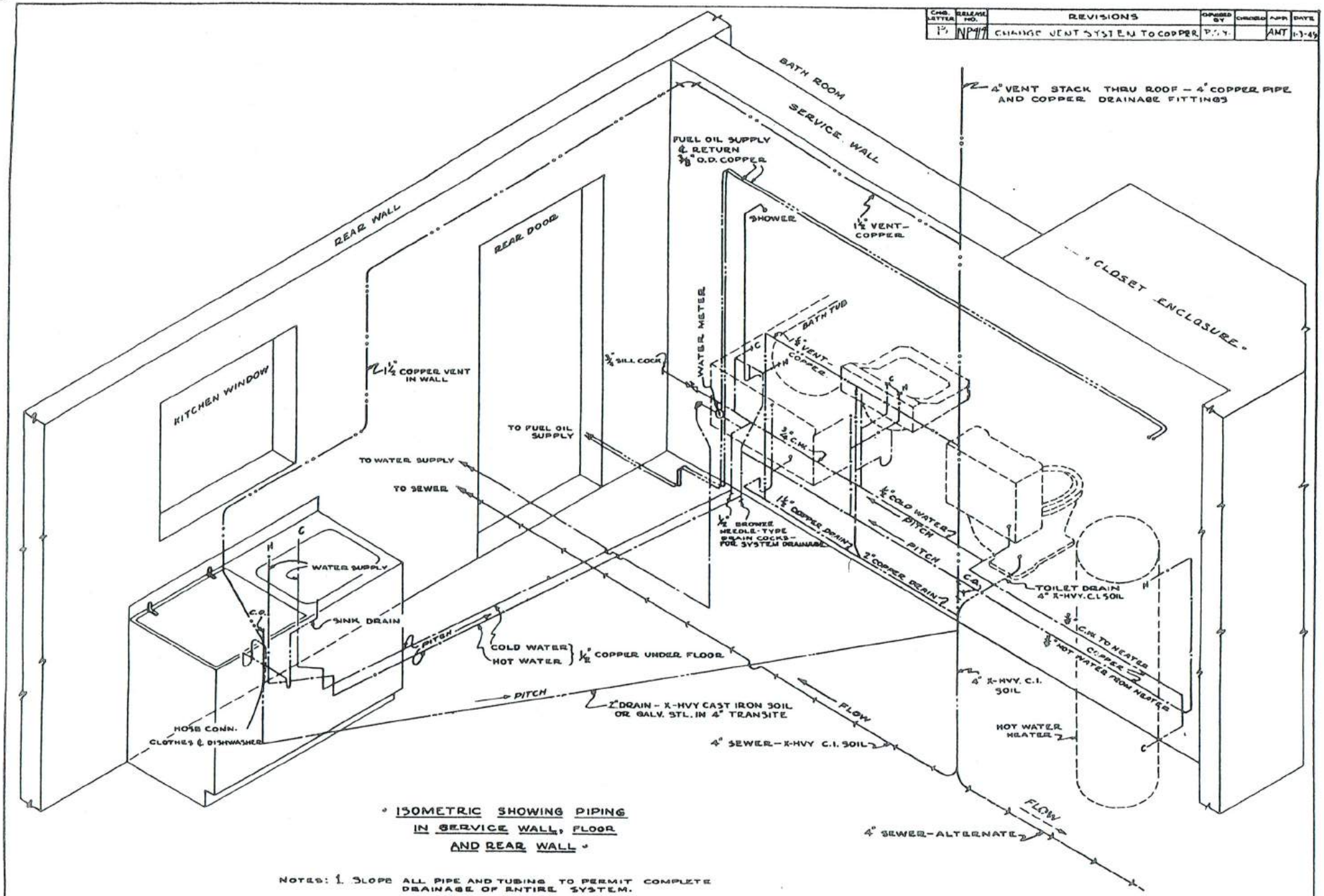
PHOTO REDUCTION DO NOT SCALE

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR: P.S.Y.	10-21-48
CH'D: A.M.T.	10-21-48
APP: A.M.T.	10-21-48
SCALE AS NOTED	
REVISED	A

RADIANT HEATING SYSTEM
AP2-J-100 / DRAWING NUMBER
REV.

CHG. LETTER	RELEASE NO.	REVISIONS	DRAWN BY	CHECKED	APP.	DATE
B	NP17	CHANGE VENT SYSTEM TO COPPER	P.J.Y.		AMT	1-3-49



ISOMETRIC SHOWING PIPING IN SERVICE WALL, FLOOR AND REAR WALL

NOTES: 1. SLOPE ALL PIPE AND TUBING TO PERMIT COMPLETE DRAINAGE OF ENTIRE SYSTEM.

2. PRESSURE TEST ALL UNDERGROUND PIPING BEFORE COVERING WITH EARTH OR CONCRETE. ALSO PRESSURE TEST ALL OTHER PIPING BEFORE ENCLOSING SAME IN WALLS.

PHOTO REDUCTION DO NOT SCALE

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO

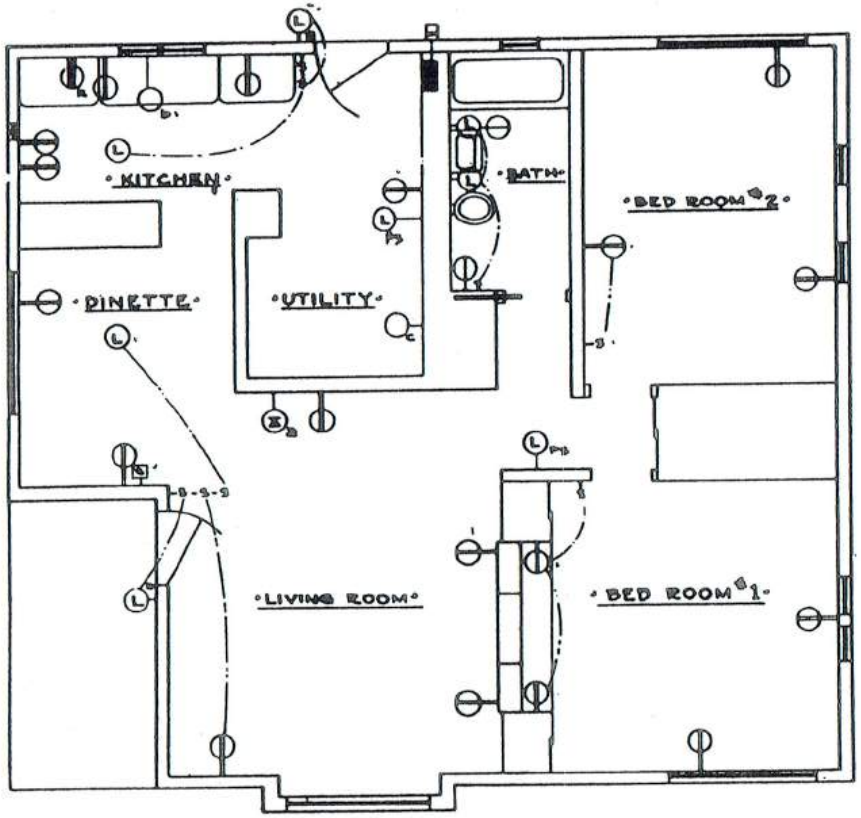
DR: A.J.B.	5-12-48	
CH'D: A.M.T.	5-21-48	
APP. C.T.S.	5-21-48	
SCALE 3/4" = 1-0"		
REVISED		

PLUMBING ISOMETRIC

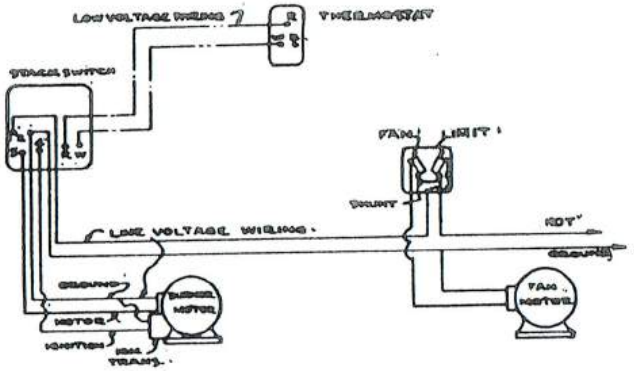
AP2-K-100 B

DRAWING NUMBER REV.

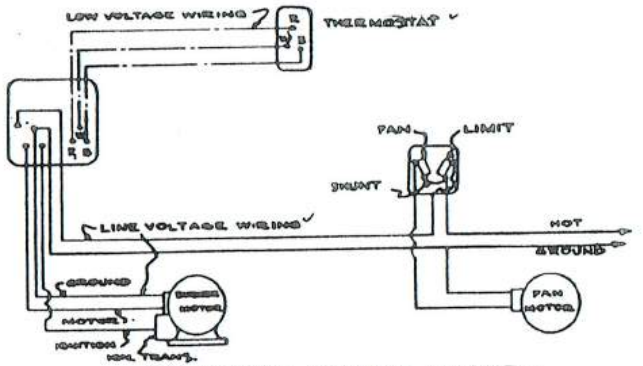
BASIC LETTER	BULLETIN NO.	REVISIONS	DRAWN BY	CHECKED	DATE	APPR.
B	APP'D	ADDED SYMBOL FOR SINGLE RECEPTACLE	P.S.Y.	A.M.T.		



FLOOR PLAN - ELECTRICAL OUTLETS



OIL BURNER CONTROL CIRCUIT — INTERMITTENT IGNITION (PENN SYSTEM)



OIL BURNER CONTROL CIRCUIT — INTERMITTENT IGNITION (MINNEAPOLIS-HONEYWELL SYSTEM)

ALTERNATE WIRING DIAGRAMS SHOWING BONNET CONTROL OF FAN & COMBINATION FURNACE CONTROL

SET FAN SWITCH FOR ON AT 125°F AND OFF AT 110°F. — SET HEAT EXCHANGER BONNET TEMPERATURE LIMIT AT 200°F.

LIST OF ELECTRIC CIRCUITS

NO.	DESCRIPTION	AMPERES	SIZE OF CONDUCTOR	VOLTS
1 -	LIGHTING	15	NO. 14 - 2 WIRE	110
2 -	LIGHTING	15	NO. 14 - 2 WIRE	110
3 -	HEATING SYSTEM	15	NO. 14 - 2 WIRE	110
4 -	RANGE	50	NO. 6 - 3 WIRE	220
5 -	WATER HEATER	20	NO. 12 - 2 WIRE	220
6 -	APPLIANCES	20	NO. 12 - 2 & 3 WIRE	110/220
T -	CHIME	—	NO. 18 - 2 & 3 WIRE	10

SYMBOLS

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- R RANGE RECEPTACLE
- L LAMP HOLDER
- ENTRANCE PANEL
- L$_{PS}$ LAMP HOLDER WITH PULL SWITCH
- T$_a$ TELEPHONE OUTLET BOX
- A$_b$ AUTOMATIC SINK OUTLET
- D DOOR CHIME
- W$_c$ WATER HEATER OUTLET
- S SINGLE POLE SWITCH
- P PUSH BUTTON CHIME
- M METER

PHOTO REDUCTION DO NOT SCALE

NOTE: SUPERSEDES AP2 DWG. L-1

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR: P.S.Y.	6-10-48	
CH'D: A.M.T.	9-29-48	
APP: A.M.T.	9-29-48	
SCALE ½" = 1'-0"		
REVISED		

ELECTRICAL FLOOR PLAN & HEATING SYS. DIAGRAM

AP2-L-100-1 B

CHG LETTER	RELEASE NO.	REVISIONS	BY	CHK'D	APP'D
A		CHANGED TITLE OF SECTION N.	P.S.Y.		AMT 11-9-62

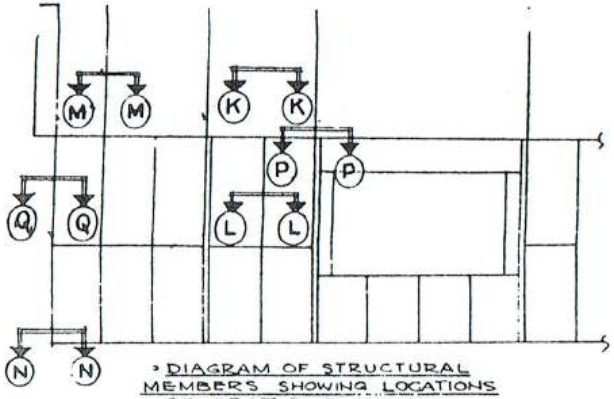
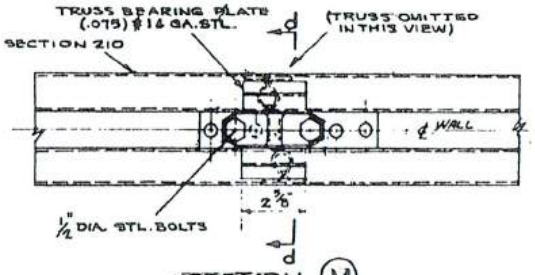
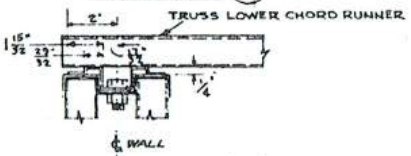


DIAGRAM OF STRUCTURAL MEMBERS SHOWING LOCATIONS OF SECTIONS TAKEN IN FRONT WALL
(SEE FRONT ELEVATION - AP2-C-100)

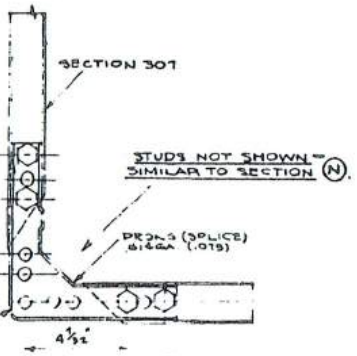


SECTION (M)



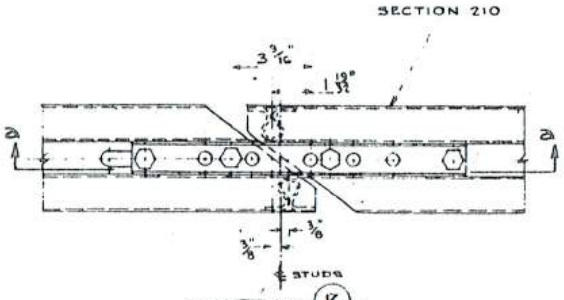
SECTION d-d

TYPICAL WALL TO TRUSS CONNECTION

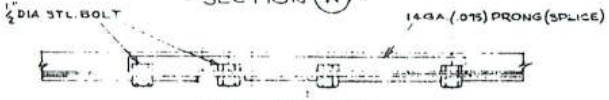


SECTION (Q)

TYPICAL FIELD CONNECTION INTERMEDIATE SPACER CORNER

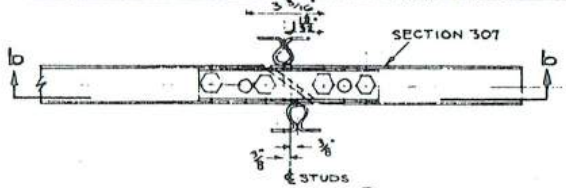


SECTION (K)



SECTION a-a

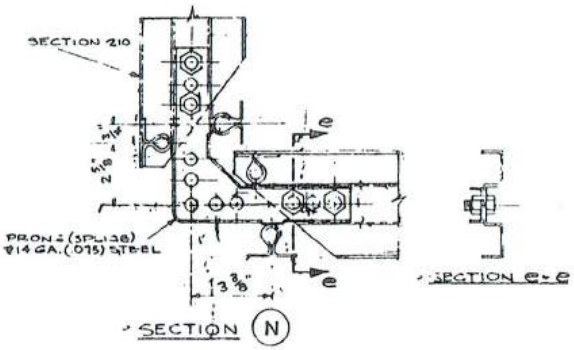
TYPICAL FIELD CONNECTION - TOP STUD SPACER SHOWN BOTTOM SIMILAR - USE PRONG OF SECTION B-B AT BOTTOM SPLICE



SECTION (L)

SECTION b-b

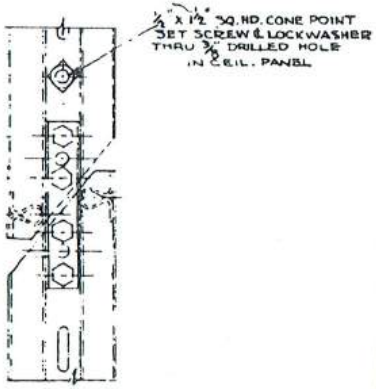
TYPICAL FIELD CONNECTION INTERMEDIATE STUD SPACER SHOWN



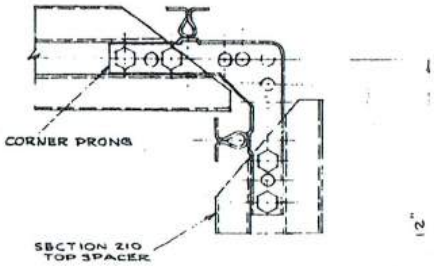
SECTION e-e

SECTION (N)

TYPICAL FIELD CONNECTION BOTTOM CORNER



PLAN - TOP OF INTERNAL WALL



SECTION (P)

BAY WINDOW CONNECTION TOP AND BOTTOM SIMILAR

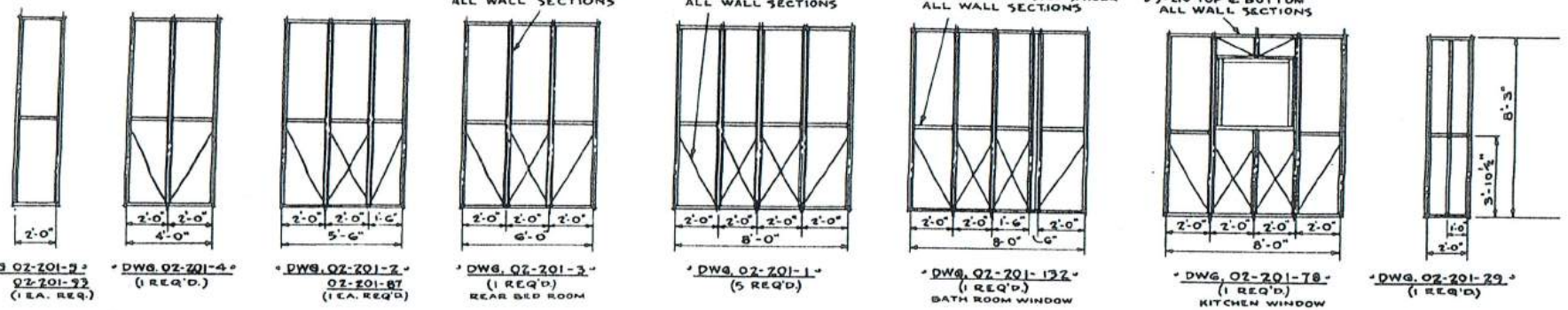
NOTE: SUPERSEDES AP2 DWGS. E-2, E-3.

LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO.

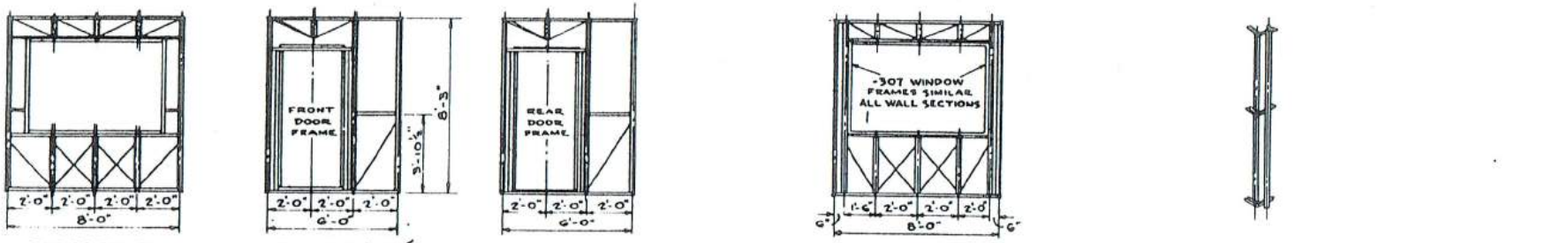
DR: P.S.Y.	8-18-62
CH'D: M.K.	8-18-62
APP: A.M.T.	8-18-62
SCALE: 3"=1'-0"	
REVISED	

STRUCTURAL WALL FIELD CONNECTIONS | AP2-E-100 (DRAWING NUMBER) | A (REV.)

