

DONALDSON FUTURO



CALIFORNIA REGISTERED HISTORICAL LANDMARK #1062

Dedicated on April 16, 2022



John P. Squibb

SQUIBOB CHAPTER
1853



BILLY HOLCOMB CHAPTER
1069

E CLAMPUS VITUS®

DONALDSON FUTURO

Written by
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Edited by Eileen Magno, Historian



This booklet has been prepared to accompany the dedication of California Registered Historical Landmark No. 1062 on April 16, 2022. The site was registered with the State of California following the recommendation by the State Historical Resources Commission and signed by chair, Adam Siro, on November 24, 2020 and signed by the Director of California State Parks, Armando Quintero, on July 13, 2021.

Cover photograph of the Donaldson Futuro courtesy of Paul Kozal, photographer.

CALIFORNIA HISTORICAL LANDMARKS

The Mission of the California Department of Parks and Recreation is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.



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ACKNOWLEDGEMENTS

When the California State Historical Marking Program began in 1931-1932, by the Department of Natural Resources, counties submitted dozens of sites for consideration by the Approval Committee. Numbers were assigned by the state in order in which the applications were received. Deluged by the 1932 requests, the Approval Committee let many applications through which did not meet the 1931 Legislative criteria of "buildings of historical interest or landmarks." In 1962, the California State Parks revised the criteria for registering a California Historical Landmarks (CHL). The resource must have written consent of the property owner; be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. CHLs #770 and above are automatically listed in the California Register of Historical Resources. The program continues to have widespread enthusiasm and it is an honor to be included on the California Historical Landmarks register.

A very special thanks to Amy H. Crain, State Historian II and Jay Correia, Supervisor, Cultural Resources Programs of the Registration Unit at the California State Office of Historic Preservation for all their assistance with the nomination and shepherding it through the nomination process and approved by California State Parks Director Armando Quintero on July 13, 2021. A tribute to Paul R. Lusignan, Historian, National Register Program, National Park Service, for promoting the official naming of the Donaldson Futuro and listing it in the National Register of Historic Places at Statewide significance as the first resource of the year on January 4, 2021. Thank you, Eileen Magno for the excellent editing of the two nominations.

Thank you to all the following people that help make this happen. It indeed takes a village to save this important resource. Laurie, my wife, is to be praised for putting up with this crazy adventure to preserve the Donaldson Futuro as she and I spent eight years in the restoration. Thank you all for making it happen, in alphabetical order: Tom Blachford, photographer, "Midnight Modern," Melbourne, Australia; Susan Buck, PhD., Conservator and Paint Analyst; California Highway Patrol; California Preservation Foundation; Dore Capitani's Sculpture; Rick Chaney's Plumbing, Idyllwild; Mike Clark, Woodwizard Woodworks, Hemet; Sean R. Clark, Production CNN Special Report; Victorian Clarkin, owner of a Futuro, Pensacola Beach, Florida; Charles Clayton, Masonry Contractor, Idyllwild; Terry DeSoucy, Fire Systems Inspector, Riverside County Fire Department; Dora Dillman, Project Manager, Donaldson Futuro Relocation; Mike Duron, Power Bound Electric, Idyllwild; Erickson Air Crane, Central Point, Oregon; Margaret Foster, National Trust for Historic Preservation; Carlie Galloway, photographer; Don Gary Drywall, Idyllwild; Elke Gensel and Pamela Voigt, Verlag der Bauhaus Universitat, Germany; Stan Grau, original

Owner and Salesman for the San Diego Futuro; Roger Griffith, Conservator at the Museum of Modern Art, New York; Alan Hess, Historian, California; Chris Holland, Advanco Fire Protection, Ontario; J. C. Holt, Land Surveyor; Marko Home and Mika Taanila, authors, Helsinki, Finland; Anna-Maija Kuitunen, "Futuro No. 001 –Documentation and Evaluation of Preservation Needs;" Dan Lind, Inland Foundation Engineering Inc., San Jacinto; Jim King, Construction Foreman, Imperial Beach; Paul Kozal, photographer, Studio 391, Gualala; Bob Lyman, Land Development Departments, County of Riverside; David Marshall, Principal and Stuart Sawasaki, Project Architect, Heritage Architecture & Planning, San Diego; Jeff McDonald and Ann Jarmusch, San Diego Union-Tribune; Dennis McGuire, architect and previous owner of the vacant lot at Pine Cove; Corky McMillan, McMillan Construction, San Diego; Paul McNeil, owner of Futuro in Australia, loaned window for reproduction; Jim Miller, Inspector, Department of Building and Safety, Riverside County; Craig J. Moya, Engineered Systems, San Diego; Manuel Pimentel, Sherwin-Williams Marine Coatings, San Diego; Rich Pisani, owner of a Futuro in Terrapin, Illinois; Brian Narelle, Writer, Artist, Actor. "The Great Eichler-Futuro Migration Theory; Stephanie Pain, Associate Editor of the Science Museum in London; Planet Plastics Co. Chino; Simon Robson, "Futuro House, Current and Past Location Information, the Complete List;" Joe Sanderval, Marco Crane and Rigging Company; Mark Sauer, Mark Sauer Construction, Corona; Earl Siems, Finish Carpenter, Idyllwild; Bill Sperling and Sharon Andrews, realtors, for locating the final site; Elbert Speidel, Architect for the Poly-Pods in Confluence, PA; Eric Stover, Registered Professional Structural Engineer; Ranti Tjan, Director of Exhibits, Centraal Museum, Utrecht, Netherlands; Matti Suuronen, designer of the Futuro; Dave Weinstein, writer, Marty Arbunich, publisher and John Eng, photographer, "Falling for a Futuro." CA Modern. San Francisco; and special thanks to Larry Wood, San Diego Boat Movers, San Diego, for carefully moving the Donaldson Futuro over 126 miles from San Diego to Idyllwild.