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
A	NP404	CHANGED 5'-7" WALL SEC. TO 5'-6" EFF. IN THIS DWG.	PSV			12/16/60

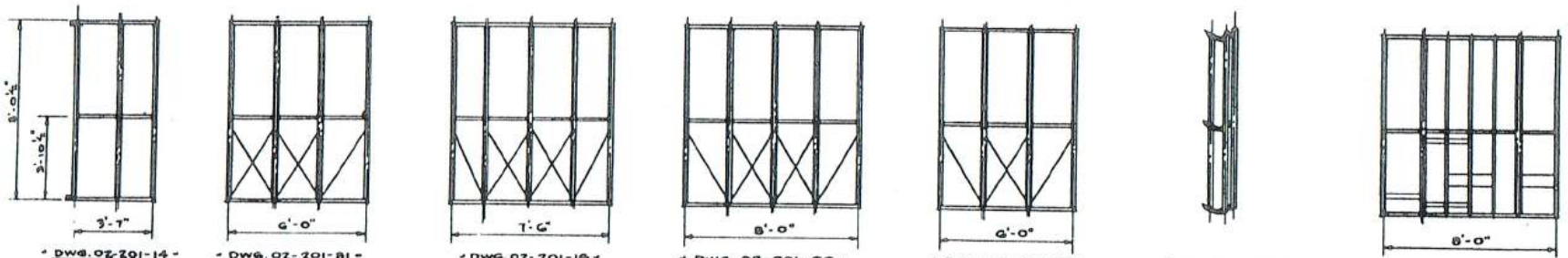


* DWG 02-201-9 * 02-201-93 (1 EA. REQ.)
* DWG. 02-201-4 * (1 REQ'D.)
* DWG. 02-201-2 * 02-201-87 (1 EA. REQ'D.)
* DWG. 02-201-3 * (1 REQ'D.) REAR BED ROOM
* DWG. 02-201-1 * (5 REQ'D.)
* DWG. 02-201-132 * (1 REQ'D.) BATH ROOM WINDOW
* DWG. 02-201-78 * (1 REQ'D.) KITCHEN WINDOW
* DWG. 02-201-29 * (1 REQ'D.)



* DWG. 02-201-128 * (3 REQ'D.)
* DWG. 02-201-136 * (1 REQ'D.)
* DWG. 02-201-135 * (1 REQ'D.)
* DWG. 02-201-109 * (1 REQ'D.)
* DWG. 02-201-11 * (8 REQ'D.) ALL EXTERIOR CORNERS & ALL INTERIOR CORNERS OF EXTERIOR WALL.

* EXTERIOR WALL SECTIONS *
28 UNITS



* DWG. 02-201-14 * (1 REQ'D.) FRONT BED ROOM
* DWG. 02-201-81 * (1 REQ'D.) UTILITY ROOM
* DWG. 02-201-16 * (1 REQ'D.) UTILITY ROOM
* DWG. 02-201-20 * (1 REQ'D.) REAR BED ROOM
* DWG. 02-201-21 * (1 REQ'D.) REAR BED ROOM
DWG. 02-201-23 (1 REQ'D.) CORNER - UTILITY RM.
* DWG. 02-201-19 * (1 REQ'D.) SERVICE WALL

* INTERIOR WALL SECTIONS *
7 UNITS

NOTES:
1. SEE DWG. NO. AP2-F-501 FOR LOCATION PLAN OF ABOVE SECTIONS.
2. SEE DWG. NO. AP2-G-100 FOR SECTIONS OF MEMBERS
3. ALL DIMENSIONS ARE NOMINAL
4. DWG. NO'S. BENEATH WALL SECTIONS ARE ALSO PART NOS.
5. ALL VIEWS OF EXTERIOR WALL SECTIONS ARE LOOKING TOWARD INSIDE OF HOUSE.

NOTE: SUPERSEDES AP2 DWGS. F-9; F-6.

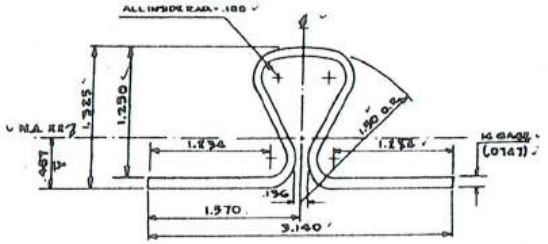
LUSTRON CORPORATION
4300 E. FIFTH AVE., COLUMBUS 16, OHIO

DR.: P.S.V.	9-27-60
CH'D.: M.J.R.	7-29-60
APP.: A.M.T.	8-26-60
SCALE: ½" = 1'-0"	
REVISED	

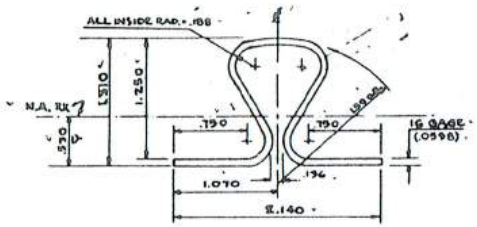
STRUCTURAL WALL SECTIONS - EXTERIOR AND INTERIOR

DRAWING NUMBER: AP2-F-500 A

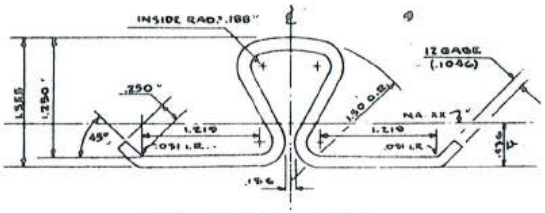
CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
A	WP402	ADDED SECTION NO 500	P.S.Y.			8/26/48



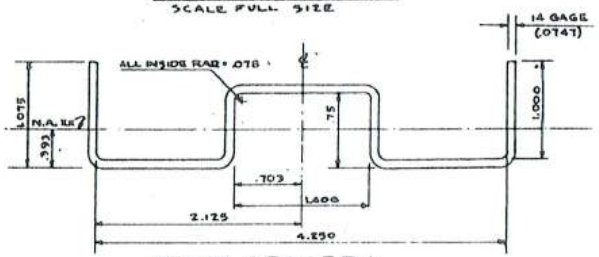
SECTION 124A
SCALE FULL SIZE.



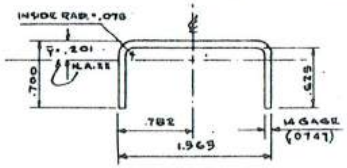
SECTION 138A
SCALE FULL SIZE



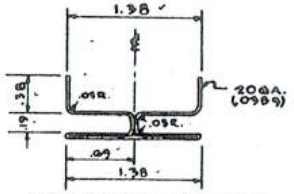
SECTION 152A
SCALE FULL SIZE



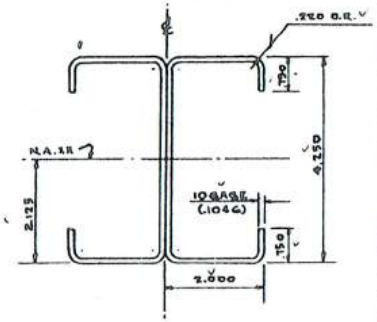
STUD SPACER
SECTION 210
SCALE FULL SIZE



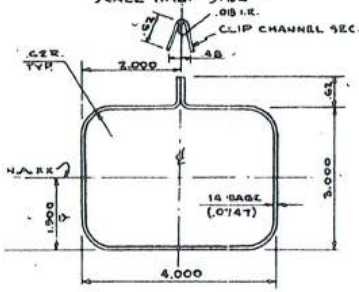
STUD SPACER
SECTION 307



SECTION 500
SCALE FULL SIZE

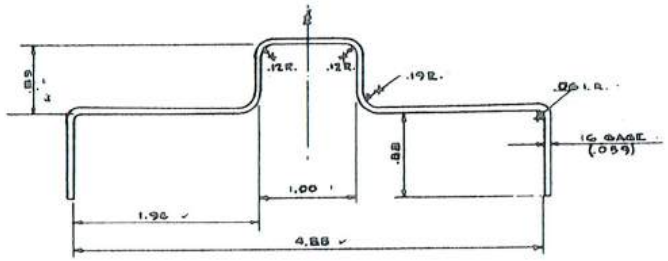


PORCH LINTEL
SECTION
SCALE HALF SIZE

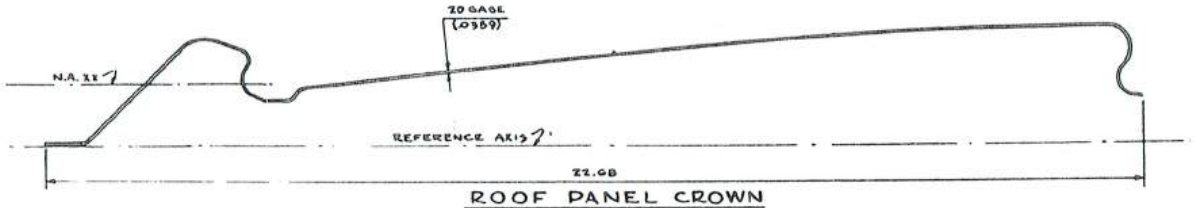


PORCH COLUMN
SECTION
SCALE HALF SIZE

SECTION PROPERTIES										
			NEUTRAL AXIS X-X				NEUTRAL AXIS Y-Y			
SECTION NO.	AREA	Q	I_{NA}	$\bar{Y}$	r	S	I_{NA}	$\bar{X}$	r	S
124A	.4545 in²	.666	.102 in⁴	.457 in.	.478 in.	.118 in³	.216 in⁴	0	.687 in.	.137 in³
138A	.2961 in²	.990	.070 in⁴	.530 in.	.487 in.	.089 in³	.063 in⁴	0	.462 in.	.059 in³
152A	.6820 in²	1.000	.139 in⁴	.436 in.	.446 in.	.131 in³	.460 in⁴	0	.819 in.	.267 in³
210	.559 in²	.993	.063 in⁴	.393 in.	.533 in.	.0928 in³	1.224 in⁴	0	1.480 in.	.558 in³
307	.2002 in²	1.000	.0092 in⁴	.201 in.	.214 in.	.0184 in³	.0698 in⁴	0	.591 in.	.0894 in³
PORCH LINTEL	1.878 in²	1.000	5.1390 in⁴	2.125 in.		2.4200 in³				
PORCH COLUMN	1.000 in²	.792	1.2050 in⁴	1.500 in.	1.230 in.					
ROOF PANEL	.3665 in²		.1620 in⁴	1.262 in.	.684 in.	.1285 in³				
SILL PLATE										



SILL PLATE
SECTION
SCALE FULL SIZE



ROOF PANEL CROWN
SECTION
SCALE HALF SIZE

NOTE: SUPERSEDES AP2 DWGS. F-1; F-8; G-1; G-2; G-3; G-4; G-5.

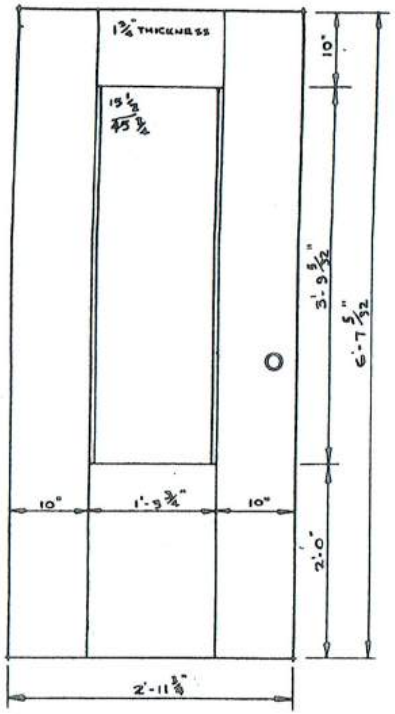
a LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR: D.D.	6-20-48
CH'D: M.J.R.	7-29-48
APP: A.M.T.	8-26-48
SCALE AS NOTED	
REVISED	

STRUCTURAL SECTIONS-STANDARD

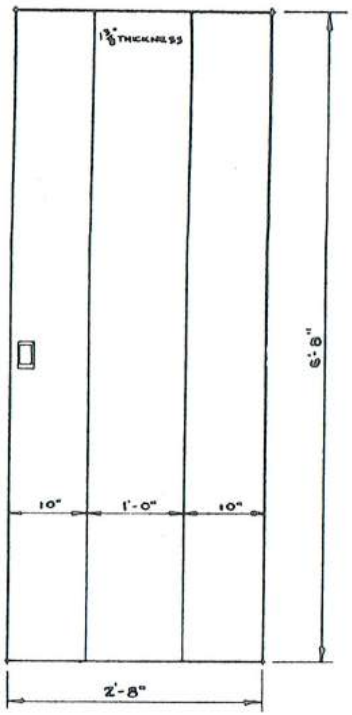
AP2-G-100 (DRAWING NUMBER) A (REV.)

CHG. LETTER	REFERENCE NO.	REVISIONS	BY	CHECKED	APR.	DATE



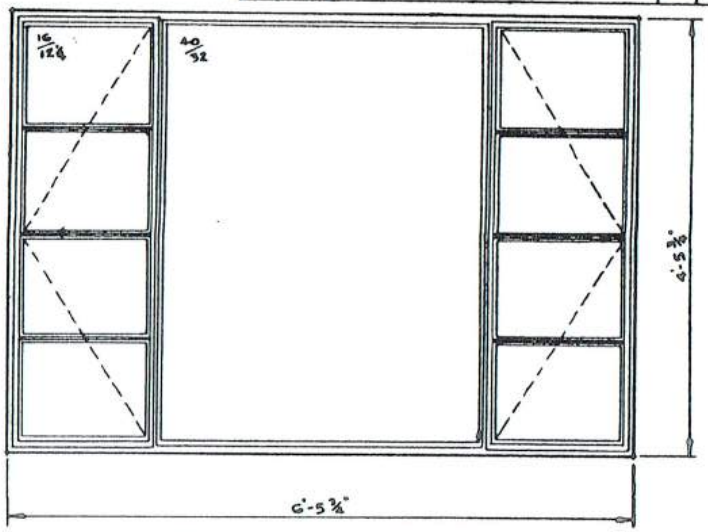
"EXTERIOR DOOR"

I.



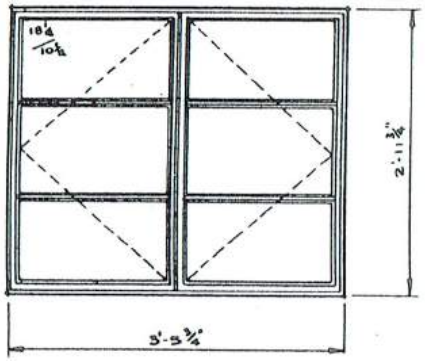
"INTERIOR DOOR"

II



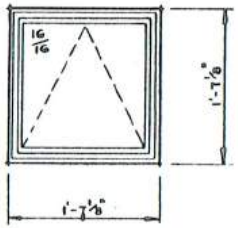
"TYPICAL LARGE WINDOW"

VI.



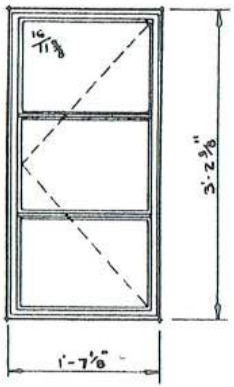
"KITCHEN WINDOW"

VII.



"PORTHOLE WINDOW"

IX.



"BATHROOM WINDOW"

VIII.

NOTE:
ALL VIEWS OF WINDOWS TAKEN OUTSIDE LOOKING IN.

"DOORS AND WINDOW SASH"

SCALE 1" = 1'-0"

NOTE: SUPERSEDES AP2 DWG. F-9.

LUSTRON CORPORATION

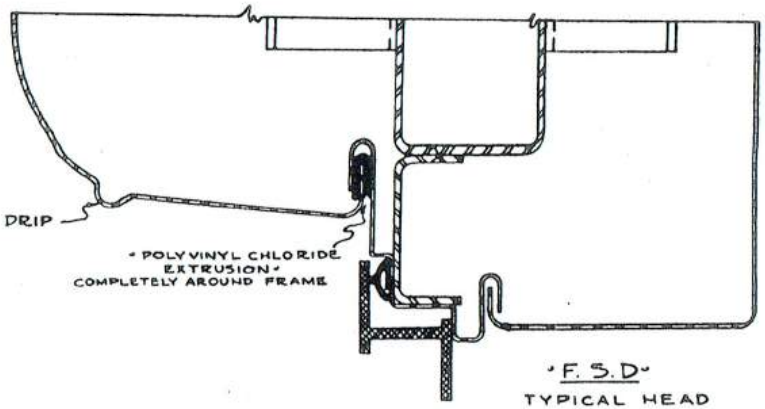
4200 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR.: P.S.Y.	6-30-48
CH'D: M.J.R.	7-29-48
APP: A.M.T.	8-26-48
SCALE AS NOTED	
REVISED	

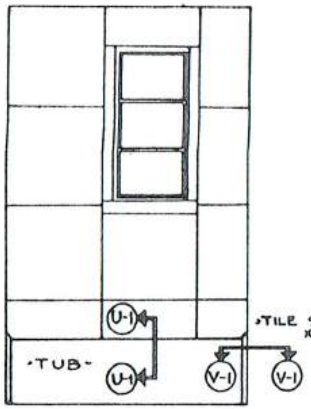
DOORS AND WINDOW SASH

AP2-H-102

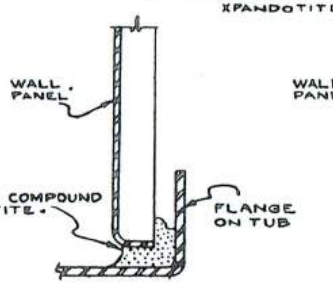
CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
	NP401					



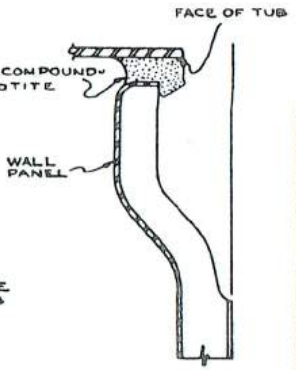
F.S.D.
TYPICAL HEAD



ELEVATION
END OF BATHROOM
SCALE 1/2" = 1'-0"

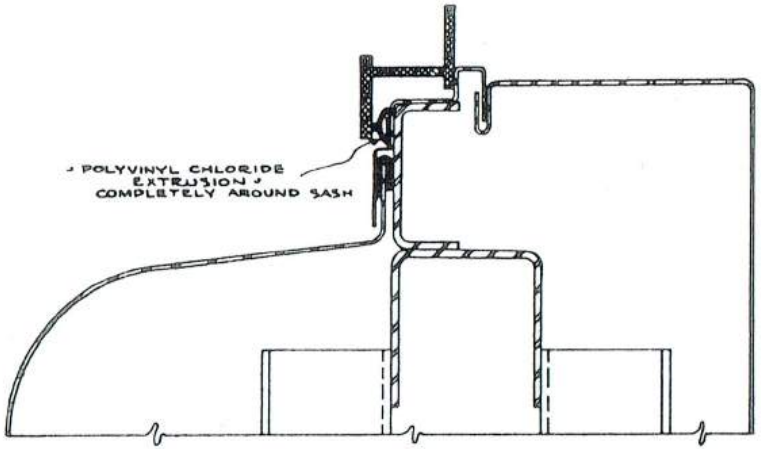


F.S.D.
SECTION (U-1)

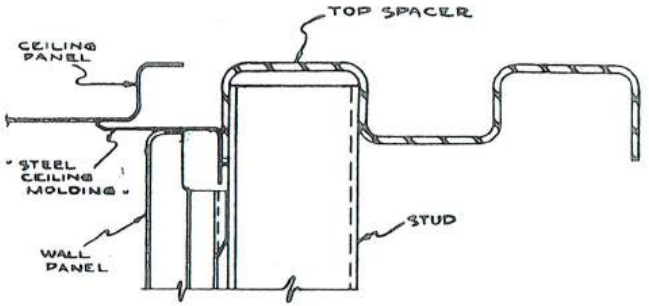


F.S.D.
SECTION (V-1)

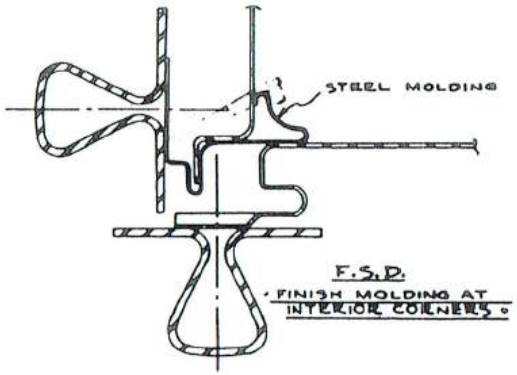
SEALS AT BATHTUB



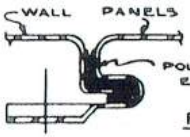
F.S.D.
TYPICAL SILL
WINDOW SEALS



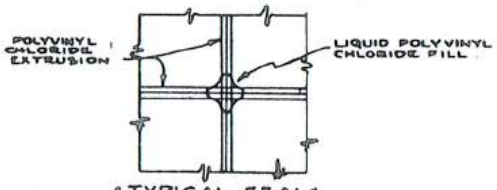
F.S.D.
FINISH MOLDING AT JUNCTION OF WALL & CEILING



F.S.D.
FINISH MOLDING AT INTERIOR CORNERS



F.S.D.
SEAL FOR ALL PANELS
EXTERIOR & INTERIOR



TYPICAL SEAL
AT CORNERS OF EXTERIOR PANELS

STATE OF OHIO
A.M.T.
REGISTERED PROFESSIONAL ENGINEER

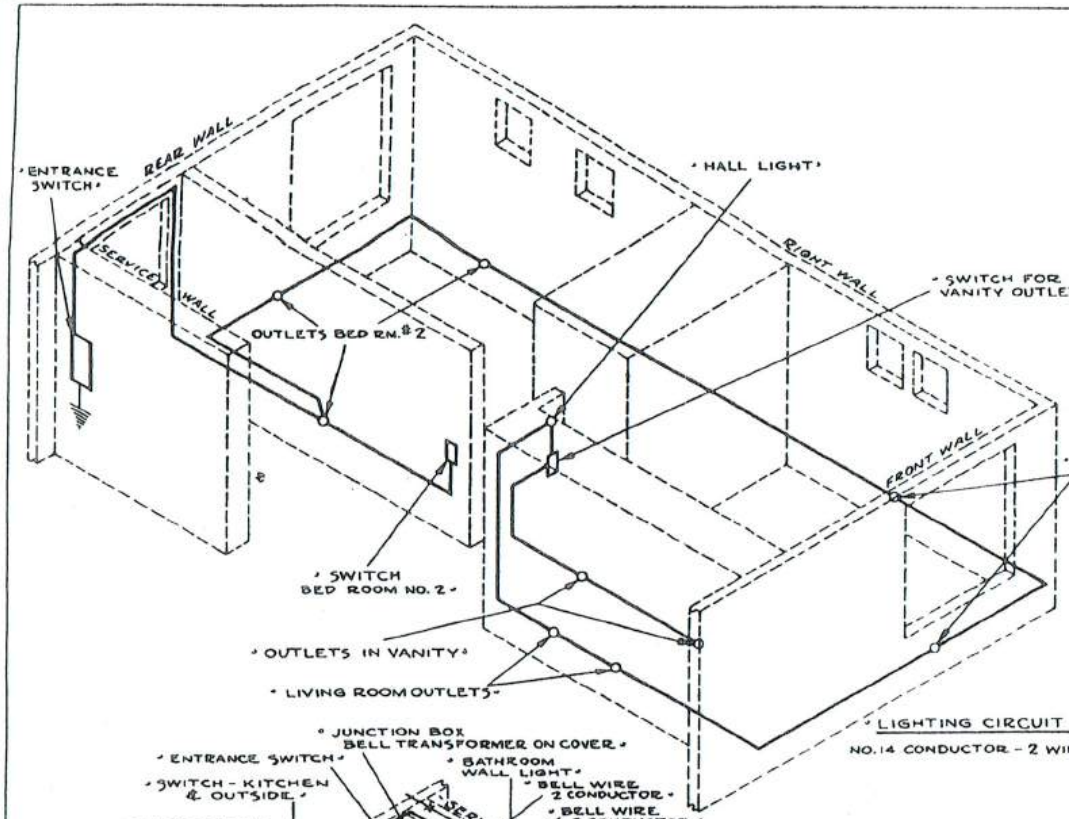
LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 16, OHIO

DR.: P.S.Y.	9-20-60
CH'D: A.M.T.	10-19-60
APP: A.M.T.	10-19-60
SCALE:	

JOINT SEALS

AP2-H-103
DRAWING NUMBER

CHG. LETTER	RELEASE NO.	REVISIONS	CHANGED BY	CHECKED	APP.	DATE
A	NF-67	ADDED [illegible]	[illegible]	AMT		9-8-48

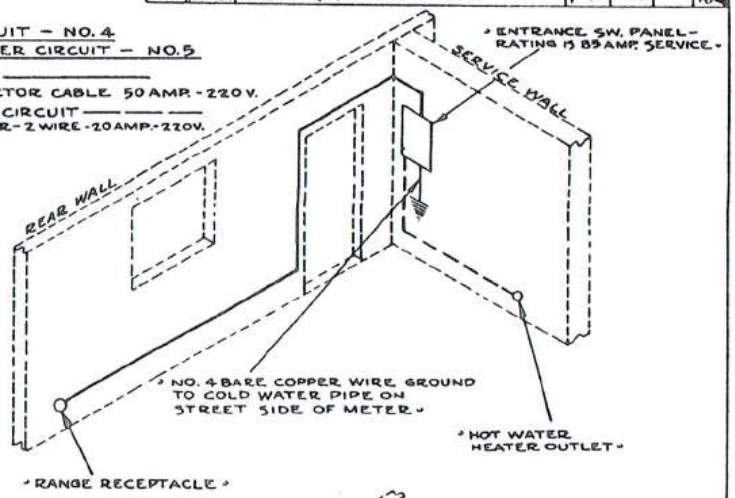


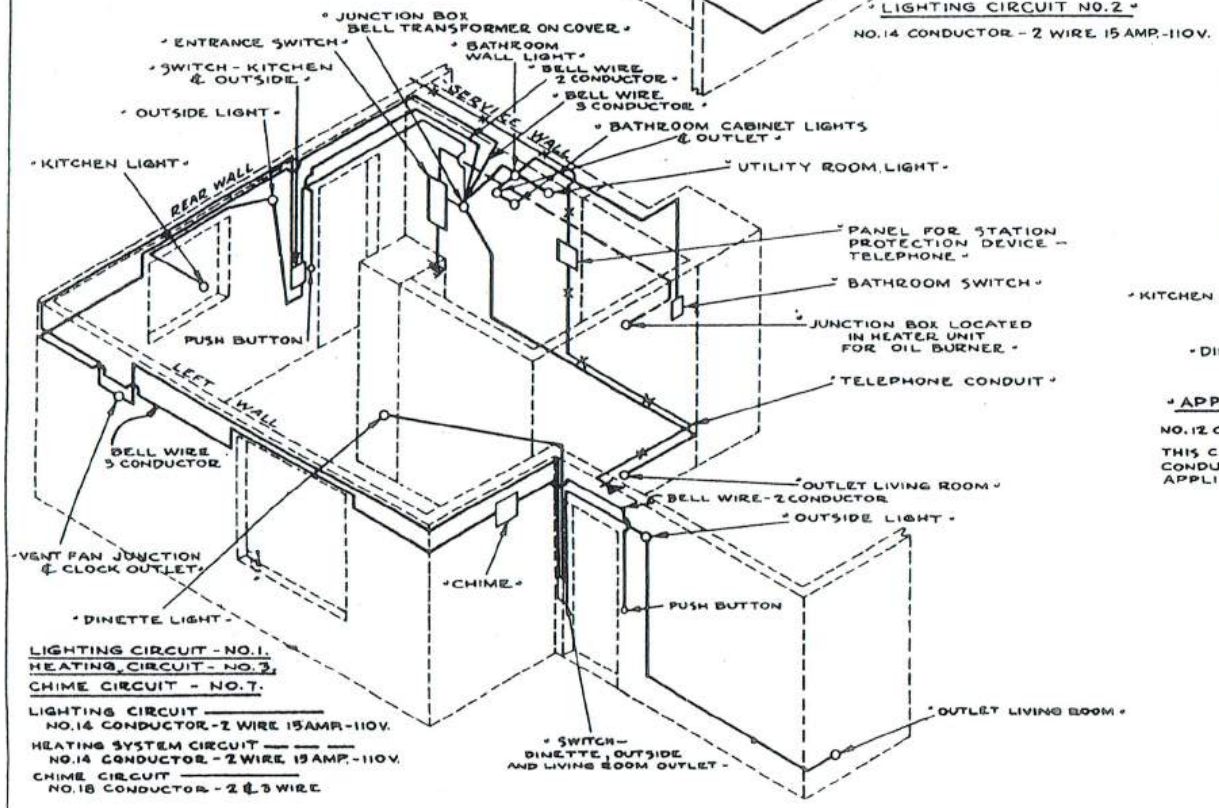
LIGHTING CIRCUIT NO. 2

NO. 14 CONDUCTOR - 2 WIRE 15 AMP. - 110 V.

RANGE CIRCUIT - NO. 4
WATER HEATER CIRCUIT - NO. 5

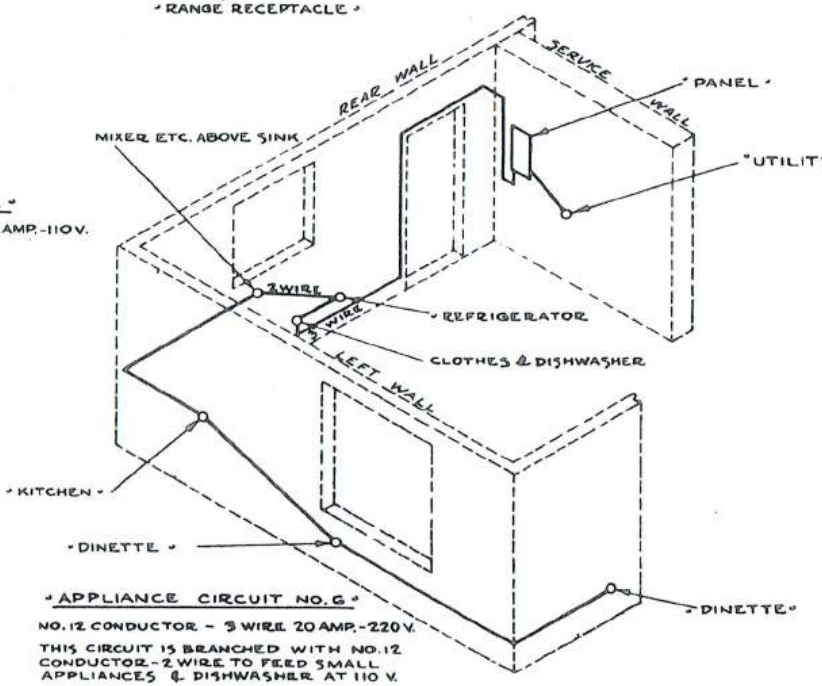
RANGE CIRCUIT —————
NO. 8 - 3 CONDUCTOR CABLE 50 AMP. - 220 V.
WATER HEATER CIRCUIT — — — —
NO. 12 CONDUCTOR - 2 WIRE - 20 AMP. - 220 V.





LIGHTING CIRCUIT - NO. 1.
HEATING CIRCUIT - NO. 3.
CHIME CIRCUIT - NO. 7.

LIGHTING CIRCUIT ————
NO. 14 CONDUCTOR - 2 WIRE 15 AMP. - 110 V.
HEATING SYSTEM CIRCUIT — — —
NO. 14 CONDUCTOR - 2 WIRE 15 AMP. - 110 V.
CHIME CIRCUIT ————
NO. 18 CONDUCTOR - 2 & 3 WIRE



APPLIANCE CIRCUIT NO. 6

NO. 12 CONDUCTOR - 3 WIRE 20 AMP. - 220 V.

THIS CIRCUIT IS BRANCHED WITH NO. 12 CONDUCTOR - 2 WIRE TO FEED SMALL APPLIANCES & DISHWASHER AT 110 V.

NOTE: SUPERSEDES APR DWGS L-2; L-3; L-4; L-5

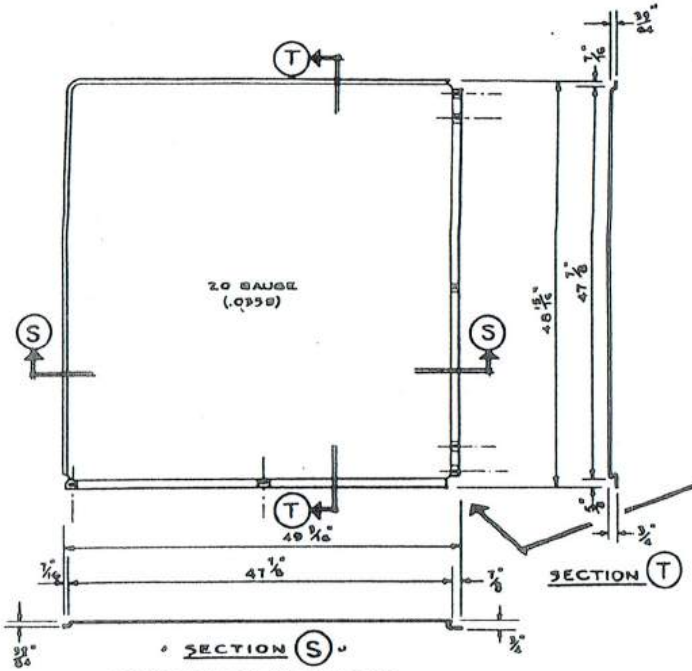
LUSTRON CORPORATION
4200 E. FIFTH AVE., COLUMBUS 19, OHIO

DR.: P.S.Y.	6-15-48
CH'D: A.M.T.	8-26-48
APP: A.M.T.	8-26-48
SCALE: NONE	
REVISED	

ELEC. CIRCUITS - DIAGRAMS.

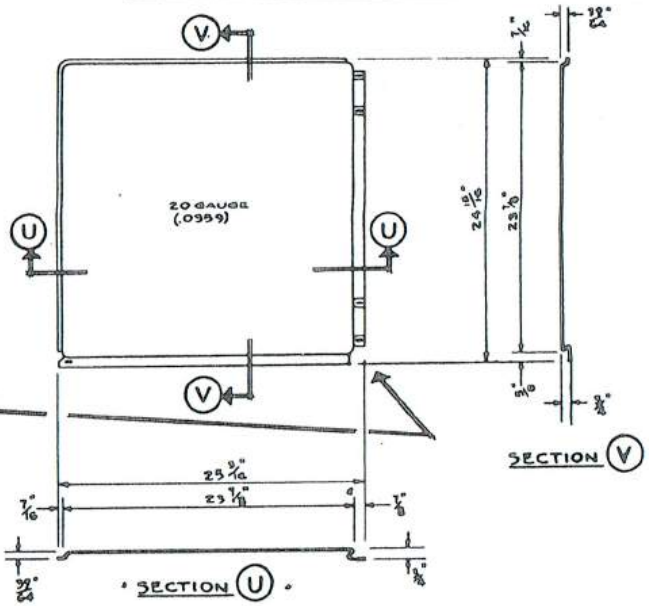
AP2-L-101 A

CHG. LETTER	RELEASE NO.	REVISIONS	DRAWN BY	CHECKED	APP.	DATE

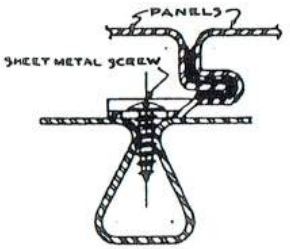


TYPICAL CEILING PANEL
SCALE: 1" = 1'-0"

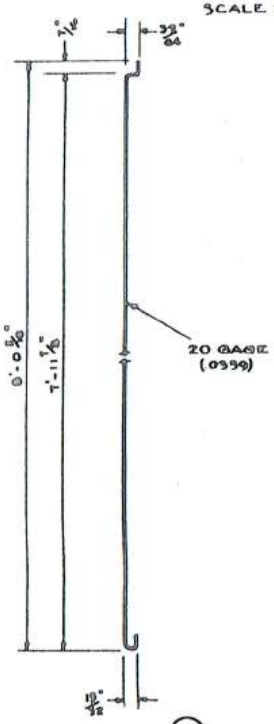
TYPICAL VIEW SHOWING EMBOSSING AT SLOTS

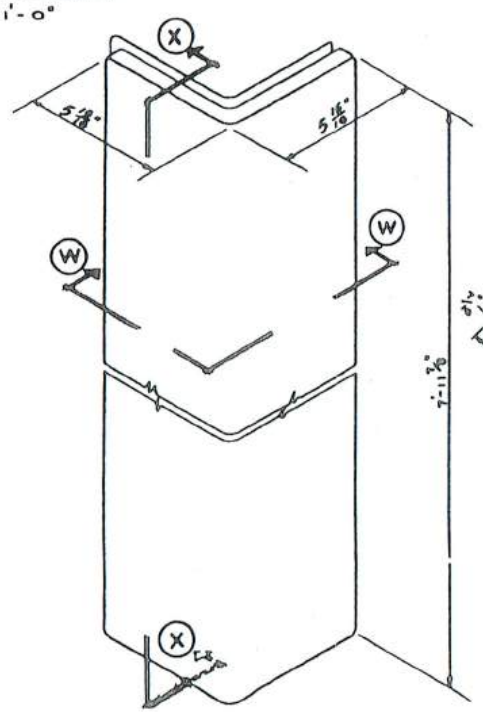


TYPICAL STANDARD PANEL
EXTERIOR WALLS & INTERIOR BATHROOM WALLS
SCALE: 1½" = 1'-0"

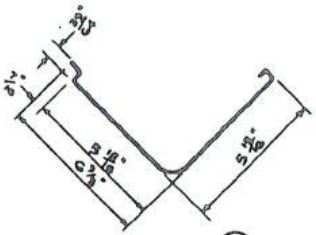


F.S.D.
PANEL FASTENING AT JOINT

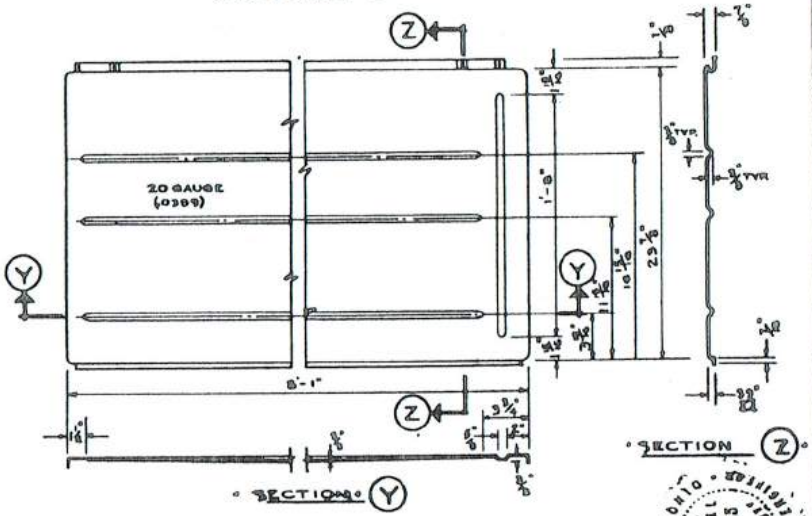




TYPICAL CORNER PANEL
SCALE: 3" = 1'-0"



NOTE:
ALL JOINTS BETWEEN PANELS FILLED WITH POLYVINYL CHLORIDE EXTRUSION.



STANDARD INTERIOR WALL PANEL
SCALE: 1½" = 1'-0".

NOTE: SUPERSEDES AP2 DWGS. G-6; G-7; G-8; G-9.

LUSTRON CORPORATION
4600 E. FIFTH AVE., COLUMBUS 16, OHIO.