The staff of Heritage Architecture & Planning (formerly Architect Milford Wayne Donaldson FAIA) continues to tolerate and support these time and effort consuming endeavors. Special thanks to the editing skills of Eileen Magno assisted by Joy Guevara who helped to put this booklet together and getting it published. The John P. Squibob Clampers without notable protest have put up another poke from the "gold dust" pile to finance this latest plaque dedication.

Thanks to the John P. Squibob Chapter of the Ancient and Honorable Order of E Clampus Vitus® for the plaque and in cooperation with the Billy Holcomb Chapter of E Clampus Vitus® for "allowing" the plaque to be placed in their "territory." The Donaldson Futuro California Registered Historical Landmark plaque is dedicated on April 16, 2022 in the community of Pine Cove, 52895 Big Rock Road, Idyllwild, California 92549.



Photo 1 The Donaldson Futuro. March 26, 2018, Paul Kozal, photographer.

THE DONALDSON FUTURO

Nestled in the San Jacinto Mountains near Idyllwild, California, the Futuro is a structural reinforced fiberglass polyester plastic portable home, meant to be easily moved to a desired site, usually by helicopter. Noted for its ellipsoid shaped shell which characterizes its space-age Futuristic architectural style, the residence measures 26'-4" (8m) in diameter, 13'-2" (4m) high with a total floor area of 520 square feet (48.5 square meters), and weighs approximately 11,900 lbs (5,500kg). Following extensive exterior and interior restoration, the resource is in excellent condition retaining its integrity of design, workmanship, materials, setting, feeling, and association to its 1969 period of significance. In recognition of owner Milford Wayne and Laurie Donaldson's restoration effort and resulting preservation of this fragile resource, essential to saving the building and raising the profile of the entire family of similar buildings, the property is identified as the Donaldson Futuro by the National Park Service and the State of California.



Wayne and Laurie Donaldson.

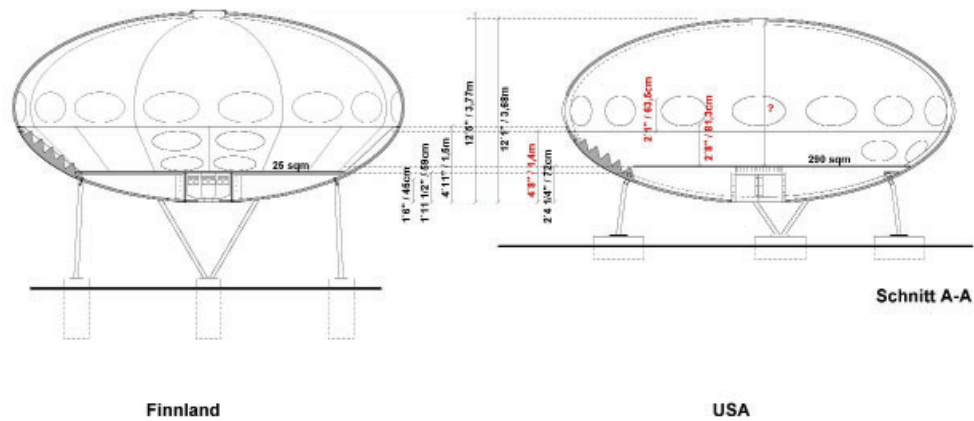


Figure 1 Preliminary sectional sketches. Source: Dr. Pamela Voigt, Architektin, Leipzig, January 29, 2020.