DR: M.A.Y.	7-2-48
CHD: M.J.E.	7-29-48
APP: J.K.D.	8-2-48
SCALE AS NOTED	
REVISED	

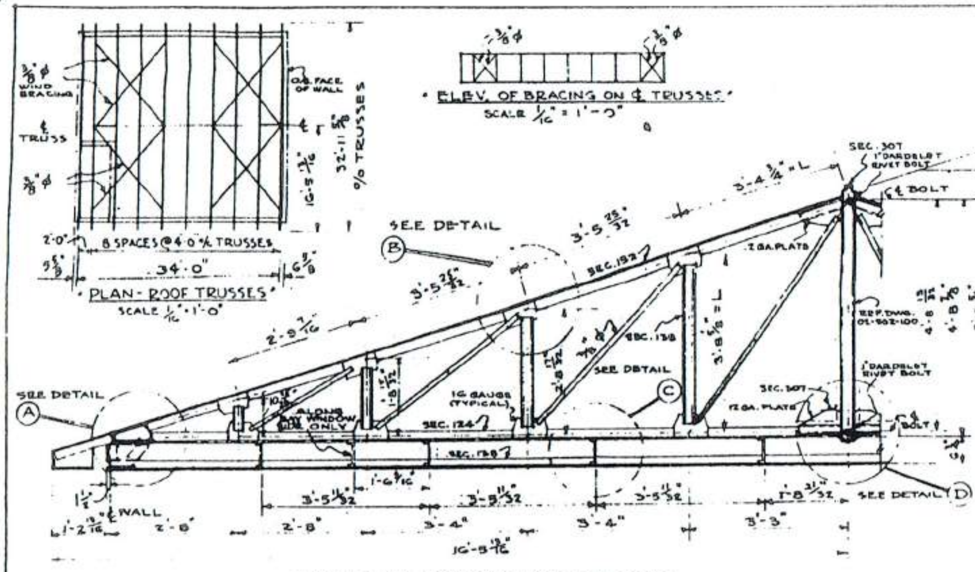
PORCELAIN PANELS - WALLS & CEILING

DRAWING NUMBER: AP2-H-101

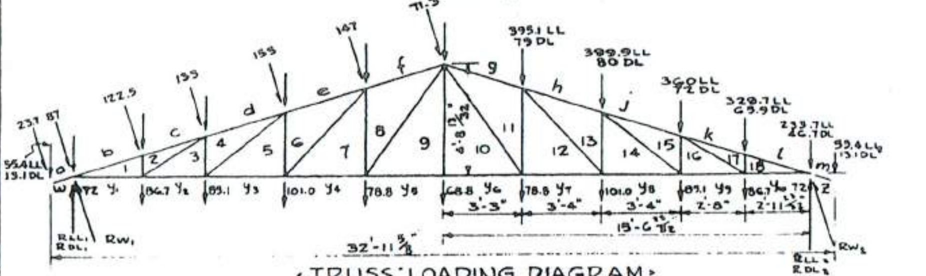
SHEET

6

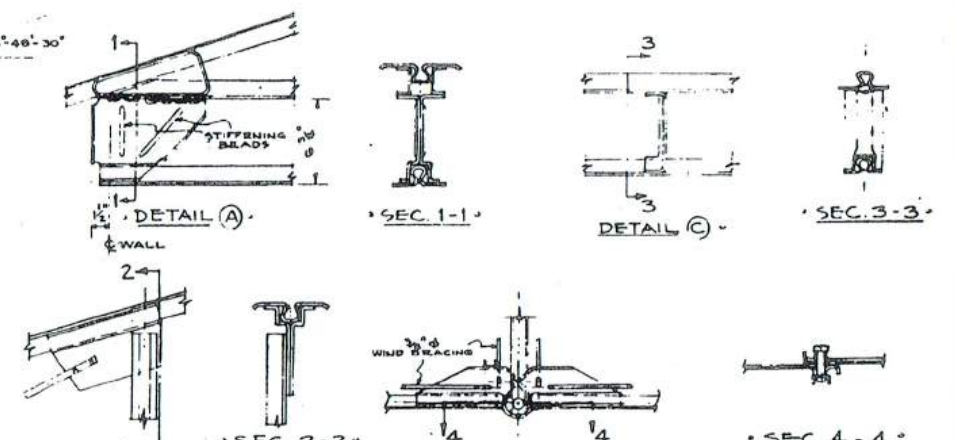
CHG. LETTER	ELEME. NO.	REVISIONS	CHNG'D BY	CHK'D	APP.	DATE
A			P.S.Y.	A.H.T.		



· HALF ELEVATION OF TRUSS ·
SCALE 1/2" = 1'-0"



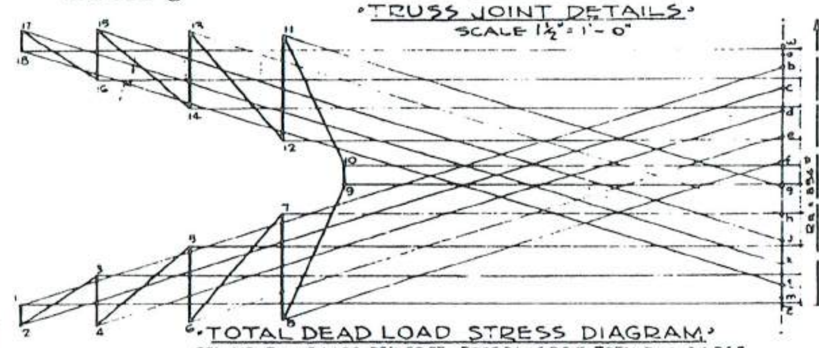
· TRUSS LOADING DIAGRAM ·
SCALE 1/4" = 1'-0"



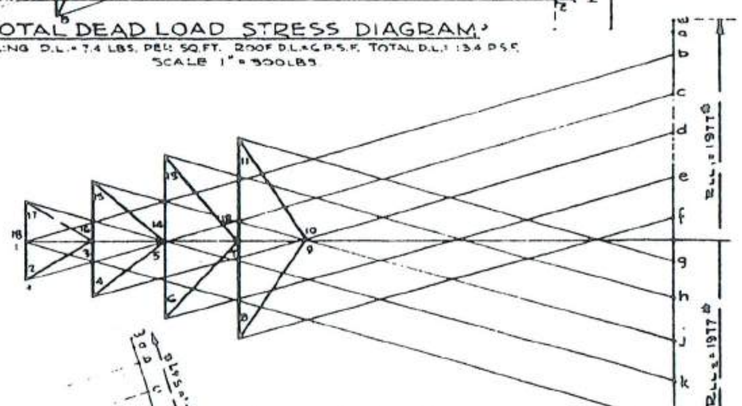
· DETAIL (A) · · SEC. 1-1 · DETAIL (C) · · SEC. 3-3 ·

· DETAIL (B) · · SEC. 2-2 · · DETAIL (D) · · SEC. 4-4 ·

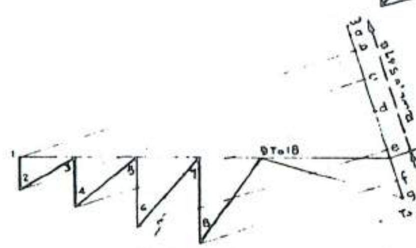
· TRUSS JOINT DETAILS ·
SCALE 1 1/2" = 1'-0"



· TOTAL DEAD LOAD STRESS DIAGRAM ·
CEILING D.L. = 7.4 LBS. PER SQ. FT. ROOF D.L. 6 P.S.F. TOTAL D.L. 13.4 P.S.F.
SCALE 1" = 300 LBS.



· LIVE LOAD STRESS DIAGRAM ·
FOR 30 LBS. PER SQ. FT.
SCALE 1" = 900 LBS.



· WIND LOAD STRESS DIAGRAM ·
FOR 20 LBS. PER SQ. FT. ON VERTICAL PROJECTION
SCALE 1" = 400 LBS.

· TRUSS DESIGN DATA ·

DESIGN LOADS PER SQ.FT.:- CEILING DEAD LOAD = 7.4 LBS. - ROOF D.L. = 6.00 LBS. - TOTAL = 13.4 LBS.
TOTAL STRESS IN POUNDS - UNIT STRESS IN POUNDS PER SQ. IN. - TENSION SHOWN +; COMPRESSION -

1	2	3	4	5	6	7	8	9	10	11	12	13
	STRESSES											
TRUSS MEMBER	TOTAL DEAD LOAD	LIVE LOAD	WIND LOAD	TOTAL D.L. PLUS L.L. COL. 2 & 3 P	TOTAL D.L. & LIVE LOAD + WIND LOAD COL. 2+3+4	DESIGN LOAD (SEE FOOT NOTE)	SECTION NO. USED	SECTION AREA SQ. IN. A	DESIGN UNIT STRESS P/A 5/9	LENGTH L INCHES	L/r	ALLOW UNIT STRESS
1-b	-2470	-5916	-1440	-8386	-9826	-8386	152	.6820	-12300	35.59	79.8	-12500
18-l	-2470	-5916	-614	-8386	-9000	-8386	152	.6820	-12300	35.59	79.8	-12500
8-f	-1630	-3960	-854	-5590	-6444	-5590	152	.6820	-8200	40.74	91.7	-11700
11-g	-1630	-3960	-614	-5590	-6204	-5590	152	.6820	-8200	40.74	91.7	-11700
1-y	+2365	+5670	+1505	+8035	+9540	+8035	124	.4545	+17700	——	——	+18000
18-y	+2365	+5670	+532	+8035	+8567	+8035	124	.4545	+17700	——	——	+18000
1-2	-60	-330	-127	-390	-517	-390	138	.2961	-1315	10.79	23.3	-14920
2-3	+275	+618	+240	+893	+1133	+893	3/8 φ	.1105	+8080	——	——	+20000
3-4	-153	-540	-207	-693	-900	-693	138	.2961	-2340	20.46	44.3	-14320
4-5	+381	+876	+331	+1257	+1588	+1257	3/8 φ	.1105	+1135	——	——	+20000
5-6	-225	-726	-280	-951	-1231	-951	138	.2961	-3210	32.54	70.5	-13050
6-7	+440	+984	+380	+1424	+1804	+1424	3/8 φ	.1105	+12900	——	——	+20000
7-8	-318	-906	-359	-1224	-1583	-1224	138	.2961	-4140	44.62	96.5	-11160
8-9	+482	+1110	+441	+1592	+2033	+1592	3/8 φ	.1105	+1440	——	——	+20000
9-10	+69	0	0	+69	+69	+69	02-502-100	.1720	+400	——	——	+18000
10-11	+482	+1110	0	+1592	+1592	+1592	3/8 φ	.1105	+1440	——	——	+20000
11-12	-318	-906	0	-1224	-1224	-1224	138	.2961	-4130	44.62	96.5	-11160
12-13	+440	+984	0	+1424	+1424	+1424	3/8 φ	.1105	+12900	——	——	+20000
13-14	-225	-726	0	-951	-951	-951	138	.2961	-3210	32.54	70.5	-13050
14-15	+381	+876	0	+1257	+1257	+1257	3/8 φ	.1105	+1140	——	——	+20000
15-16	-153	-540	0	-693	-693	-693	138	.2961	-2340	20.46	44.3	-14320
16-17	+275	+618	0	+893	+893	+893	3/8 φ	.1105	+8080	——	——	+20000
17-18	-60	-330	0	-390	-390	-390	138	.2961	-1320	10.79	23.3	-14920

NOTES: 1) AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION PERMITS DESIGN LOAD (COL. 7) TO BE TOTAL DEAD LOAD PLUS LIVE LOAD (COL. 5) WHERE TOTAL DEAD LOAD PLUS LIVE LOAD PLUS WIND LOAD (COL. 6) DOES NOT EXCEED COL. 5 BY ONE (1/3) THIRD. SEE 1948 MANUAL P.281 - PART III-15c

LUSTRON CORPORATION 4200 E. FIFTH AVE. COLUMBUS 16, OHIO	DR: P.S.Y.	10-22-48
	CHD: A.H.T.	
	APP:	
	SCALE: AS NOTED	
	REVISED	
TRUSS DETAILS & STRESS DIAGRAMS	AP2-F-100	A

Appendix F

The Lustron Home Master Specification

THE LUSTRON HOME

MASTER SPECIFICATION

PREPARED BY A.M. TIETZEL, ENGINEER,
ARCHITECTURAL PLANS AND
SPECIFICATIONS GROUP,
ENGINEERING
DIVISION.

CONSISTING OF EIGHTEEN PAGES - REVISED FEBRUARY 21, 1949
DATE OF ORIGINAL ISSUE - MAY 6, 1948.

MASTER

SPECIFICATION

DATE OF ISSUE
FEBRUARY 21, 1949

A-EXCAVATION

1. EXCAVATION FOR FOUNDATION WALL, FLOOR SLAB AND PIPE SHALL EXTEND TO VIRGIN OR UNDISTURBED SOIL, FREE FROM SOD, ROOTS, HUMUS OR ANY OTHER ORGANIC MATTER AND CAPABLE OF SUSTAINING NOT LESS THAN ONE (1) TON PER SQUARE FOOT OF BEARING AREA.

2. EXCAVATION FOR FOUNDATION WALL MUST EXTEND BELOW THE PREVAILING FROST LINE OF THE LOCALITY, OR MUST COMPLY WITH LOCAL REGULATIONS.

3. BOTTOMS OF ALL WALL AND PIT TRENCHES SHALL BE LEVEL, BUT MAY BE VERTICALLY STEPPED WHERE TOPOGRAPHY OR SOIL CONDITIONS DEMAND.

4. STEPS SHALL BE NOT LESS THAN TWO FEET APART MEASURED HORIZONTALLY AND SHALL NOT EXCEED TWO-THIRDS (2/3) THE HORIZONTAL DISTANCE IN THEIR HEIGHT OR VERTICAL RISE.

5. EXCAVATION FOR FLOOR SLAB SHALL, IN ADDITION TO FOREGOING REQUIREMENTS, BE OF SUFFICIENT DEPTH TO PERMIT INSTALLATION OF THOROUGHLY COMPACTED SUB-BASE OF GRANULAR FILL AS CALLED FOR UNDER HEADING "D-SUB-BASE" AND AS SHOWN ON DRAWINGS.

6. EXCAVATED AREAS PREPARED AS A BEARING SURFACE FOR CONCRETE OR OTHER MASONRY SHALL BE PREVENTED FROM FREEZING BY SUITABLE PROTECTIVE MEASURES.

B-BACKFILL

1. BACKFILL WHEN USED AS BEARING SURFACE, SHALL CONSIST ONLY OF SOIL FREE FROM ALL SOD, ROOTS, HUMUS OR ANY OTHER ORGANIC MATTER AND IT SHALL BE PLACED IN LAYERS NOT TO EXCEED SIX INCHES IN DEPTH AND EACH LAYER SHALL BE THOROUGHLY TAMPED OR ROLLED BEFORE PLACING SUCCEEDING LAYERS.

2. COARSE SAND OR SAND AND SCREENED GRAVEL MAY BE USED AS BACKFILL WITHOUT TAMPING PROVIDED SAME IS COMPLETELY INUNDATED (SUPER-SATURATED) WITH WATER IMMEDIATELY AFTER PLACING AND DRAINAGE EXISTS FOR WATER RUN-OFF.

3. FROZEN OR WATER SOAKED SOIL OR CLODS OF EARTH OVER SIX INCHES IN LONGEST DIMENSION MAY NOT BE USED AS BACKFILL MATERIAL.

C-FOUNDATION

1. CONCRETE SHALL CONSIST OF PORTLAND CEMENT, SUITABLE AGGREGATES AND WATER MIXED IN PROPER PORTIONS TO ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2100 LBS. PER SQUARE INCH IN SEVEN (7) DAYS AND 3000 LBS. PER SQ. INCH IN TWENTY-EIGHT (28) DAYS.

2. PORTLAND CEMENT SHALL CONFORM TO THE "STANDARD SPECIFICATIONS AND TEST FOR PORTLAND CEMENT" (SERIAL DESIGNATION C-150-44 OF THE AMERICAN SOCIETY FOR TESTING MATERIALS) AND SHALL AT ALL TIMES BE PROTECTED AGAINST DAMAGE BY MOISTURE UNTIL READY FOR USE.

3. AGGREGATES - SAND SHALL CONSIST OF CLEAN, HARD, WASHED GRAINS FREE FROM ORGANIC MATTER AND WELL GRADED TO PASS SIEVE SIZES AS INDICATED BELOW:

SIEVE SIZE U.S. STAND.	PERCENT PASSING
NO. 4	NOT LESS THAN 95
NO. 50	8 TO 25
NO. 100	NOT OVER 5

SAND SHALL CONTAIN NOT MORE THAN THREE (3) PER CENT BY WEIGHT OF EITHER LOAM OR CLAY OR ONE (1) PER CENT OF MICA. COARSE AGGREGATE MAY BE GRAVEL, CRUSHED ROCK, AIR-COOLED BLAST-FURNACE SLAG, OR OTHER INERT MATERIALS THAT ARE MADE UP OF CLEAN, WASHED GRAINS OF STRONG, DURABLE MINERALS AND WELL GRADED TO PASS SIEVE SIZES AS INDICATED BELOW:

SIEVE SIZE U.S. STAND.	PERCENT PASSING
1 1/2"	95 TO 100
3/4"	35 TO 70
3/8"	10 TO 30
NO.4	0 TO 5

COARSE AGGREGATE SHALL BE FREE FROM ORGANIC MATTER AND ALKALIS AND SHALL CONTAIN NOT MORE THAN THREE (3) PER CENT BY WEIGHT OF SOFT, FRIABLE, THIN, FLAKY, ELONGATED OR LAMINATED PARTICLES AND ONE AND ONE-HALF (1 1/2) PER CENT OF SHALE BE WEIGHT.

4. WATER USED IN MIXING OF CONCRETE SHALL BE FIT FOR HUMAN CONSUMPTION AT TIME OF USE. IT SHALL BE FREE FROM STRONG ACIDS, ALKALIS, ORGANIC OR OTHER DELETERIOUS MATERIALS. WATER CONTENT OF MIXTURE SHALL NOT EXCEED A RATIO OF 7 GALLONS PER STANDARD BAG OF CEMENT (94 LBS.) INCLUDING WATER CONTAINED IN THE AGGREGATES. THE ABOVE PROPORTIONS ARE BASED ON THE USE OF THE WATER CEMENT RATIO PRINCIPLE.

5. PROPORTIONING OF MIXTURE WILL VARY WITH THE BRAND OF CEMENT AND TYPE OF AGGREGATE LOCALLY AVAILABLE, BUT AS A GUIDE, A SUGGESTED MIXTURE OF 1 TO 2 TO 4 OR ONE PART OF PORTLAND CEMENT TO SIX PARTS OF COMBINED FINE AND COARSE AGGREGATE BY VOLUME IS RECOMMENDED.

   A. THE QUALITY OF THE MATERIALS LOCALLY AVAILABLE WILL DETERMINE THE PROPER PROPORTIONS OF EACH TO BE USED, CONSISTENT WITH THE STRENGTHS SPECIFIED UNDER FIRST PARAGRAPH OF FOUNDATION.

B. TRIAL BATCHES SHOULD BE MADE UP BEFORE THE WORK IS STARTED TO DETERMINE THE EXACT PROPORTIONS NECESSARY TO YIELD CONCRETE OF THE SPECIFIED CHARACTERISTICS.

6. MIXING OF CONCRETE SHALL CONTINUE FOR AT LEAST ONE MINUTE AFTER ALL INGREDIENTS ARE IN THE MIXER, AND UNTIL SUCH TIME AS THE MASS IS UNIFORM IN COLOR AND CONSISTENCY.

7. SLUMP OF CONCRETE SHALL NOT EXCEED FOUR (4) INCHES FOR FOUNDATION WALL AND THREE (3) INCHES FOR FLOOR SLAB WHEN TEST SAMPLE IS PREPARED IN THE FOLLOWING MANNER. A SHEET METAL TOPLESS CONE CONTAINER (FRUSTUM) HAVING A HEIGHT OF TWELVE (12) INCHES, A TOP DIAMETER OF FOUR (4) INCHES AND A BOTTOM DIAMETER OF EIGHT (8) INCHES, IS PLACED ON A SMOOTH HORIZONTAL NON-ABSORBENT SURFACE. THIS CONTAINER IS THEN FILLED WITH THE CONCRETE MIXTURE IN THREE EQUAL HORIZONTAL LAYERS. EACH LAYER IS WORKED WITH A FIVE-EIGHTH (5/8) INCH DIAMETER ROD, PLUNGED UP AND DOWN VERTICALLY TWENTY-FIVE TIMES BEFORE PLACING THE SUCCEEDING LAYER. THE MASS IS THEN STRUCK OFF NEATLY AT THE TOP AND THE CONTAINER IS THEN IMMEDIATELY LIFTE VERTICALLY FROM THE CONCRETE MASS AND SET BESIDE IT. THE CONCRETE MASS DEPRIVED OF ITS SUPPORT, WILL SETTLE. THE AMOUNT OF SETTLEMENT CALLED THE SLUMP IS THE VERTICALLY MEASURED DISTANCE FROM TOP OF CONTAINER TO APEX OF SLUMPED CONCRETE.

8. THE TOTAL NUMBER OF SLUMP TESTS REQUIRED WILL VARY WITH THE AMOUNT OF CONCRETE NEEDED. A SLUMP TEST SHOULD BE MADE FOR EVERY THREE (3) CUBIC YARDS OF CONCRETE PLACED.

9. PLACING OF CONCRETE SHALL BE A CONTINUOUS OPERATION, WHENEVER POSSIBLE AND KEPT PRACTICALLY LEVEL THROUGHOUT THE LENGTH BEING PLACED. WHERE HORIZONTAL JOINTS ARE MADE, EXCESS WATER AND LAITANCE SHALL BE REMOVED, THE SURFACE ROUGHENED AND WEAK CONCRETE REMOVED BEFORE RESUMING OPERATIONS. VERTICAL CONSTRUCTION JOINTS DUE TO WORK STOPPAGE OR ANY OTHER REASON SHALL BE KEYED. CONCRETE SHALL BE THOROUGHLY COMPACTED BY SPADING, PUDDLING OR VIBRATION. ANY FLOWING OR STANDING WATER ON SURFACES THAT WILL RECEIVE CONCRETE, SHOULD BE DIVERTED OR REMOVED BEFORE PLACING OF CONCRETE AND SHALL NOT BE PERMITTED TO ACCUMULATE OR FLOW INTO THE WORK AREA AGAIN FOR A PERIOD OF TWENTY-FOUR HOURS AFTER THE CONCRETE HAS BEEN PLACED.

10. FROST, SNOW AND ICE SHALL BE REMOVED FROM ALL FORMS BEFORE PLACING OF CONCRETE THEREIN. NO CONCRETE SHALL BE PLACED ON FROZEN GROUND.

11. COLD WEATHER PROTECTION OF CONCRETE SHALL BE MANDATORY WHEN PLACING CONCRETE IN ATMOSPHERIC TEMPERATURES AT OR BELOW 40^0 F. OR WHENEVER IT IS PROBABLE THAT TEMPERATURES WILL FALL BELOW 40^0 F. WITHIN TWENTY-FOUR HOURS (24) AFTER PLACING OF CONCRETE. AT SUCH TIMES THE MIXING WATER AND AGGREGATES SHALL BE HEATED AND THE FRESHLY PLACED CONCRETE SHALL BE PROTECTED BY ADEQUATE HOUSING, COVERING OR FURTHER HEATING. TEMPERATURE OF CONCRETE WHEN PLACED IN THE FORMS SHALL BE NOT LESS THAN 70^0 F. NOR MORE THAN 100^0 F. AND THEN MAINTAINED AT A TEMPERATURE OF NOT LESS THAN 70^0 F. FOR SEVENTY-TWO (72) HOURS AFTER PLACING. NO CHEMICALS SHALL BE USED TO PREVENT FREEZING OF CONCRETE.

12. CURING OF CONCRETE SHALL BE ACCOMPLISHED BY PREVENTING EVAPORATION OF ORIGINAL WATER CONTENT FOR A PERIOD OF NOT LESS THAN SEVEN (7) DAYS.

C-FOUNDATIONS (CONTINUED)

ALL SURFACES MUST BE KEPT CONTINUOUSLY WET DURING THIS SEVEN (7) DAY PERIOD BY COVERING WITH WATER, AN APPROVED WATER SATURATED COVERING, SISALKRAFT PAPER OR A LIQUID MEMBRANE OF A NON-WAX TYPE SPRAYED ON THE SURFACE. THIS MEMBRANE MUST COMPLY WITH A.S.T.M. SERIAL DESIGNATION C-156-44.

D-SUB BASE

1. BEFORE PLACING CONCRETE FOR FLOOR SLAB, A COARSE GRANULAR FILL OR SUB-BASE OF WASHED GRAVEL, CRUSHED STONE OR BLAST FURNACE SLAG SHALL BE PROVIDED OVER THE ENTIRE FLOOR AREA. THIS SUB-BASE SHALL BE THOROUGHLY COMPACTED BY ROLLING OR TAMPING AND BROUGHT TO A LEVEL SURFACE IT SHALL COMPLY WITH SPECIFICATION FOR NO. 4 SIZE GRAVEL AS FOLLOWS:

SIEVE SIZE - U.S. STAND.	1"	3/4"	1/2"	3/8"	NO.4
PERCENT PASSING	100	80 TO 95	40 TO 65	20 TO 45	0 TO 8

2. VAPOR BARRIER - ON TOP OF COMPACTED GRANULAR FILL APPLY A LAMINATED ASPHALT COATED WATERPROOF PAPER OF SUFFICIENT STRENGTH TO RESIST PUNCTURING WHEN WALKED ON.

   A. THIS PAPER SHALL BE LAID WITH JOINTS LAPPING A MINIMUM OF SIX (6) INCHES.

   B. EXTREME CARE MUST BE EXERCISED DURING PLACING OF PAPER AND SUBSEQUENT CONCRETE FLOOR SLAB TO PREVENT PUNCTURING OF THE PAPER MEMBRANE.

   C. THE PAPER FOR VAPOR BARRIER SHALL BE OF LAMINATED CONSTRUCTION, HAVING THREE SHEETS OF KRAFT PAPER AND TWO LAYE OF AN ASPHALTIC BASE ADHESIVE. THE TOTAL SHALL WEIGH NO LESS THAN EIGHTY (80) POUNDS PER 1000 SQUARE FEET.

   D. BROWNSKIN VAPORSEAL OR LUSTRON APPROVED EQUAL INDICATES THE QUALITY STANDARD REQUIRED.

3. INSULATION FOR FLOOR SLAB SHALL BE PLACED AROUND INNER FACE OF CONCRE FOUNDATION WALL BEFORE PLACING CONCRETE FLOOR SLAB.

   A. THIS INSULATION SHALL BE RIGID AND ONE (1) INCH THICK BY NINE (9) INCHES WIDE AND IN LONGEST COMMERCIALLY AVAILABLE LENGTHS.

   B. IT SHALL BE LAID ON EDGE WITH THE ONE (1) INCH DIMENSION HORIZONTAL. IT SHALL BE CAREFULLY FITTED AGAINST THE FOUNDATION WALL AND EXTREME CARE EXERCISED TO PREVENT PHYSICAL DAMAGE TO INSULATION, SUCH AS PUNCTURES, BROKEN CORNERS OR RAGGED EDGES.

   C. RUBATEX, ASPHALT ENCLOSED FIBERGLAS OR LUSTRON APPROVED EQUAL INDICATES THE QUALITY STANDARD REQUIRED.

E-FLOOR SLAB

1. ARTICLE C, ITEMS 1 TO 12 APPLY TO FLOOR SLAB CONCRETE AS WELL AS FOUNDATIONS. IN ADDITION TO THE FOREGOING SPECIFICATION THE CEMENT FOR CONCRETE FLOOR SLAB SHALL CONTAIN AN AIR ENTRAINING FACTORY ADMIXTURE FOR THE PURPOSE OF DECREASING THE WATER CONTENT AND INCREASING THE WORKABILITY OF THE CONCRETE MIXTURE.

2. WATER CONTENT OF FLOOR SLAB CONCRETE MIXTURE SHALL NOT EXCEED 6 GALLONS PER SACK OF CEMENT INCLUDING WATER INTRODUCED AS SURFACE MOISTURE ON THE AGGREGATES. THE CONCRETE SHALL BE OF THE DRIEST CONSISTENCY POSSIBLE TO WORK WITH A SAWING MOTION OF THE STRIKE-OFF BOARD, OR STRAIGHT EDGE.

3. REINFORCEMENT OF FLOOR SLAB SHALL BE MADE WITH A WELDED WIRE MESH FABRIC HAVING NO. 6 GAUGE WIRE RUNNING IN EACH DIRECTION AT RIGHT ANGLES TO EACH OTHER AND SPACED ON SIX (6) INCH CENTERS. THIS METAL REINFORCEMENT SHALL WEIGH NOT LESS THAN FORTY (40) POUNDS PER ONE HUNDRED (100) SQUARE FEET. THE MINIMUM EDGE OR END LAP OF REINFORCEMENT SHALL BE SIX (6) INCHES. ALL WELDED FABRIC SHALL CONFORM TO A.S.T.M. SERIAL DESIGNATION A-185-37.

4. AFTER CONCRETE FOR FLOOR SLAB HAS BEEN PLACED, IT SHOULD BE COMPACTED BY TAMPING WITH IRON TAMPERS OR ROLLING WITH WEIGHTED ROLLERS OVER THE ENTIRE SURFACE.

5. SCREEDS - IT IS SUGGESTED THAT SCREEDS BE SO SPACED THAT THE CONCRETE FOR FLOOR SLAB WILL BE PLACED IN STRIPS NOT EXCEEDING NINE (9) FEET IN WIDTH. FURTHERMORE, THE SCREEDS SHALL BE ACCURATELY LEVELLED WITH A SURVEYOR'S LEVEL, SO THAT AT NO POINT WILL THE FINISHED CONCRETE FLOOR EXCEED ONE (1) INCH ABOVE THE TOP OF THE STEEL SILL PLATE.

   A. THE FINISHED CONCRETE FLOOR SHALL NOT VARY IN EXCESS OF ONE-FOURTH (1/4) INCH FROM ONE SCREED STRIP TO ANOTHER OR IN THE LENGTH OF NINE (9) FEET ALONG THE SCREED STRIP.

   B. NO SCREED STRIP SHALL EXCEED A HEIGHT OF ONE (1) INCH ABOVE TOP OF STEEL SILL PLATE.

   C. AFTER SCREED STRIPS HAVE BEEN PROPERLY SET OR LEVELLED, A STRAIGHT EDGE SHOULD BE MOVED ACROSS THE STRIPS IN A SAWING MOTION, AND ADVANCING HORIZONTALLY AT THE SAME TIME. THIS ACTION SHOULD STRIKE OFF THE CONCRETE AT THE PROPER LEVEL.

   D. ALL SCREEDS SHALL BE REMOVED BEFORE THE CONCRETE HAS TAKEN ITS INITIAL SET, SO THAT CONSTRUCTION JOINTS WILL BE ELIMINATED AND A MONOLITHIC SLAB SECURED.

6. FLOATING OF THE CONCRETE SLAB SURFACE IS THE NEXT STEP. THIS IS DONE FOR THE PURPOSE OF COMPACTING, FILLING OUT THE HOLLOWS AND REMOVING THE HUMPS LEFT AFTER THE SCREEDING PROCESS. FLOATING MAY BE DONE BY THE POWER FLOAT OR BY HAND WITH WOOD OR CORK FLOATS.

7. TROWELING IS THE FINAL STEP IN THE FINISHING OF THE CONCRETE FLOOR SURFACE. IT SHOULD BE UNDERTAKEN ONLY AFTER THE CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT MOISTURE AND FINE MATERIALS FROM BEING DRAWN TO THE SURFACE. AT TIME OF FINAL TROWELING, THE SURFACE SHOULD BE SO HARD THAT NO MORTAR WILL ACCUMULATE ON THE TROWEL AND A RINGING SOUND IS PRODUCED AS THE TROWEL IS DRAWN ACROSS THE SURFACE OF THE CONCRETE. THE FINISHED FLOOR SHOULD BE TROWELLED TO A HARD, SMOOTH SURFACE, FREE OF RIDGES, DEPRESSIONS, WAVES OR OTHER IRREGULARITIES.

8. PORCH FLOOR SLAB SHALL BE SLOPED DOWNWARD IN ONE DIRECTION ONLY FROM LIVING ROOM ENTRANCE DOOR WALL OUTWARD TO OUTER EDGE OF PORCH SLAB A TOTAL OF 1/2 INCH. SURFACE SHALL BE FLOATED TO A SAND FINISH AND NOT TROWELLED.

F-STRUCTURAL

1. STRUCTURE ABOVE FOUNDATION IS DESIGNED FOR DEAD, SNOW AND WIND LOADS IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, SPECIFICATION, REVISED FEBRUARY 1946 AND THE AMERICAN IRON AND STEEL INSTITUTE SPECIFICATION FOR THE DESIGN OF LIGHT GAGE STEEL STRUCTURAL MEMBERS, EDITION OF APRIL 1946.

2. DESIGN LOADS
THE FOLLOWING DESIGN LOADS ARE USED FOR ROOF AND WALL STRUCTURES:

1. ROOF STRUCTURE
   - A. DEAD LOAD = 13.4 LBS. PER SQ. FT. HORIZONTAL PROJECTION
   - B. SNOW LOAD = 30.0 LBS. PER SQ. FT. HORIZONTAL PROJECTION
   - C. WIND LOAD = 20.0 LBS. PER SQ. FT. VERTICAL PROJECTION

2. WALL STRUCTURE
   - A. DEAD LOAD = WEIGHTS OF WALL STRUCTURE PLUS ROOF STRUCTURE OR 57.0 + 13.4 = 70.4 LBS. PER SQ. FT.
   - B. SNOW AND WIND LOADS FROM NO. 1-B AND 1-C ABOVE. THE WIND LOAD IS APPLIED TO THE ROOF AS A NORMAL COMPONENT COMPUTED BY THE DUCHEMIN FORMULA.

3. STEEL SHALL CONFORM TO THE TENTATIVE SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS FOR LIGHT GAGE STRUCTURAL QUALITY FLAT ROLLED CARBON STEEL, SERIAL DESIGNATION A-245-T GRADE C WITH A MINIMUM YIELD POINT OF 33,000 LBS. PER SQUARE INCH.

4. TRUSSES, EXTERIOR AND INTERIOR WALL STRUCTURES ARE SHOP FABRICATED AND ASSEMBLED BY MEANS OF RESISTANCE OR SPOT WELDING IN SPECIAL JIGS AND FIXTURES. THEY ARE DESIGNED TO PREVENT DISTORTION DUE TO WELDING AND TO ASSURE ACCURATE DIMENSIONS.

ALL WELDING IS IN ACCORDANCE WITH THE WELDING PROCEDURE SET FORTH IN THE RECOMMENDED PRACTICE PUBLISHED BY THE AMERICAN WELDING SOCIETY AND DATED AUGUST 1944.

TRUSSES ARE COMPLETELY SHOP FABRICATED IN TWO SECTIONS WITH BOLTED FIELD

CONNECTIONS AT THE CENTER.

ALL STRUCTURAL MEMBERS ARE BONDERIZED AND THEN GIVEN A COAT OF APPROVED ORGANIC ENAMEL WHICH IS BAKED AT A TEMPERATURE OF 350 DEGREES FAHRENHEIT

5. EXTERIOR WALL PANELS ARE MADE OF 20 GAUGE STEEL, COLD FORMED TO SHAPE AS INDICATED ON DRAWINGS AND COVERED WITH ACID RESISTING PORCELAIN ENAMEL. INSULATION CONSISTING OF 1 1/2" OF GLASS WOOL OR LUSTRON APPROVED EQUAL IS ATTACHED IN THE FACTORY TO INTERIOR FACE OF EXTERIOR PANELS. FOR THIS PURPOSE A WATERPROOF ADHESIVE IS USED.

ALL JOINTS FORMED BY PANELS IN THE EXTERIOR WALLS ARE SEALED BY MEANS OF FACTORY APPLIED POLYVINYLCHLORIDE EXTRUSIONS. EXTERIOR WALL PANELS ARE APPLIED IN THE FIELD TO THE STRUCTURAL EXTERIOR WALL SECTIONS BY MEANS OF SELF TAPPING RUST RESISTANT SHEET METAL SCREWS AND IN SUCH A MANNER THAT THE METHOD OF ATTACHMENT IS NOT EXPOSED OR VISIBLE.

AT ALL JOINTS OF EXTERIOR WALL PANELS, WHERE THE FACTORY APPLIED SEALING EXTRUSION OF POLYVINYLCHLORIDE DOES NOT COMPLETELY SEAL THE JOINT, A COMPLETE SEAL IS MADE BY THE INJECTION OF A LIQUID PREPARATION OF POLYVINYLCHLORIDE, UNTIL ALL VOIDS ARE FILLED.

THIS FIELD INJECTED MATERIAL UPON SETTING BECOMES AN INTEGRAL PART OF THE WALL SEAL.

6. INTERIOR WALL PANELS ARE MADE OF 20 GAGE STEEL, COLD FORMED TO THE SHAPE INDICATED ON DRAWINGS AND COVERED WITH ACID RESISTING PORCELAIN ENAMEL. INSULATION CONSISTING OF ONE (1) INCH OF GLASS WOOL OR LUSTRON APPROVED EQUAL IS ATTACHED IN THE FACTORY TO THE BOTTOM TWELVE (12) INCHES OF THE EXTERIOR FACES OF INTERIOR WALL PANELS FORMING OUTER WALLS. A WATERPROOF ADHESIVE IS USED FOR THIS PURPOSE.

ALL JOINTS FORMED BETWEEN PANELS OF INTERIOR WALLS ARE SEALED BY MEANS OF FACTORY APPLIED POLYVINYLCHLORIDE EXTRUSIONS. PANELS ARE APPLIED IN THE FIELD TO STRUCTURAL WALL SECTIONS BY MEANS OF SELF TAPPING RUST RESISTANT SHEET METAL SCREWS AND IN SUCH A MANNER THAT THE METHOD OF ATTACHMENT IS NOT EXPOSED OR VISIBLE.

7. CEILING PANELS ARE MADE OF 20 GAUGE STEEL, COLD FORMED TO THE SHAPE INDICATED ON THE DRAWINGS AND COVERED WITH ACID RESISTING PORCELAIN ENAMEL. ALL JOINTS FORMED BY PANELS IN THE CEILING ARE SEALED BY MEANS OF FACTORY APPLIED POLYVINYLCHLORIDE EXTRUSIONS. PANELS ARE APPLIED IN THE FIELD BY MEANS OF SELF TAPPING RUST RESISTANT SHEET METAL SCREWS, IN SUCH A MANNER THAT THE METHOD OF ATTACHMENT IS NOT EXPOSED OR VISIBLE. CEILING PANELS WHEN APPLIED WILL FORM THE BOTTOM OF THE PLENUM CHAMBER FOR THE HEATING SYSTEM AND WILL BE A SUSPENDED TYPE CEILING.

8. ROOF PANELS ARE MADE OF 20 GAUGE STEEL, COLD FORMED TO THE SHAPE INDICATED ON THE DRAWINGS AND COVERED WITH THE ACID RESISTING PORCELAIN ENAMEL. ROOF PANELS ARE SO FORMED THAT THEY WILL BE LOAD BEARING AND TRANSMIT THE DESIGN LOADS DIRECTLY TO THE TRUSSES WITHOUT THE HELP OF SUPPORTING MEMBERS. IN ADDITION TO STRENGTH, THE OVER-LAPPING EDGES OF ROOF PANELS ARE SO DESIGNED THAT THEY WILL PROVIDE A WEATHER-TIGHT JOINT. ROOF PANELS ARE APPLIED IN THE FIELD WITH SELF-TAPPING, RUST

RESISTANT SHEET METAL SCREWS IN SUCH A MANNER THAT THE METHOD OF ATTACHMENT IS NOT EXPOSED OR VISIBLE EXCEPT RIDGE ROLL ATTACHMENT.

9. ABOVE PLENUM CHAMBER TO PREVENT HEAT LOSS INTO THE ATTIC AREA, THERE SHALL BE PROVIDED AN INSULATING BLANKET OF 6" GLASS WOOL OR EQUIVALENT. SUCH BLANKET SHALL BE PLACED ON MEMBERS DESIGNED FOR ITS SUPPORT AS SHOWN ON THE DRAWINGS.

G-WINDOWS AND DOORS

1. WINDOWS ARE CASEMENT, FIXED, OR AWNING TYPE AS INDICATED ON DRAWING AND ARE CONSTRUCTED OF ALUMINUM EXTRUSIONS. ALL CASEMENT VENTILATING SECTIONS ARE ROTO OPERATED WITH CAM LOCKS. SCREENS FOR VENTILATING SECTIONS ARE CONSTRUCTED OF ALUMINUM EXTRUSIONS OR ROLLED SECTIONS WITH ALUMINUM OR BRONZE WIRE CLOTH. PROVISIONS ARE MADE FOR STORM SASH ON ALL WINDOWS.

2. GLAZING IS DONE WITH "B" QUALITY, DOUBLE STRENGTH GLASS, EACH LIGHT MUST BEAR THE MANUFACTURER'S IDENTIFYING LABEL. ALL GLASS IS HELD IN PLACE BY MEANS OF POLYVINYLCHLORIDE EXTRUSIONS AND SO PLACED AND FORMED THAT NO AIR LEAKAGE WILL OCCUR THRU THIS MECHANICAL GLAZING MEDIUM.