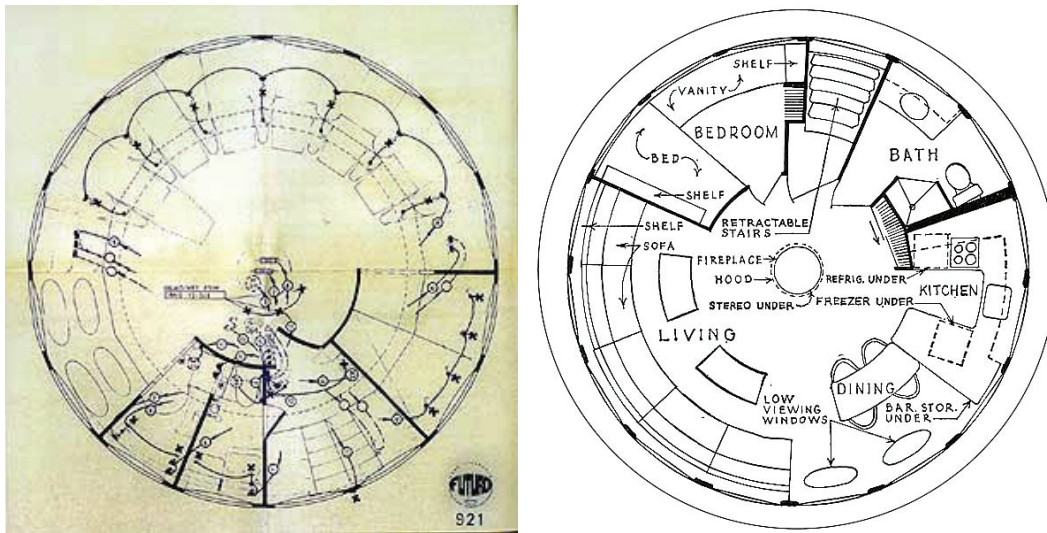


Figure 2 Floor Plans. Left: finish Futuro, Source: Marko Home, Futuro; Right: USA Futuro, Source: CA Modern, Winter 2007.

The United States production model that was built by Futuro Enterprises—a.k.a. Futuro Corporation, headed by Leonard Fruchter in Philadelphia, Pennsylvania, under a USA license agreement with Polykem Ltd.—became an instant hit in the United States (Figure 1).¹ The total square footage, weight, and physical characteristics, however, were quite different from the Polykem Ltd. model (Figure 2)

In 1969, the Futuro was purchased and delivered from Philadelphia, Pennsylvania to San Diego, California in four complete shell pieces and bolted together on site by then owner and agent, Stan Grau. Relocation of the Futuro from San Diego to Idyllwild, California occurred in 2004. Barely visible from



Photo 2 Looking towards the San Jacinto Mountains. n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 3 The USA model had two lower windows at the dining area. March 26, 2018, Paul Kozal, photographer.

the public right-of-way on Big Rock Road within the San Jacinto Mountains, this Futuristic space-age residence is set discreetly on a large rock outcropping with concrete pier foundation surrounded by native Ponderosa Pines, California Black Oaks, White Firs, and Manzanita bushes (Photos 1, 2).

The ellipsoid shaped Futuro is made entirely of synthetic fiberglass reinforced polyester plastic and has been repainted its original Harvest Gold exterior color as part of the resource's restoration (Photos 2, 3, 4). The Futuro measures 26'-4" wide, 13'-2" high and has 520 square feet inside (Figure 1). The original 1/8" thick-walled rusted steel leg supports and steel bolts have been replaced in-kind with 1/4" thick-walled stainless-steel supports and stainless-steel bolts following a structural analysis for wind and snow. Fenestration includes sixteen custom-made replicated acrylic bubble windows along the Futuro's façade and two additional smaller ones beneath the dining room windows at the southeast façade (Photos 3, 4, 5).

Because all of the original windows were previously replaced, a reproduced set was achieved utilizing an original window from an Australia Futuro as a model.² While the portable Futuros manufactured in the USA included a total of eighteen, the Finnish model provided twenty total windows with the four smaller ones under the dining room windows. Similarly, the Finnish model's door was centered under two windows, while the USA Futuro's entry door and airstair hinges downward and is located directly beneath only one of the upper windows (Photo 6; Figures 1, 2). An acrylic bubble skylight has replaced the original fireplace flue opening on top (Photo 7).

Major interior features contribute to the Futuro's architectural significance. The Futuro's interior originally centered around a metal fireplace that sat on a circular storage console. Due to potential fire threats, the fireplace feature was not retained inside the building, but was stored on site including the ceiling spotlights.³ The original circular storage console remains and the original roof opening for the flue system was renovated to include an acrylic bubble skylight and light fixture (Photos 8, 9). The partition walls radiate from the center console and the specially curved original interior wood doors, designed to align with the interior wall curvature including latch sets and doorknobs, have been retained. The pale yellow plastic laminate finish for the adjacent built-in wall cabinets had previously been badly sanded and painted white. An application of period paint from a 1966-1968 pallet has been applied over the white.⁴ The Futuro's loss of the majority of its asbestos popcorn ceiling, which was caused by previous openings at the top, has since been replicated using non-asbestos popcorn ceiling with embedded gold flakes.