3. DOORS SHALL BE OF THE SIZES AND TYPES CALLED FOR ON THE DRAWINGS. EXTERIOR DOORS SHALL BE HINGED WHILE INTERIOR DOORS SHALL BE SLIDING, CONCEALED TYPE. INSULATION AND SOUND DEADENING ON EXTERIOR DOORS SHALL BE AS SHOWN ON THE DRAWINGS.

4. DOOR FRAMES SHALL CONSIST OF 16 GAUGE STEEL BUCK, BONDERIZED, AND PAINTED WITH AN APPROVED PORCELAIN ENAMEL, AND DOOR TRIM OF 20 GAUGE STEEL, COLD FORMED AND COVERED WITH ACID RESISTING PORCELAIN ENAMEL. ALL JOINTS SHALL BE SECURED AND SEALED AGAINST THE WEATHER AFTER ERECTION.

H-VAPOR BARRIER

1. VAPOR BARRIER FOR EXTERIOR WALLS SHALL BE A LAMINATED ASPHALT COATED WATERPROOF PAPER OF THE DUPLEX TYPE, THAT IS, TWO LAYERS OF PAPER AND ONE LAYER OF ASPHALT ADHESIVE.
   - A. THE TOTAL WEIGHT SHALL BE NOT LESS THAN FIFTY-SIX (56) POUNDS PER 1000 SQUARE FEET.
   - B. ONE LAYER OF PAPER SHALL BE CRIMPED OR CORRUGATED.
   - C. THE MOISTURE PERMEABILITY SHALL NOT EXCEED ONE (1) GRAIN PER ONE (1) SQUARE FOOT PER HOUR AT A VAPOR PRESSURE DIFFERENCE OF ONE (1) INCH OF MERCUTY THRU THE MATERIAL OR SIX (6) GRAMS PER SQUARE METER IN TWENTY-FOUR (24) HOURS AT FIFTY (50) PER CENT VERSUS 5 PER CENT RELATIVE HUMIDITY AND 73 DEGREES FAHRENHEIT (TAPPI TEST METHOD)
   - D. THIS MATERIAL SHALL BE FIFTY-FOUR (54) INCHES WIDE AND HAVE A BURSTING STRENGTH OF SIXTY (60) LBS. (MULLEN TEST)
   - E. BROWNSKIN VAPORSEAL, CLASS A, AS MANUFACTURED BY THE ANGIER CORPORATION OR X-CREPE AS MANUFACTURED BY THE CINCINNATI INDUSTRIES MEETS THE ABOVE SPECIFICATION.

H-VAPOR BARRIER (CONTINUED)

2. APPLICATION OF VAPOR BARRIER - THE PAPER VAPOR BARRIER SHALL BE APPLIED IN VERTICAL STRIPS FROM TOP STUD SPACER TO BOTTOM STUD SPACER AND ON ROOM SIDE FACE OF INSIDE STUDS.
   A. A COAT OF WATERPROOF ADHESIVE IS BRUSHED ONTO ROOM SIDE OF INSIDE STUDS, ALSO ON ROOM SIDE FLANGES OF TOP AND BOTTOM STUD SPACERS.
   B. THE SMOOTH SIDE (LIGHT COLOR) OF VAPOR BARRIER IS THEN PRESSED AGAINST THE STUD SPACER AND STUDS.
   C. ALL STRIPS ARE LAPPED SIX (6) INCHES AND A COAT OF ADHESIVE IS BRUSH-APPLIED TO THE SMOOTH SIDE OF PAPER AT ALL LAPS. THE TWO LAYERS OF PAPER ARE THEN THOROUGHLY PRESSED TOGETHER.
   D. AROUND ALL OPENINGS WHERE IT IS NECESSARY TO CUT OUT A PORTION OF PAPER VAPOR BARRIER, SUCH AS WINDOWS, DOORS, ELECTRICAL OUTLETS, PLUMBING PIPES, ETC., THE VAPOR BARRIER SHALL BE THOROUGHLY SECURED BY ADHESIVE OR OTHER SATISFACTORY METHODS TO INSURE A GOOD SEAL.
   E. ALL CUT-OUTS OR PERFORATIONS SHALL BE SO MADE THAT THERE IS AN ABSOLUTE MINIMUM OF FREE OPENING.

3. ADHESIVE FOR APPLICATION OF VAPOR BARRIER SHALL BE MINNESOTA MINING & MANUFACTURING CO. TYPE EC-145 OR LUSTRON APPROVED EQUAL.

I-PLENUM

1. TOP ENCLOSURE FOR PLENUM SHALL CONSIST OF SPECIAL SHAPES OF STRUCTURAL MEMBERS SUPPORTED ON BOTTOM CHORD OF ROOF TRUSSES AND A CONTINUOUS ENCLOSING MEDIUM OF RIGID CEMENT-ASBESTOS BOARD.
   A. THIS CEMENT-ASBESTOS BOARD SHALL BE 3/16 OF AN INCH THICK AND COMPRESSED UNDER HYDRAULIC PRESSURE INTO A DENSE, MONOLITHIC SHEET CONTAINING APPROXIMATELY EIGHTY-FIVE (85) PER CENT PORTLAND CEMENT AND FIFTEEN (15) PER CENT ASBESTOS FIBER BY WEIGHT.
   B. IT SHALL HAVE A DENSITY OF 0.053 TO 0.058 LBS. PER CUBIC INCH AT 212° F., A MODULUS OF RUPTURE OF 2000 TO 2900 POUNDS PER SQUARE INCH (PSI) WHEN DRY AT 212° F., A MOISTURE CONTENT OF 11.3 TO 14.9 PER CENT AND WATER ABSORPTION OF 22.5 TO 24.7 PER CENT AFTER BEING SUBMERGED 24 HOURS.
   C. IT SHALL BE FIRE-RESISTANT TO MEET REQUIREMENTS OF UNDERWRITERS' LABORATORIES INC. FOR FIRE-RETARDENT CLASSIFICATI
   D. MATERIAL AS MANUFACTURED BY PHILIP CAREY MFG. CO., R. J. DORN CO., JOHNS-MANVILLE CO., OR KEASBEY-MATTISON CO. MEETS THE ABOVE SPECIFICATION.

2. INSTALLATION OF CEMENT-ASBESTOS BOARD SHALL BE CAREFULLY DONE, SO THAT AIR LEAKS INTO THE ATTIC AREA ARE REDUCED TO AN ABSOLUTE MINIMUM.

3. BLANKET INSULATION CONTINUOUS ABOVE PLENUM SHALL BE A FIBROUS OR GRANULAR MATERIAL, WHICH HAS NO PERCEPTABLE ODOR, DOES NOT ATTRACT VERMIN OR INSECTS AND SHALL BE CAPABLE OF BEING INSTALLED BY EITHER BLOWI OF POURING TO THE DESIRED THICKNESS OF SIX (6) INCHES.

4. PHYSICAL REQUIREMENTS SHALL BE:-
   A. "K" VALUE NOT MORE THAN 0.30 BTU PER HOUR PER SQUARE FT. PER DEGREE FAHRENHEIT, PER INCH OF THICKNESS.
   B. DENSITY NOT TO EXCEED SIX (6) POUNDS PER CUBIC FT.
   C. IT SHALL BE FIRE-PROOF-WILL NOT BURN OR SUPPORT COMBUSTION.
   D. IT SHALL HAVE COMPRESSIBILITY FOR ECONOMY AND EASE OF SHIPPING.
   E. MATERIALS MEETING THE ABOVE SPECIFICATIONS ARE: FIBERGLAS, MINERAL WOOL OR INSULWOOL.

5. INSTALLATION OF PLENUM INSULATION SHALL BE CAREFULLY DONE, SO THAT THE ENTIRE UPPER AREA OF THE PLENUM IS COMPLETELY AND THOROUGHLY COVERED TO PREVENT ANY GAPS FOR AIR LEAKAGE THRU THE INSULATION.

6. INSULATION OF BOTTOM CHORD OF TRUSSES FROM HEAT OF PLENUM SHALL BE ACCOMPLISHED BY MEANS OF A RIGID LAMINATED BOARD MADE UP OF ALTERNATE LAYERS OF CORRUGATED AND FLAT SHEETS OF ASBESTOS PAPER, BONDED BY MEANS OF AN INORGANIC ADHESIVE.
   THIS INSULATION SHALL HAVE THE FOLLOWING PHYSICAL CHARACTERISTICS:-
   A. "K" VALUE-NOT TO EXCEED .75 BTU PER HOUR, PER SQUARE FT. PER DEGREE FAHRENHEIT, PER INCH OF THICKNESS AT 100^{0} F.
   B. MODULUS OF RUPTURE = 450 POUNDS PER SQUARE INCH MIN.
   C. CRUSHING STRENGTH = 225 LBS.-1" STEEL CUBE-NAVY SPEC.-32A-2A.
   D. MUST BE WATERPROOF.
   E. MUST BE FIREPROOF. SHALL NOT BURN OR SUPPORT COMBUSTION.
   F. WILL NOT DETERIORATE WITH AGE.
   G. THICKNESS - 1/2 INCH MINIMUM.
   H. MATERIAL MEETING THIS SPECIFICATION IS FIREFOIL AS MANUFACTURED BY THE PHILIP CAREY MFG. CO.

7. INSTALLATION OF THE ABOVE DESCRIBED TRUSS INSULATION SHALL BE CAREFULLY DONE IN A WORKMANLIKE MANNER BY APPLYING SAME TO BOTTOM CHORD OF TRUSSES BY MEANS OF A PERMANENT METHOD OF FASTENING AS INDICATED ON DRAWING.

8. INSULATION FOR EXTERIOR WALLS SHALL BE A COMPRESSED GLASS WOOL TO WHICH HAS BEEN ADDED A SMALL PERCENTAGE OF THERMOSETTING PLASTIC FOR PURPOSE OF STABILITY AND RIGIDITY.
   THIS INSULATION SHALL HAVE THE FOLLOWING PHYSICAL CHARACTERISTICS:-
   A. "K" VALUE-NOT MORE THAN .30 BTU PER HOUR, PER SQUARE FT., PER DEGREE FAHRENHEIT PER INCH OF THICKNESS.
   B. DENSITY-2-1/2 LBS. PER CUBIC FT.
   C. MOISTURE RESISTANCE-NOT OVER ONE (1) PER CENT BY WEIGHT IN HUMID AIR.
   D. NON-CORROSIVE WHEN IN CONTACT WITH METALS.
   E. FIREPROOF-SHALL NOT BURN OR SUPPORT COMBUSTION.
   F. DURABILITY-SHALL NOT ROT OR ATTRACT VERMIN OR INSECTS.
   G. SHALL NOT SETTLE IN THE WALL AND FORM VOIDS.

H. THICKNESS - 1-1/2 INCHES, FOR EXTERIOR PANELS AND 1 INCH FOR INTERIOR PANELS. MATERIAL MEETING THE ABOVE SPECIFICATION IS FIBER-GLAS, TYPE PFD AS MANUFACTURED BY OWENS-CORNING FIBERGLAS CORP.

9. INSTALLATION OF THE ABOVE INSULATION SHALL BE CAREFULLY DONE TO FORM A CONTINUOUS BLANKET WITHOUT VOIDS OR OPEN SPACES AND SHALL BE SECURELY FASTENED TO COVER ENTIRE INSIDE FACE OF EXTERIOR WALL PANELS, AND A TWELVE INCH STRIP AROUND ENTIRE PERIMETER OF OUTSIDE FACE OF INTERIOR WALL PANELS. THIS INSULATION SHALL BE APPLIED IN THE LUSTRON FACTORY BY MEANS OF A WATERPROOF ADHESIVE.

J-J-INTERIOR FINISH

1. INTERIOR WALL PANELS SHALL BE AVAILABLE IN DIFFERENT PASTEL COLORS, WITH SEMI-MATTE FINISH TO ALLOW LATITUDE IN THE INTERIOR DECORATION OF THE HOUSE.

2. KITCHEN CABINETS, BOOK-CASE, BED-ROOM VANITY, LINEN CLOSET, CHINA CLOSET AND BROOM CLOSET SHALL BE AN INTEGRAL PART OF THE INTERIOR PARTITIONING. SUCH FEATURES SHALL BE CONSTRUCTED OF STEEL, ENAMELED IN APPROPRIATE COLORS.

3. FLOORS SHALL BE COVERED WITH ONE-EIGHTH (1/8) INCH ASPHALT TILE OF APPROVED QUALITY AND COLOR TO MATCH THE DECORATIVE SCHEME OF THE INTERIOR. BEFORE LAYING TILE THE CONCRETE FLOOR SLAB MUST BE CLEAN AND DRY. TO TEST SAME FOR MOISTURE, PLACE ASPHALT TILE FACE DOWN ON DIFFERENT PARTS OF THE FLOOR AND WEIGHT TILE DOWN. AFTER TWENTY-FOUR (24) HOURS, REMOVE TILE AND IF DAMP SPOTS SHOW, THE FLOOR SLAB SHALL BE ALLOWED TO DRY FURTHER UNTIL THE REPETITION OF ABOVE TEST GIVES NEGATIVE RESULTS BEFORE LAYING TILE.

4. IN COLD WEATHER, ALL ASPHALT TILE AND ASPHALT CEMENTS SHALL BE STORED IN A WARM ROOM HAVING A TEMPERATURE OF 70^0 F. TO 75^0 F. FOR AT LEAST TWENTY-FOUR (24) HOURS BEFORE INSTALLATION. LIKEWISE AREAS IN WHICH ASPHALT TILE ARE BEING LAID, SHALL BE MAINTAINED AT ABOVE MENTIONED TEMPERATURE RANGE FOR NOT LESS THAN TWENTY-FOUR (24) HOURS PREVIOUS TO, DURING AND AFTER INSTALLATION.

5. CEMENT SHALL BE WATERPROOF MATERIAL RECOMMENDED AND APPROVED BY THE TILE MANUFACTURER AND SHALL ALWAYS BE STORED IN TEMPERATURES ABOVE FREEZING.

6. BASEBOARD SHALL BE OF THE COVE TYPE, FOUR (4) INCHES HIGH AND OF A TYPE SUITABLE TO BE USED WITH 1/8 INCH ASPHALT TILE FLOOR.

7. CLEANING OF ASPHALT TILE FLOOR AND BASE SHALL BE CAREFULLY DONE WITH A NEUTRAL SOAP OR CLEANER APPROVED BY THE TILE MANUFACTURER.

8. AFTER CLEANING APPLY ONE COAT OF AN APPROVED WATER EMULSION WAX. DO NOT USE ANY WAXES CONTAINING TURPENTINE, BENZINE OR MINERAL SPIRIT SOLVENTS.

J-PLUMBING

1. PLUMBING SHALL BE IN ACCORDANCE WITH THE PLUMBING AND SANITATION REQUIREMENTS OF THE MINIMUM PROPERTY REQUIREMENTS OF THE FEDERAL HOUSING ADMINISTRATION. FINISHED INTERIOR WALL PANELS OF THE PLUMBING WALL SHALL NOT BE INSTALLED ON UTILITY SIDE UNTIL AFTER THE FIELD CONNECTIONS ARE MADE AND THE SYSTEM TESTED IN ACCORDANCE WITH STATE OR LOCAL REGULATIONS.

2. CAST IRON PIPE WHERE CALLED FOR ON THE DRAWINGS SHALL BE EXTRA HEAVY CAST IRON HUB AND SPIGOT TYPE.

3. GALVANIZED STEEL PIPE WHERE CALLED FOR ON THE DRAWINGS SHALL BE OF A STANDARD WEIGHT AND QUALITY MADE UP WITH SHARP CUT THREADS AND BEADED CAST IRON DRAINAGE FITTINGS.

   WHEN GALVANIZED STEEL PIPE IS NOT AVAILABLE FOR WASTE OR VENTS, COPPER TUBING TYPE M SHALL BE USED.

4. COPPER TUBING TYPE "L" (HARD) WITH MINIMUM WALL THICKNESS OF .040 IN. OF STANDARD WEIGHT AND QUALITY SHALL BE PROVIDED FOR ALL HOT AND COLD WATER PIPING EXCEPT THREADED WATER PIPE. ALL THREADED WATER PIPE SHALL BE I.P.S. BRASS PIPE. WHERE LOCAL REGULATIONS REQUIRE, UNDERGROUND COPPER PIPE SHALL BE COATED WITH HOT COAL TAR PITCH AND SPIRALLY WRAPPED IMMEDIATELY BEFORE COOLING WITH 15 LB. COAL TAR PITCH, SATURATED FELT, IN STRIPS NOT OVER FOUR (4) INCHES WIDE. AFTER WRAPPING AND LAPPING END JOINTS OF FELT AT LEAST SIX (6) INCHES, APPLY A SECOND COAT OF PITCH OVER ENTIRE FELT AREA.

5. JOINTS BETWEEN CAST IRON PIPE AND OTHER PIPE TO CAST IRON PIPE SHALL BE MADE WITH OAKUM GASKET AND LEAD. JOINT SHALL BE RUN FULL AT ONE POURING AND CAULKED SOLID. SCREWED JOINTS SHALL BE MADE WITH RED LEAD AND BOILED LINSEED OIL OR OTHER APPROVED COMPOUND ON MALE THREADS ONLY. COPPER TO COPPER FITTINGS SHALL BE MADE WITH SOLDERED JOINTS IN ACCORDANCE WITH STANDARD PRACTICE.

6. OPEN ENDS OF SUPPLY AND DRAIN PIPES SHALL BE PLUGGED SOLIDLY AND COMPLETELY AS SOON AS INSTALLED AND REMAIN SO UNTIL READY TO MAKE FINAL CONNECTIONS. EVERY PRECAUTION MUST BE EXERCISED TO PREVENT ENTRANCE OF FOREIGN BODIES INTO THE PIPE SYSTEM DURING CONSTRUCTION PERIOD.

7. PLUMBING FIXTURES SHALL BE FURNISHED AND INSTALLED AS SHOWN ON THE PLANS AND DESCRIBED AS FOLLOWS:

BATHROOM FIXTURES

8. TUB - ONE (1) FIVE (5) FOOT, LEFT HAND RECESSED, PORCELAIN ENAMELED STEEL, EQUIPPED WITH CHROME PLATED AUTOMATIC DIVERTER SPOUT WITH TWIN ELL, TWO VALVE BODY SHOWER HEAD AND ARM, ALSO ONE CHROME PLATED TRIP LEVER BATH DRAIN.

9. TOILET - ONE (1) CLOSET COMBINATION CONSISTING OF VITREOUS CHINA PANEL FRONT TANK WITH SHELF TOP COVER, VITREOUS CHINA BOWL OF THE WASH-DOWN

BATHROOM FIXTURES

TYPE AND COMPLETE WITH CLOSED FRONT WHITE TOILET SEAT AND COVER, CHROME PLATED HARD-WARE TRIM AND CHROME PLATED TRIP LEVER, SUPPLY PIPE AND FLANGE MADE FOR TWELVE (12) INCH ROUGH-IN.

10. LAVATORY - ONE (1) 18" X 20" VITREOUS CHINA WALL HUNG LAVATORY OF MODERNISTIC DESIGN, WITH WALL BRACKETS, CHROME PLATED HEXAGONAL LEGS AND SIDE TOWEL BARS, SINGLE STREAM FIXTURE WITH POP-UP WASTE, 1-1/4" "P" TRAP, AND WALL FLANGE.

11. CABINET - ONE (1) ILLUMINATED CABINET WITH TWO SIDE LIGHTS AND CONVENIENCE OUTLET COMPLETELY WIRED, ONE 16" X 24" BEVELLED PLATE GLASS MIRROR, U. S. COMMERCIAL STANDARD CS-27-36. CABINET TO BE ONE PIECE ARMCO STEEL OR APPROVED EQUAL, FINISHED WITH TWO COATS OF BEST QUALITY BAKED-ON ENAMEL OVER RUST RESISTING UNDERCOAT. DOOR TO BE MOUNTED ON FULL LENGTH PIANO HINGE. INTERIOR OF CABINET SHALL BE EQUIPPED WITH TWO TOOTH BRUSH RACKS, RAZOR BLADE DROP, DOOR STOP AND TWO BULB EDGE GLASS SHELVES.