Photo 4 Futuro on top of faux rock concrete footing, n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 5 Exterior, public view from Big Rock Road, n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 6 Hinged downward opening door and integral stairs similar to a Cessna Citation aircraft, an airstair. March 26, 2018, Paul Kozal, photographer



Photo 7 Photographed by drone. August 11, 2017, David Marshall, AIA, photographer.

The original design comprised features as found in a traditional trailer with wood counters and built-ins covered with a plastic laminated top, similar to Formica; a small bathroom and shower unit; and typical small appliances for the kitchen. The Futuro retains its original faucet, range, and under counter refrigerator. Original furniture, such as the built-in seating and coffee tables that when pushed together form additional sleeping areas (Photo 10), as well as the dining table, are all intact (Photo 11). Also original is the kitchen pantry with doors that have specially made original Futuro-shaped black acrylic ellipsoid pull handles (Photos 12, 13). Inside one of the pantry doors are the original hooks used to hang the Navy cadets' room keys when the Futuro was at the US Naval Training Station.⁵



Photo 8 Interior, original kitchen and central console. March 26, 2018, Paul Kozal, photographer.



Photo 9 Restored opening for central fireplace, adapted for acrylic skylight and light fixture, n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 10 Original bench seat and coffee tables that double as beds, n.d. Laurie Donaldson, photographer.



Photo 11 Dining area showing original dining table and coffee table with Sadie Sue lying on the shag carpet, n.d. Laurie Donaldson, photographer.



Photo 12 Kitchen showing original sliding plastic storage cabinets, range top, and Formica countertop, n.d. Laurie Donaldson, photographer.



Photo 13 Living Room showing original range and oven, March 26, 2018, Paul Kozal, photographer.



Photo 14 Bedroom showing under bed storage, n.d. Milford Wayne Donaldson, FAIA, photographer.

Likewise, the bedroom maintains its original built-in counters and drawers, bed platform with storage underneath, and closet with mirrored sliding doors (Photo 14). Some of the missing round chrome drawer pulls have been replaced with exact duplicates.⁶ The bathroom retains its original faucet and sink counter and cabinet with mirrors. Also extant are the original shelf and cantilevered toilet (Photos 15, 16).

These interior furnishing and fixtures differed, however, from the Finnish model, which was all molded plastic including seats, kitchen, and bathroom area.



Photo 15 Bathroom showing original counter, cabinet with mirrors, and sink. n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 16 Bathroom showing original shelf and cantilevered wall-mounted toilet. n.d. Milford Wayne Donaldson, FAIA, photographer



Photo 17 Futuro in the snow. n.d. Milford Wayne Donaldson, FAIA, photographer.



Photo 18 Special effects at night. March 26, 2018, Paul Kozal, photographer.



Photo 19 Nighttime mood at sunset. March 26, 2018, Paul Kozal, photographer.



Photo 20 Photographed by drone. August 11, 2017, David Marshall, AIA, photographer.

Construction Chronology

- Nov. 1969 Purchased by Stan Grau from Futuro Enterprises in Philadelphia, Pennsylvania and transported to San Diego, California in four separate pieces. Once in San Diego, Grau assembled the Futuro on site at the Grauhaus Corporation.
- 1970-1972 Moved several times in the San Diego area including Mission Valley Shopping Center and the Naval Training Center across from the USS *Recruit*.
- April 1973 Moved to the Escondido Shopping Mall for use as an U.S. Air Force recruiting office.
- 1974-2002 Relocated to the rear parking lot at the Design Center, 3601 Fifth Avenue, remained locked and used for storage.
- Exterior brushed with green latex paint.
 - All original windows replaced with non-operable vertical glass purple- tinted windows.
- 2002-2004 Exterior restoration at the San Diego Boat Yard.
- Fiberglass exterior finish repaired and restored.
 - Paint cross-section microscopy color analysis conducted to determine original exterior gel color; repainted to original Harvest Gold.
 - In-kind steel leg supports and bolts replaced with stainless steel.
- Nov. 2004 Relocated to Idyllwild, California. 2004-2012 Interior and window restoration.
- Rust removed and radial I-beam steel supports repainted.
 - Damaged and dryrot plywood flooring replaced.
 - Original damaged linoleum kitchen floor restored in-situ. Covered with reproduced linoleum that closely matches the original in color and texture. Damaged original shag carpet replaced with new shag carpet.
 - All extant furnishing and fixtures restored.
 - Flue roof opening with bubble acrylic skylight and light fixture renovated. Original windows, which were missing, replicated based on 1969 Australian Futuro's original window. Replicated acrylic bubble windows installed throughout.
 - Window zipper gasket pull-ring at bedroom window designed and installed to meet Fire Code egress.
- Feb. 2009 Occupancy Permit approved.