12. ACCESSORIES SHALL CONSIST OF ONE EACH OF THE FOLLOWING POLISHED, CHROME PLATED HIGH QUALITY FIXTURES:-

TOWEL BAR - ATTACHED
ROBE HOOK - DOUBLE - ATTACHED
TOILET PAPER HOLDER - RECESSED WITH CHROME ROLLER
COMBINATION SOAP DISH AND GRAB BAR, RECESSED WITH REMOVABLE CLEAR TRAY
SOAP DISH, RECESSED WITH REMOVABLE CLEAR TRAY
TUMBLER HOLDER, RECESSED
SHOWER CURTAIN ROD - ONE INCH DIAMETER BY FIVE FEET LONG.

KITCHEN

13. CABINET SINK OF WHITE BAKED ENAMEL, STAINLESS STEEL TRIM AND POLISHED CHROME PLATED FITTINGS FOR HOT AND COLD WATER SUPPLY WITH SWING TYPE FAUCET AND WATER DIVERTER. CABINET TO BE EQUIPPED WITH AUTOMATIC COMBINATION CLOTHES AND DISH WASHER AND DRYER.

K-HEATING

1. THE SYSTEM SHALL BE A RADIANT HEATING SYSTEM, USING THE PORCELAIN ENAMELED CEILING PANELS AS THE RADIATING SURFACE. HEATED AIR WHICH WARMS THESE PANELS IS CONFINED BETWEEN THE CEILING PANELS AND IN INSULATED SURFACE APPROXIMATELY 6-7/8 INCHES ABOVE THE CEILING PANELS. THE HEATED AIR IS FORCIBLY CIRCULATED BY A CENTRIFUGAL FAN AND DIRECTED BY MEANS OF A SHEET METAL DUCT AND A SERIES OF BAFFLE PLATES IN SUCH A MANNER AS TO PROVIDE A PROPER DISTRIBUTION OF HEAT TO THE ENTIRE CEILING RADIATION SURFACE.

CIRCULATED AIR IS RETURNED TO THE HEATER BY THE ABOVE DESCRIBED BAFFLE PLATE SYSTEM FOR RE-CIRCULATION.

THE BAFFLE PLATES AND SUPPORTS FOR ASBESTOS-CEMENT BOARD ARE CLEANED, BONDERIZED AND GIVEN A DIP COAT OF BLACK JAPAN ENAMEL, THEN BAKED FOR THIRTY (30) MINUTES AT 450° F.

2. HEATING UNIT SHALL BE ENCLOSED IN A PORCELAIN ENAMELED STEEL CABINET, LOCATED AT OR NEAR THE CEILING LINE OF THE UTILITY ROOM.

   A. THE HEATING UNIT SHALL BE A WILLIAMS-OIL-O-MATIC OIL FIRED UNIT, WITH BURNER MECHANISM MODEL K-150-L AND FURNACE MODEL 6050 OR A LUSTRON APPROVED EQUAL.
   B. THE BURNER MECHANISM SHALL BEAR AN UNDERWRITERS' LABORATORIES, INC. LABEL AND THE SEAL OF THE OFFICIAL INSPECTION AGENCY OF THE OIL BURNER INDUSTRY, EVIDENCING COMPLIANCE WITH COMMERCIAL STANDARD CS-75 AS ISSUED BY THE NATIONAL BUREAU OF STANDARDS OF THE U.S. DEPARTMENT OF COMMERCE.
   C. THE HEATING UNIT SHALL HAVE A CAPACITY OF 75,000 BTU PER HOUR.
   D. THE BURNER SHALL BE OF THE LOW PRESSURE TYPE EQUIPPED WITH BY-PASS OIL PUMP.
   E. THE BLOWER SHALL BE A LAU-SERIES "A" UNIT, SIZE A-12 OR LUSTRON APPROVED EQUAL, HAVING SPEED OF 500 RPM AND CAPACITY OF 1600 CFM AT 3/8" STATIC PRESSURE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH STANDARD TEST CODE OF THE AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS.
   F. THE MOTOR FOR BLOWER SHALL BE A ONE-FOURTH (1/4) HORSE POWER GENERAL ELECTRIC TYPE K-H FRAME NO. 45 OR LUSTRON APPROVED EQUAL.
   G. MOTOR MOUNTING SHALL BE OF THE RESILIENT TYPE.
   H. MOTOR SHALL BE A SPLIT-PHASE A.C. UNIT, 60 CYCLE, 115 VOLTS, 1725 RPM EQUIPPED WITH SLEEVE BEARINGS AND THERMAL OVERLOAD PROTECTION.
   I. HEAT EXCHANGER SHALL BE OF THE CYLINDRICAL TYPE MADE OF 16 GAUGE HOT ROLLED STEEL WITH GAS TIGHT WELDS ON ALL EXTERNAL SEAMS. THE DISHED END NEAREST BURNER SHALL BE MADE OF A.I.S.I. TYPE 430 STEEL.
   J. COMBUSTION CHAMBER SHALL BE MADE OF 14 AND 18 GAUGE A.I.S.I. TYPE 446 STEEL HAVING A SCALING TEMPERATURE OF 2200° F.

3. CONTROLS - BAROMETRIC DRAFT CONTROL SHALL BE PROVIDED TO PERMIT A CONSTANT DRAFT WITHIN THE HEAT EXCHANGER. A COMBINATION FAN AND LIMIT SWITCH SHALL BE PROVIDED TO CONTROL THE FAN RUNNING PERIOD INDEPENDENTLY OF THE BURNER AND TO ALSO ACTUATE AUTOMATIC SHUT-OFF OF THE BURNER IN CASE OF OVERHEATING OF THE HEAT EXCHANGER. FAN SWITCH SHALL BE FACTORY SET TO GO ON AT 125° F. AND OFF AT 110° F. THE HEAT EXCHANGER BONNET TEMPERATURE LIMIT SWITCH SHALL BE FACTORY SET AT AN UPPER LIMIT OF 200° F.

   A. A THERMOSTAT SHALL BE PROVIDED TO REGULATE THE RUNNING PERIOD OF THE OIL BURNER.
   B. STACK SAFETY SWITCH SHALL INCORPORATE MECHANISM TO PROVIDE AUTOMATIC SHUT-OFF IN CASE OF FLAME FAILURE, BUT REQUIRING MANUAL RESET.

4. COMBUSTION GASES SHALL BE VENTED THROUGH AN 8" DIAMETER VITROLINER FLUE AS MANUFACTURED BY CONDENSATION ENGINEERING CORPORATION. VITROLINER SHALL CONSIST OF VITROLINER PIPE, FYREX INSULATION AND ALUMINUM CASING. ALL AS RECOMMENDED BY THE MANUFACTURER AND AS APPROVED BY THE UNDERWRITERS' LABORATORIES, INC., FOR USE WITH OIL OR GAS AS FUEL.

L-ELECTRICAL

1. WORKMANSHIP AND MATERIAL SHALL COMPLY WITH THE LATEST NATIONAL ELECTRICAL CODE STANDARD OF THE NATIONAL BOARD OF FIRE UNDERWRITERS.

2. CIRCUITS SHALL TOTAL SEVEN IN NUMBER, CONSISTING OF THE FOLLOWING INDIVIDUAL CIRCUITS:-

NO. 1	LIGHTING CIRCUIT	NO. 14 CONDUCTOR	2 WIRE 110V 15 AMP.
NO. 2	LIGHTING CIRCUIT	NO. 14 CONDUCTOR	2 WIRE 110V 15 AMP.
NO. 3	HEATING SYSTEM	NO. 14 CONDUCTOR	2 WIRE 110V 15 AMP.
NO. 4	RANGE	NO. 6 CONDUCTOR	3 WIRE 220V 50 AMP.
NO. 5	WATER HEATER	NO. 12 CONDUCTOR	2 WIRE 220V 20 AMP.
NO. 6	(APPLIANCES	NO. 12 CONDUCTOR	3 WIRE 110V 20 AMP.
	(DISHWASHER	NO. 12 CONDUCTOR	2 WIRE 220V 20 AMP.
NO. 7	CHIME CIRCUIT	NO. 18 BELL WIRE	10V

CIRCUIT NO. 5 FOR HOT WATER HEATER SHALL BE CONTROLLED BY A SEPARATE 20 AMPERE, 2 POLE CIRCUIT BREAKER.

THE REMAINING SIX (6) CIRCUITS LISTED ABOVE SHALL BE CONTROLLED BY A LOAD CENTER OF THE MULTI-BREAKER TYPE.

THE ENTRANCE SERVICE CABLE TO THE SUPPLY SIDE OF THE METER, SHALL BE FURNISHED AND INSTALLED BY THE LOCAL UTILITY OR DEALER.

3. UTILITY OUTLETS SHALL BE FLUSH TYPE, DUPLEX RECEPTACLES LOCATED ABOUT 10" ABOVE FLOOR LINE, EXCEPT IN KITCHEN WHERE OUTLET SHALL BE ADJACENT TO WORKING PLANE AND IN UTILITY ROOM WHERE OUTLET SHALL BE LOCATED AT CONVENIENT HEIGHT FOR IRONING.

4. SWITCHES SHALL BE FLUSH TYPE, TOGGLE SWITCH LOCATED ABOUT 50" ABOVE FLOOR LINE.

5. LIGHTING - THE ENTIRE LIGHTING SYSTEM IS DESIGNED FOR USE OF INCANDESCENT LAMPS AS FOLLOWS:

   A. KITCHEN - ONE SHADED FIXTURE FOR THREE SIXTY (60) WATT LAMPS.
   B. DINETTE - ONE SEMI-INDIRECT FIXTURE FOR TWO SEVENTY-FIVE (75) WATT LAMPS.
   C. UTILITY ROOM - ONE WALL-MOUNTED SHADED FIXTURE FOR TWO (2) SIXTY (60) WATT LAMPS.
   D. HALLWAY - ONE WALL-MOUNTED BRACKET FOR SINGLE SIXTY (60) WATT LAMP
   E. BATHROOM - TWO FORTY (40) WATT TUBULAR LAMPS ATTACHED TO WALL CABINET WITH RECEPTACLE. ONE WALL-MOUNTED SHADED FIXTURE FOR SINGLE SIXTY (60) WATT LAMP.
   F. FRONT PORCH - ONE SHADED BRACKET-TYPE FIXTURE FOR SINGLE SIXTY (6 WATT LAMP.
   G. REAR ENTRANCE - ONE BRACKET-TYPE FOR SINGLE SIXTY (60) WATT LAMP.
   H. LIVING ROOM - WALL RECEPTACLES FOR PORTABLE LIGHTING.
   J. BED ROOMS - WALL RECEPTACLES FOR PORTABLE LIGHTING.
   K. DOOR CHIME - TWO TONE TYPE CONNECTED BY PUSH BUTTONS AT FRONT AND AND REAR DOORS.

6. CONDUIT SHALL BE PROVIDED FROM OUTLET BOX TO ENTRANCE POINT FOR FUTUR TELEPHONE INSTALLATION.

L-ELECTRICAL (CONTINUED)

7. WIRE EXCEPT FOR HIGH TEMPERATURE AREAS SHALL BE ARMORED, BUSHED CABLE TYPE AC. WIRE FOR HIGH TEMPERATURE AREAS SHALL BE TYPE AVA IN ONE-HALF (1/2) INCH FLEXIBLE CONDUIT.

ALL WIRE AND CONDUIT MUST MEET REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE STANDARD OF THE NATIONAL BOARD OF FIRE UNDERWRITERS.

M-APPLIANCES

1. WASHER SHALL BE A COMBINATION CLOTHES AND DISHWASHER BUILT INTO CABINET SINK OF KITCHEN AS CALLED FOR UNDER PLUMBING.

2. CLOTHES WASHER SHALL HAVE A CAPACITY OF EIGHT (8) POUNDS OF DRY CLOTHES AND CAPABLE OF THOROUGHLY WASHING SAME. IT SHALL BE EQUIPPED WITH AN AGITATOR OF CORROSION PROOF, LIGHT WEIGHT CONSTRUCTION, DESIGNED FOR EASY HANDLING AND QUICK INSERTION OR REMOVAL.

3. SPEED OF AGITATOR SHALL BE NOT LESS THAN FIFTY-TWO (52) OSCILLATIONS PER MINUTE SNUG FITTING ON ITS SHAFT AND NON-RATTLING.

4. INNER TUB SHALL BE PORCELAIN ENAMEL ON ENAMELING IRON AND EQUIPPED WITH ONE ROW OF WATER OUTLET HOLES AROUND TOP OF TUB. INTERIOR OF INNER TUB SHALL BE PROVIDED WITH A SEGMENTAL DIE CAST ALUMINUM RETAINING RING UNDER OUTLET HOLES TO PREVENT AGITATED CLOTHES FROM CLOGGING HOLES.

5. PROJECTIONS OR EDGES SUBJECT TO HANDLING OR CLOTHES CONTACT SHALL BE SMOOTH, WELL ROUNDED AND ENTIRELY FREE OF SHARP PROTRUSIONS.

6. RINSING SHALL BE AUTOMATICALLY PERFORMED BY THE INTRODUCTION OF FRESH, CLEAN WATER CONSTANTLY SUPPLIED AND CONSTANTLY DRAINED AWAY FOR REMOVAL OF SOAP SUDS AND CURDS. THE TIME REQUIRED FOR THIS OPERATION SHALL NOT EXCEED EIGHT (8) MINUTES, AT WHICH TIME ALL SOAP SUDS AND CURDS SHALL HAVE BEEN WASHED AWAY.

7. DRYER SHALL BE OF THE CENTRIFUGAL TYPE, CONSISTING OF AN INNER TUB THAT SPINS AT 600 REVOLUTIONS PER MINUTE (600 RPM) AND CAPABLE OF CREATING A WRINGER-DRY CONDITION IN NOT OVER EIGHT (8) MINUTES.

8. VIBRATION OF THE ENTIRE MECHANISM SHALL BE HELD TO AN ABSOLUTE MINIMUM BY MEANS OF A REMOVABLE DISC TYPE GYRO BALANCER OF LIGHT WEIGHT, CORROSION PROOF CONSTRUCTION.

9. DISHWASHER SHALL HAVE A CAPACITY OF HANDLING TABLE SERVICE FOR SIX ADULTS. IT SHALL BE EQUIPPED WITH A DRUM MADE OF CORROSION PROOF STAINLESS STEEL, INTO WHICH ARE FITTED SEPARATE RACKS MADE OF STAINLESS STEEL WIRE FOR SILVERWARE, PLATES, CUPS AND GLASSWARE.

10. A WATER DISTRIBUTOR SHALL BE PROVIDED WHICH IS MOUNTED ON THE CENTER SHAFT AND IS CAPABLE OF ROTATING A WALL OF WATER AT 600 REVOLUTIONS PER MINUTE (600 RPM) DIRECTED UPWARD THROUGH THE DISHES.

M-APPLIANCES (CONTINUED)

11. TIME REQUIRED FOR A COMPLETE WASHING CYCLE, CONSISTING OF A PRE-RINSE, WASHING WITH A DETERGENT AND A FINAL RINSE, SHALL NOT EXCEED FIVE (5) MINUTES.

12. MECHANISM FOR COMBINATION CLOTHES AND DISHWASHER SHALL BE OF THE FLOATING TYPE WITH THREE (3) POINT SUSPENSION. GEARS SHALL BE CUT OR GROUND AND SUBMERGED IN OIL FOR CONTINUOUS LUBRICATION. THEY SHALL BE COMPLETELY ENCLOSED IN A CAST IRON AND STEEL HOUSING.

13. MOTOR SHALL BE NOT LESS THAN ONE FOURTH (1/4) HORSEPOWER, MOUNTED ON RUBBER FOR ELIMINATION OF VIBRATION. IT SHALL BE SELF-LUBRICATING AND FREE OF OIL DRIP WITH COMPLETE AND THOROUGH ELECTRICAL INSULATION.

14. DRIVING OF MECHANISM SHALL BE BY MEANS OF V-BELT FROM MOTOR PULLY TO WASHER.

15. ELECTRICAL CHARACTERISTICS OF MOTOR SHALL BE ALTERNATING CURRENT, SIXTY (60) CYCLE, SINGLE (1) PHASE ONE HUNDRED TEN (110) VOLTS, UNLESS OTHERWISE SPECIFIED.

16. PUMP FOR DRAINING SHALL BE NON-CLOGGING, VALVELESS AND SCREENLESS. IT SHALL BE CAPABLE OF EMPTYING THE CLOTHES TUB IN ONE MINUTE OR THE DISHWASHING UNIT CONTINUOUSLY.

N-WATER HEATER

1. HOT WATER HEATER SHALL BE A. O. SMITH CORPORATION "DURACLAD" MODEL DE-50 G-D AUTOMATIC ELECTRIC STORAGE WATER HEATER OF FIFTY (50) GALLONS, MINIMUM STORAGE CAPACITY AND 9.2 GALLON PER HOUR MINIMUM RECOVERY RATE PER 100° F. RISE OR LUSTRON APPROVED EQUAL.

THE STORAGE TANK SHALL BE MADE OF LOW CARBON STEEL WITH A HIGH QUALITY HEAVY ZINC COATING AND SHALL BE COMPLETELY INSULATED AGAINST HEAT LOSS WITH SAG-PROOF FIBERGLAS OR LUSTRON APPROVED EQUAL INSULATING MATERIAL. THE OUTER SHELL SHALL BE FINISHED WITH WHITE BAKED-ON ENAMEL. PROVISION SHALL BE MADE FOR INSTALLATION OF TEMPERATURE AND PRESSURE RELIEF VALVES. SUCH VALVES, HOWEVER, ARE NOT STANDARD EQUIPMENT, BUT WILL BE SUPPLIED BY THE DEALER WHEN LOCAL PLUMBING CODES REQUIRE SAME OR WHEN OTHERWISE REQUESTED.

2. ELECTRICAL CHARACTERISTICS FOR HEATER ELEMENTS SHALL BE AS FOLLOWS:-

IMMERSION TYPE - 236 VOLTS.
LOWER ELEMENT - 1000 WATTS
UPPER ELEMENTS- 1500 WATTS

O-MISCELLANEOUS

1. INSULATING CONCRETE MADE OF PORTLAND CEMENT AND VERMICULITE MIXED IN THE PROPORTIONS OF ONE (1) BAG OF CEMENT TO 1-1/2 BAGS OF VERMICULITE

Appendix G

Maintenance Plan

Maintenance will still be required once the recommended repairs and restoration work itemized in the Preservation Plan are completed. The items below should become regularly scheduled items and a record of all work completed on the house should be maintained in a Maintenance Log.

The Maintenance Log would include a checklist of the items below; when work was completed; by whom work was completed; and instructions for completing the various tasks. As this house is not owned by a homeowner, the people who perform the tasks may be Borough employees or volunteers who will likely change frequently. Having a list of approved products and cleaning methods will avoid potential damage to surfaces because of overaggressive cleaning or harsh products.

The following items should be part of the building's regularly scheduled maintenance program:

Maintenance Task	Frequency
Site/Landscape	
Mow lawn	Weekly to bi-weekly May to September
Mulch planting beds	Spring
Trim hedges	Monthly May to September
Rake leaves	Spring and Fall
Inspect trees for needed pruning	Spring
Seal driveway	Every 2 years
Snow removal	Winter
Exterior of Building	
Inspection for any deterioration	Spring and Fall
Repair any rust damage	Spring and Fall
Wash house down with hose	Spring and Fall
Exchange storm and screen panels	Spring and Fall

Wash windows	Spring and Fall
Check window operation, lubricate if needed	Spring and Fall
Clean window frames and re-wax	Every 3 years
Clean roof of debris	Spring and Fall
Clean gutters	Spring and Fall
Inspect breezeway roof	Spring and Fall
Inspect panel roofs with personnel lift	Every 2 years
Paint wood elements at breezeway and garage	Every 5 years

Interior of Building

Sweep floors	Daily
Damp mop floors	Bi-weekly
Re-wax floors	Spring and Fall
Dust wall and ceiling panels	Bi-weekly
Wash wall and ceiling panels with mild detergent	Spring and Fall
Clean bathroom	Weekly
Run all plumbing fixtures to re-charge traps	Weekly
Inspect heating system	Fall
Check smoke detectors	Spring and Fall

Furnishings and Decorations

Dust and polish furniture	Weekly
Vacuum rugs	Weekly
Vacuum upholstered furniture	Weekly
Wash bed coverings	Every 3 months

Appendix H

Vulnerability & Hazard Assessment

The greatest vulnerability that faces the Harold Hess Lustron House at the current time is that it is vacant and not under frequent supervision. There is increased potential for vandalism or even damage from animals, such as the raccoons that damaged the building last year. Without people in the building, the windows have remained closed for long periods of time. Having the building closed up without adequate ventilation has resulted in a stale musty smell indicative of mildew, although none was observed. These issues may be addressed soon if a caretaker is hired.

The other vulnerability is the building's lack of heat. This will cause condensation to occur on cold surfaces and may be contributing to the surface rusting evident on doors and closets which do not have a porcelain enamel finish. For a permanent solution, this will require completing the installation of a new gas line, repairing the top in the hot air plenum, and having a working furnace. In the immediate term, the Borough should have an electrician investigate the potential for installing temporary portable electric heaters for this coming winter.

Another immediate concern is the breezeway roof which is leaking and must be replaced. If not addressed promptly, water infiltration will damage the ceiling below and promote rot in the wood roof framing. If it cannot be replaced before this winter then some temporary protection should be put in place. Other routine maintenance that should be completed immediately is the cleaning of the gutters which are currently clogged with debris.

An issue which should be addressed soon is the completion of an asbestos hazard assessment by an Environmental Engineer. This is necessary because there are known asbestos containing materials used in the building's construction which may or may not require abatement before other work can take place, such as the repair of the hot air plenum, installation of a new gas line in the utility wall, and replacement of the breezeway roof.

The Harold Hess Lustron House is constructed of non-combustible materials, however contents do burn. Additionally, the garage and breezeway are ordinary wood construction, although the garage has a non-combustible steel skin. Compared to other houses, the Lustron House poses less fire risk than the average house. However, it would be wise to have portable fire extinguishers available in the closets once the building is in operation.

Installation of a wireless smoke detection and security system could provide remote notification of potential problems to a central monitoring facility. This would alert authorities to potential problems when no one was onsite. Installation of a wireless system would not cause damage to the existing building fabric.

Based on the 2005 FEMA flood map included in this appendix, the house is located on the edge of a flood hazard area relating to its proximity to the Tenakill Brook. While it is not indicated to be within the flood zone, it would be prudent to develop a comprehensive emergency response plan to address this and other potential scenarios.

Home ▾ FEMA's National Flood Hazard Layer (Official)

Details | Basemap | Share

About Content Legend

Legend

NFHL (click to expand)

LOMRs
- Effective

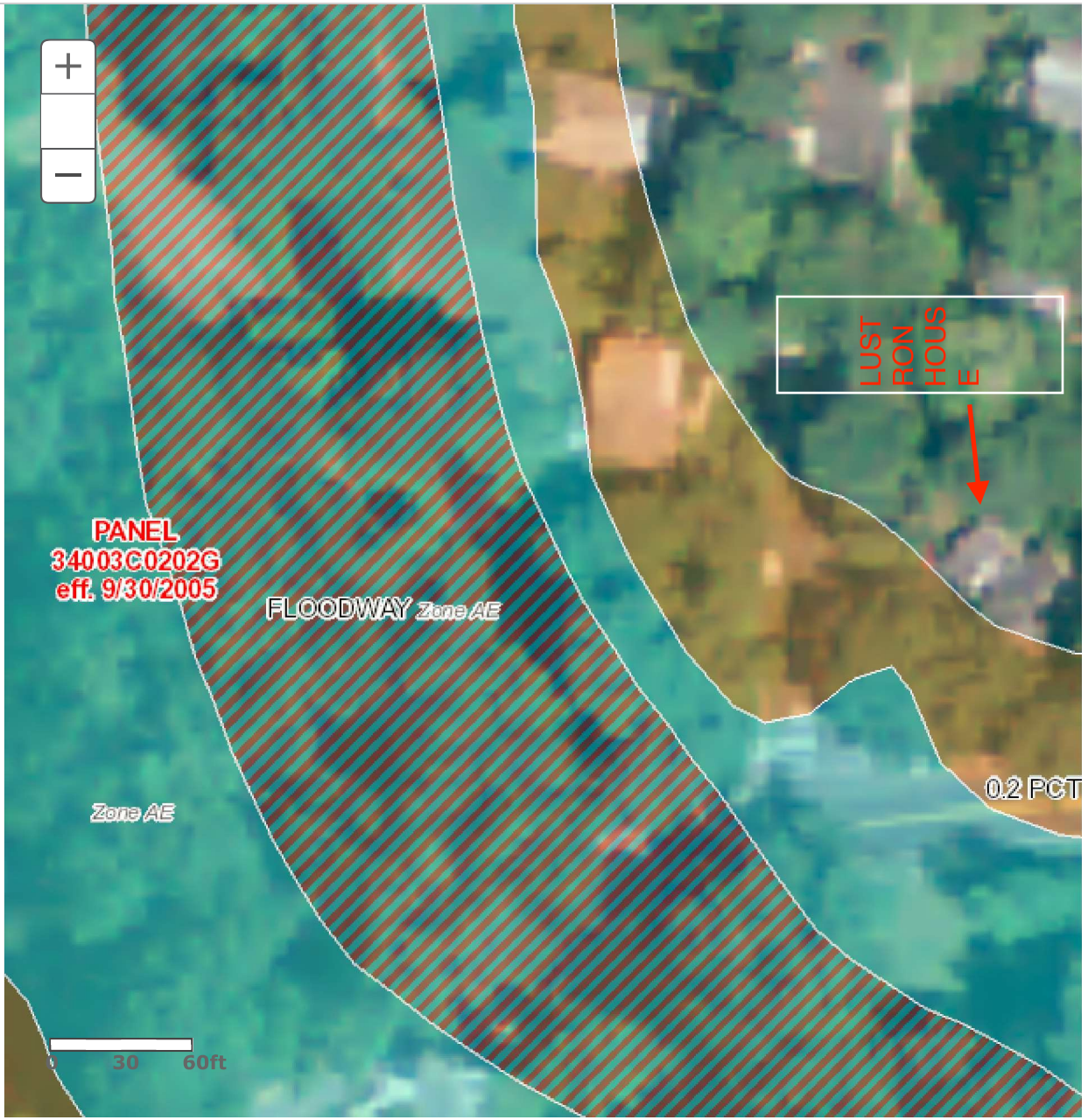
LOMAs

FIRM Panels

Cross-Sections

Flood Hazard Boundaries
- Limit Lines
- SFHA / Flood Zone Boundary
- Other Boundaries

Flood Hazard Zones
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee



Appendix I

Figure Key Plans

All figures used in this Preservation Plan are photographs that were taken by Lacey Thaler Reilly Wilson Architecture & Preservation, LLP on March 27, 2017, June 8, 2017, or June 9, 2017 except as follows:

Figure 1 Image of the Hess family from Borough of Closter website, 1950

Figure 2 Image from Google.com/maps website, 2017

Figure 5 Image from historicaerials.com, 1953

Figures 57, 67, 74, 84, 94, 101, and 126 Images from Lustron advertisements, circa 1949

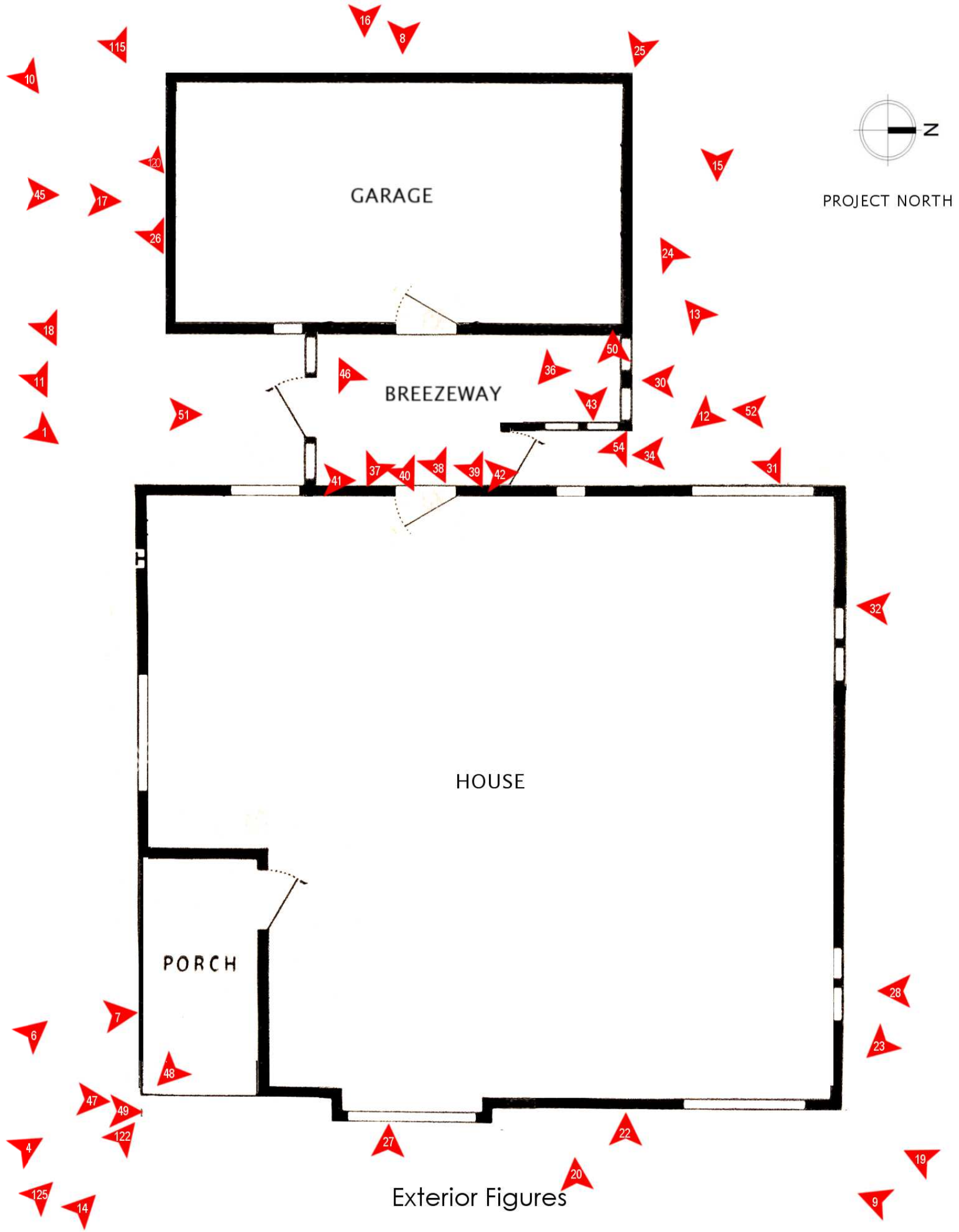
Figure 65 Service Manual from Thor Manufacturing Co., circa 1949

Figure 109 Detail from Lustron Corporation drawing, 1949

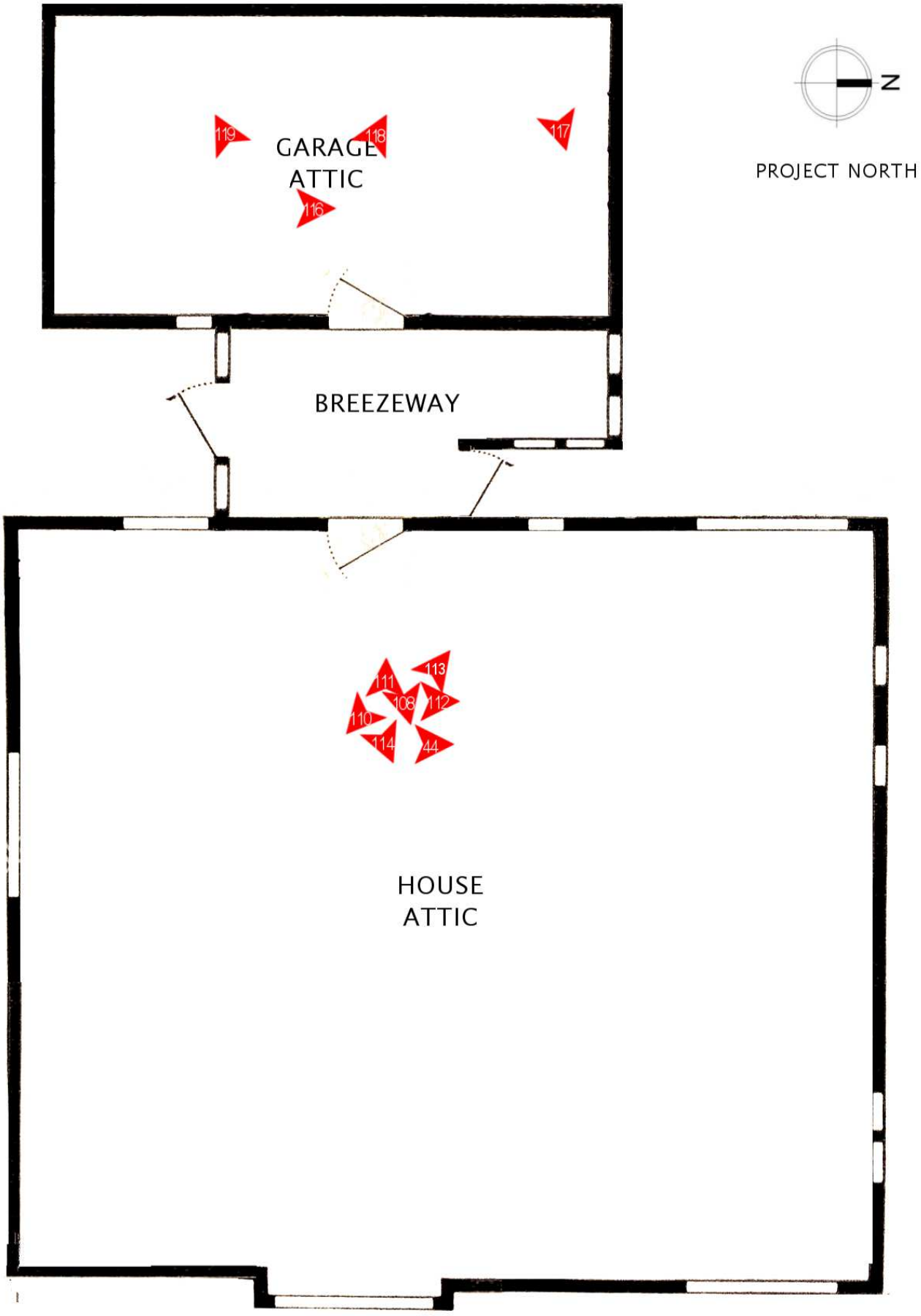
Figures 124 and 125 Photos courtesy of Jennifer Rothschild

Images are keyed to the following plans. Numbers in the arrows represent the Figure number and the direction of the arrow indicates the view.

Interior Figures



Exterior Figures



Attic Figures

Appendix J

Project Directory

This Preservation Plan was prepared by Mark Thaler, AIA, a partner in the firm of Lacey Thaler Reilly Wilson Architecture & Preservation, LLP for the Borough of Closter, New Jersey. A Firm Profile and Resume follow.

Please direct any questions regarding the substance of this Preservation Plan to him at:

Mark Thaler, AIA

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Lacey Thaler Reilly Wilson

Architecture & Preservation, LLP

Lacey Thaler Reilly Wilson Architecture & Preservation, LLP is a full-service architectural firm specializing in the renovation, restoration, and adaptive reuse of our nation's existing and historic buildings. Located in historic Albany, New York, we provide a disciplined but nimble approach to the preservation and reuse of our existing and historic building stock.

The partners are recognized experts in the historic preservation field, with over a century of project experience on dozens of local, state, and federally-designated landmarks. We creatively solve the challenges of modern occupancy and efficiency requirements without compromising the integrity of existing structures.

We have worked on projects that have won over two dozen design and preservation awards around the country, including two projects achieving the National AIA Honor Award for Architecture, our profession's highest honor. We have been privileged to work on many college and university campuses, including complex projects to renovate landmark buildings at Princeton, Cornell, and Michigan State Universities, University of Virginia, United World College, the United States Military Academy, and the United States Naval Academy. We have prepared numerous studies, and completed restoration and renovation projects for state, federal and international clients such as the United Nations, New York, NY; the National Archives and Records Administration, Washington, D.C.; The National Park Service, and Save Ellis Island; and comprehensive infrastructure projects at the New York State and Washington State Capitols.

We have extensive expertise in preservation planning including authoring numerous existing conditions surveys, historic structure reports, and feasibility studies for the adaptive reuse of historic buildings and sites.

Lacey Thaler Reilly Wilson Architecture and Preservation, LLP is passionate about bringing new life to our architectural heritage and our historic communities, locally and nationally. We are dedicated to the renovation, restoration, and adaptive reuse of historic structures and the design of new construction in historic contexts to achieve efficient reuse of our heritage structures.

A New York State Certified Woman Owned Business Enterprise

Mark Thaler, AIA, NCARB

Education

B. Arch / 1984 / Architecture
Rensselaer Polytechnic Institute

B.S. / 1984 / Building Science
Rensselaer Polytechnic Institute

Roman Studies Program / 1981
Rensselaer Polytechnic Institute

Professional Licensure NY, NJ, MA WA, NCARB

I wanted to take this opportunity to express my gratitude for your efforts on behalf of the rehabilitation of the Washington State Capitol. While working under extraordinary circumstances you and your staff have performed above our expectations….We were all so very impressed with your command of the technical issues and your openness to discuss options and alternative views. Everyone working on the project from our maintenance staff – always a tough group to impress – to the State Historic Preservation Officer, to energy and disability advocates are excited about the work you're doing and the direction the design is taking.

Patricia McLain, Project Director Legislative Building Rehabilitation Project

As a nationally recognized expert in Historic Preservation, Mr. Thaler has been responsible for the renovation and restoration of some of our nation's most significant landmarks, including buildings at Ellis Island, Valley Forge, the Washington State Capitol, and numerous colleges and universities across the country. He has written and lectured widely on many of the challenges which are encountered in their rehabilitation and his design solutions have been recognized with over two dozen design awards including an Honor Award from the national AIA, our profession's highest honor. He has authored numerous articles and is the author of *APPA's Body of Knowledge* Chapter on Renovation. His collaborative working style enables holistic solutions that incorporate the best of what our past has to offer with what we dream for our future.

Washington State Legislative Building (Capitol) - Olympia, WA
Principal-in-charge and Designer for the complete rehabilitation of the Washington State Legislative Building following the Nisqually earthquake.

Princeton University, Holder, Hamilton, and Madison Halls - Princeton, NJ
Project Executive and Designer for the the complete restoration of interiors and exteriors of this 150,000 SF Collegiate Gothic complex, modernizing student life spaces.

Princeton University, Blair and Buyers Halls - Princeton, NJ
Renovation of 75,000 s.f. historic Blair and Buyers Halls. Exterior renovations included masonry repairs, window repairs, and slate roof replacement.

University of Wisconsin Armory and Gymnasium - Madison, WI
Restoration and adaptive use of a National Historic Landmark. The building's function was converted from a gymnasium to offices to house the University's Office of Undergraduate Admissions, student groups, and a Visitor Center for the campus.

United World College, Montezuma Castle - Montezuma, NM
Principal-in-charge and Designer for the adaptive reuse of Montezuma castle, a 90,000 sf former railroad resort hotel which now serves as the centerpiece of the campus.

United States Military Academy, Multiple Projects - West Point, NY
Designer and Historic Preservation Expert for several projects at West Point including the adaptive reuse of Quarters 109 for use as a Distinguished Visitors' Quarters, the exterior restoration of Building 673, and the restoration of the Warner House and design of a new Visitor Center on Constitution Island.

Red Lion Inn - Stockbridge, MA
Partner-in-Charge for the renovation of the 1894 inn including replacement of electrical, plumbing, and HVAC systems. Currently working on the renovation of the Hotel's Kitchen

University at Albany, College of Engineering and Applied Science - Albany, NY
Partner-In-Charge for the renovation and adaptive reuse of the former Albany High School into a home for the College of Engineering and Applied Sciences.

Yaddo - Saratoga Springs, NY
Partner-in-Charge for the comprehensive survey, design and restoration of the 1893 Trask Mansion building envelope.

Universal Preservation Hall – Saratoga Springs, NY
Partner-in-Charge and Designer for the restoration, addition, and adaptive reuse of the historic venue for performing arts, designed in 1871 by Elbridge Boyden as a Methodist Church.

Ellis Island National Monument - Ellis Island Ferry Building, Ellis Island, NJ
Principal-in-charge and Designer for the interior restoration of the Ellis Island Ferry Building, stabilization of the main hospital buildings, and restoration of the recreation pavilion.