Restoration and Relocation

The process was one of research, discovery, and finally successful restoration and code compliance (Photos 17, 18, 19, 20). It was a long journey, full of surprises and challenges, and explains why many of the Futuros throughout the world are in dire shape. The concepts that the Futuro was easy to be moved at any time, that no or little maintenance was required because it was plastic, and the early salesmanship of meeting the regular codes all proved to be a challenge. The lack of expertise on restoring plastic materials and the amount of experimentation with each step also became expensive as well as a challenge. In the long run, the adventure was a myriad of discoveries, solving the challenges with clever solutions. The lessons learned have been carefully cataloged and should be of use to people in the future who may want to rescue, relocate, or restore a Futuro.

Stan Grau purchased the Futuro from the Futuro Enterprises in Philadelphia and had it delivered to the Grauhaus Corporation in San Diego in November 1969.⁷ Mr. Grau was to act as a salesman for Futuro Enterprises. He discovered that he could improve on the prototype by providing operable rectilinear windows and combining two or three Futuros for a larger home, as well as mid-rise condominiums (Figures 3, 4).⁸ These designs never materialized.

Grau moved the Futuro around San Diego several times, at one time on loan to the US Navy at the Naval Training Center siting it across the street from the USS *Recruit*, a land-based faux destroyer, 3/4 size, used for training purposes.⁹ He also moved it outside of the Escondido Shopping Mall for use as an US Air Force recruiting office in Southern California in April 1973.¹⁰ Grau felt he needed more exposure for the Futuro so he moved it so it could be seen from Highway 163 at Mission Valley Shopping Center, a large retail shopping center area. The Futuro finally landed in a parking lot behind the Design Center, 3601 5th Avenue, San Diego (Photo 21). It sat there for years, locked and used for storage, brush painted with a green latex paint, deteriorating at a slow rate (Photo 22). New owners of the Design Center attempted unsuccessfully to demolish the Futuro. Milford Wayne Donaldson, a well-recognized practicing preservation architect, purchased the Futuro in October 2002. Two years of exterior restoration took place before the Futuro was moved to Idyllwild, California in November 2004. Once the Futuro was in Idyllwild, the Donaldsons restored the interior and obtained a building permit for occupancy in February 2009 (Photo 23).

Donaldson's restoration philosophy and intent for the Futuro was to follow the Guidelines for Restoring Buildings as noted in the *Secretary of the Interior's Standards for the Treatment of Historic Properties* regardless of the Futuro's historic standing at the time. Further, Donaldson's previous work in 1970-1971, as the structural engineer and construction manager for the Poly-Pods, a modular

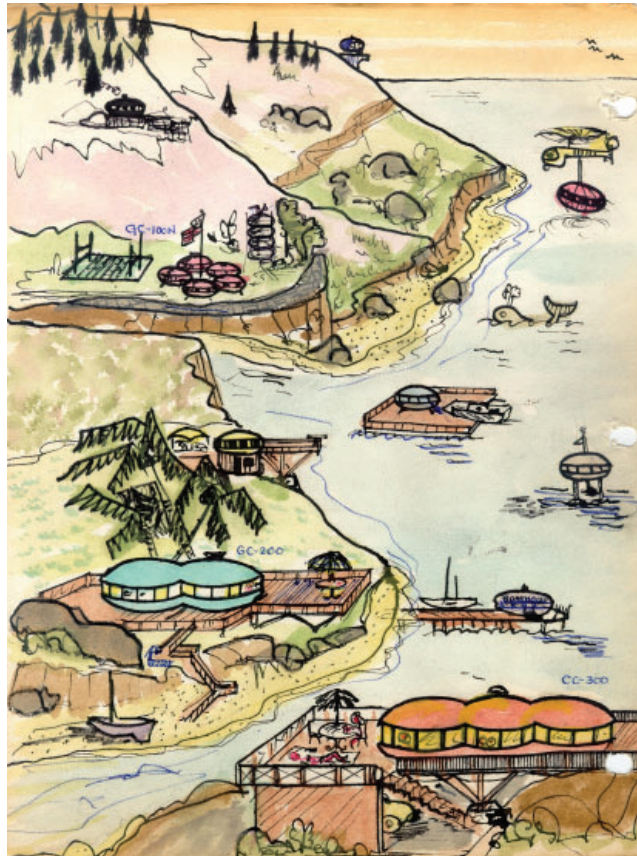


Figure 3 Proposed uses for the Grauhaus Futuro, n.d. Source: Stan Grau Collection.



Figure 4 "Your Own Adventure in the Grauhaus" brochure, n.d. This model, with square windows, was never built. Source: Stan Grau Collection.



Photo 21 Moving the Futuro in San Diego, ca. 1969, photographer unknown, Stan Grau Collection.



Photo 22 At the parking area behind the Design Center, San Diego. September 2002, Milford Wayne Donaldson, FAIA, photographer.



Photo 23 Relocating the Futuro from the Design Center to the San Diego Boat Yard, San Diego. November 19, 2002, Milford Wayne Donaldson, FAIA, photographer.

glass-fiber reinforced plastic housing system designed by architect Elbert Speidel in Confluence, Pennsylvania, proved to be beneficial for the extensive work to be completed.

The exterior restoration of the Donaldson Futuro took from December 2002 to December 2003 (Photos 24, 25, 26, 27, 28). Starting from the exterior finish, the green latex paint was carefully removed revealing the original Harvest Gold gel coat (Photo 25). A color analysis performed by Conservator and Paint Analyst, Susan Buck, PhD, confirmed that the gel coat on the Futuro was originally a high performance polyester resin used in boats with excellent handling characteristics, superior ultra-violet light resistance, flexibility, and reduced emission. Further, damage to the top of the Futuro essentially effected the fiberglass and urethane foam interior and had to be repaired (Photos 26, 27). The rusted steel leg supports were replaced in-kind, and the lost original bubble acrylic windows were replicated at Planet Plastics in Corona, utilizing an original window on loan from an Australian Futuro (Photo 28).



Photo 25 At the San Diego Boat Yard undergoing restoration. November 2002, Milford Wayne Donaldson, FAIA, photographer.

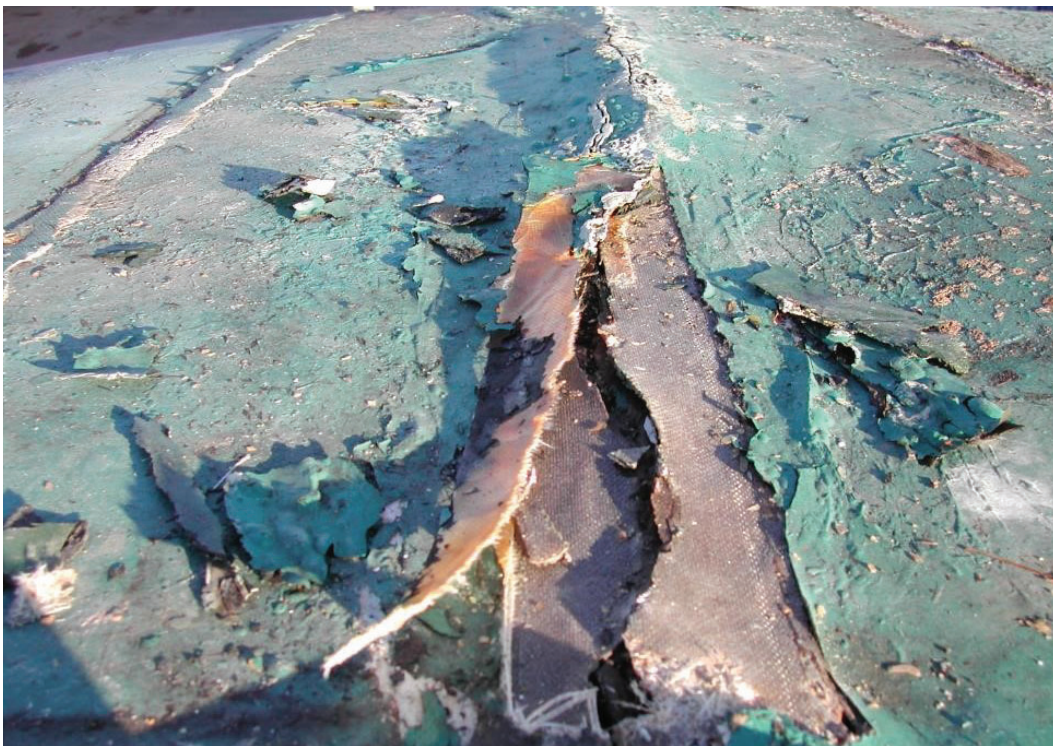


Photo 26 Portion of roof badly damaged due to weathering, removed and replaced with new fiberglass. December 2002, Milford Wayne Donaldson, FAIA, photographer.



Photo 27 Near top of door opening where upper and lower halves of shell are joined; vertical joint is connected with steel bolts from the bottom but the top was fiberglassed together in one piece. December 2002, Milford Wayne Donaldson, FAIA, photographer.



Photo 28 Installing the mock-up acrylic window in a mock-up fiberglass frame made by Mr. Donaldson at Planet Plastics, Corona, CA, May 22, 2003, Milford Wayne Donaldson, FAIA, photographer.

Upon completion of the exterior restoration, a remote site was selected in the small community of Pine Cove, about five miles north of Idyllwild. The site Donaldson chose reflected the remote ambiance of a vacation retreat mountain that housed Finnish architect Matti Suuronen's first Futuro in Finland. The process of moving the Futuro from San Diego to Idyllwild was discussed in detail with other Futuro owners worldwide and it was determined to move the resource in one piece since it had been fiberglassed together and could not be unbolted. Secondly, it was debated whether to transport by air versus by land (Figure 9). Consultation with Erickson Air Crane of Central Point, Oregon regarding the possibility of the Futuro being airlifted via helicopter was not as straightforward as architect Suuronen made it out to be. Suuronen's marketing strategy was flawed as the Futuro was not as portable as he advertised. Complications included the Futuro was too heavy to be lifted by a standard size helicopter; myriads of permits were required prior to airlift, including approval by Caltrans and the Federal Aviation Administration (FAA) for moving the Futuro by helicopter; and the Idyllwild's site 6,500 feet elevation. With these in mind, it was concluded the best route would be by land.¹¹



Photo 29 Donaldson Futuro en route to Pine Cove from San Diego, blocking three lanes of Interstate 15 with California Highway Patrol escort, December 8, 2004; photograph by Joy Guevara, Architect Milford Wayne Donaldson, FAIA.

The Futuro was finally moved on December 8, 2004, shrink-wrapped in one piece, via a 126-mile journey up Interstate 15, complete with a California Highway Patrol escort (Photos 29, 30). Upon arrival at the designated site, a crane was used to hoist the Futuro above the surrounding trees. As it was



Photo 30 Moving the Futuro up California State Highway 243 to Pine Cove, passing through Mountain Center, accompanied by CHP. December 8, 2004, Architect Milford Wayne Donaldson, FAIA, photographer.



Photo 31 Craning the Futuro into place in Pine Cove. December 8, 2004, Architect Milford Wayne: Donaldson, FAIA, photographer.



Photo 24 North facade at night. May 29, 2016, Carlie Galloway, photographer.

lowered, it came five feet short of the concrete foundation, due to low visibility caused by the dense fog. It took three people on each leg to help slowly swing the building so the crane could lower the Futuro to its foundation (Photo 31).

Once the Futuro was moved, the Donaldsons completed interior restoration of all of the original extant furniture, fixtures, and equipment (Photo 32). As for the exterior, the use of the *Standards* guided work completed on the interior. The unrestored interior, although in poor condition and painted, had retained a high degree of integrity throughout the years. All of the features including the original Formica plastic laminate counter tops and tables, coffee tables, seating, cabinets, sinks, range, and undercounter refrigerator were retained and restored. Missing features, such as some of the cabinet door pulls, were replaced in-kind. Due to the potential heavy fires in the area, the original fireplace could not be utilized. It was removed and carefully stored on site. In addition to the interior restoration, the replicated bubble acrylic windows were installed. To comply with Fire Code egress, Donaldson designed a window zipper gasket pull-ring at the bedroom window. Finally, in 2009, a building occupancy permit was officially granted, a unique achievement in California, not realized by any other Futuro in the state.



Photo 32 During interior restoration, original electric stove and range, bench seat sitting area. August 15, 2006, Milford Wayne Donaldson, FAIA, photographer.

From 2004 to 2016, through the work of a multidisciplinary team of preservation specialists—including architects; structural engineers, building technology, and plastic material engineers; architectural conservators; realtors; general contractors; and multiple subcontractors—worked tirelessly to rescue, stabilize, relocate, and restore the Futuro. In 2020, the statewide preservation advocacy group, the California Preservation Foundation (CPF), in recognition of the Futuro’s extensive exterior and interior restoration, granted the distinguished Preservation Design Award for Restoration to the Futuro (Figure 5). According to CPF, the Futuro’s innovative restoration exemplified best practice in architectural conservation of plastic material and code compliance encompassed under the *Standards for Restoration*.¹² It was also the People’s Choice by popular vote.

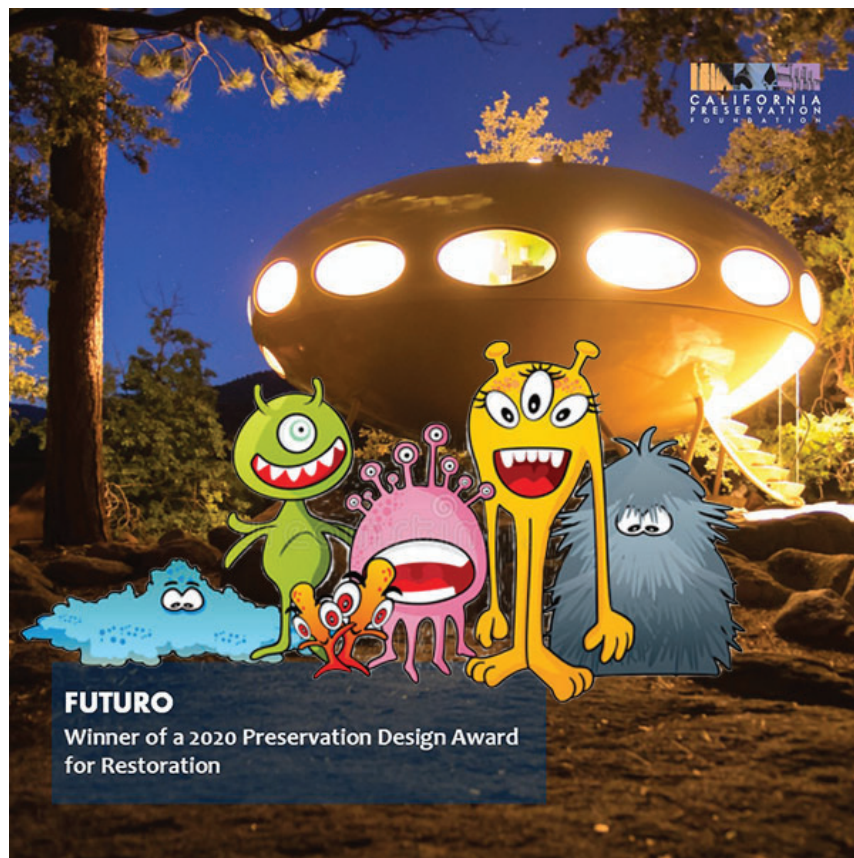


Figure 5 Recipient of the California Preservation Foundation 2020 Preservation Design Award for Restoration. Source: Milford Wayne Donaldson, FAIA.

Integrity

Overall, the Futuro maintains a high degree of historic integrity. The building retains the elements that create the form, plan, space, structure, and style of the resource from its period of significance. The Modern Futuristic Space-Age *design, materials, and workmanship* remain largely intact, and are exemplified through its ellipsoid shape, synthetic fiberglass exterior finish, door and airstair hinged opening, and in-kind replacement bubble acrylic windows. Although the Futuro was relocated, the mountainous *setting* provides a glimpse into what the original designer intended thereby conveying what the Futuro may have looked like during its period of significance and contributing to the resource's sense of *feeling and association*.



Photo 33 Wayne and Laurie Donaldson in front of their Futuro. November 28, 2009, Milford Wayne Donaldson, FAIA, photographer.

SIGNIFICANCE

The Donaldson Futuro is significant under California Historical Landmark Criterion 1 as the first Futuro to arrive in California, the only Futuro in the state until 2015, and the only Futuro in California to have obtained a building permit for residential occupancy. The property is significant under California Historical Landmark Criterion 3 as the first serially produced plastic house and the first all-structural glass-reinforced polyester house in California, becoming a notable icon in California space-age architecture. The property represents America's collective confidence as a leader in space flight, technology advancement, and economic prosperity. Landmark designation also recognizes the extensive restoration of a fragile and rare property type essential to saving the building and raising the profile of the entire family of similar buildings nationwide. The period of significance is 1969, the year the Futuro was fabricated and shipped to California from Futuro Enterprises in Philadelphia, Pennsylvania.

The Futuro is an important part of architectural and cultural history. What the Futuro represents is an optimistic vision of a future that never came to pass, when families would live in lightweight, inexpensive, durable, and easy-to-clean plastic houses they could move whenever the family moved. "People were dreaming in the postwar years of low-cost prefabricated housing, of mobile housing, of housing built using the latest technologies and materials. Durable plastic furniture, dishware, and hardware would make life easier for busy housewives who were suddenly getting jobs in business and industry. Fans believed the Futuro would make these dreams come true."¹³

The Futuro, fabricated in 1969 of structural plastic, reflects the optimism during the exciting era of space exploration when people believed technology could solve all problems for the human race. "*Plastic* by definition means 'flexible' or 'malleable,' which perhaps sets it apart from some other materials. I think that's why designers use this material— because it has possibilities that other materials don't have."¹⁴

Worldwide designers were using plastic materials in their projects. From Casoni and Casoni's 1968 holiday house Rondo in Switzerland, to Matti Suuronen's 1968 Futuro house in Finland and the USA production of the 1969 Futuro house in Philadelphia, to Maneval's and Ifert + Meyer's 1970 Six Bubble House in France, to Scheichenbauer's 1971 System Ponza in Italy,¹⁵ and finally to Elbert Speidel's 1972 Poly-Pods housing system in Pennsylvania, these projects epitomize space age style: a period of optimistic, futuristic aesthetics when earthbound designers of plastics let their creative spirits soar into orbit.

The house (Futuro) represents very well its contemporary way of thinking and living with a strong confidence in the future—"futuro." In the same era in 1969 people saw on the blurry TV-screen as Neil Armstrong stepped onto the moon on July 20, 1969 as the first human being. Mika Taanila remarked "It fitted in perfectly. It was a sign of the times. The same week it was launched, man landed on the moon."¹⁶

A Russian cosmonaut had already been flying in the earth's orbit in 1961.

In California in 1960, architect John Lautner designed Chemosphere, a house at the edge of the Hollywood Hills. "Lautner rejected the roundness of saucer aesthetics in favor of raw-boned borders, more like a trailer home on stilts."¹⁷ "Space seemed to offer an enormous potential for becoming a new playground for the human nation."¹⁸ The Futuro became a popular icon, and in the 1970s, the photographer and advertising guru Charles Whip had one erected on the roof of his house in Dusseldorf. He received guests like Andy Warhol and Christo, who later wrapped the Futuro during one of his art actions.¹⁹ The movie *The Graduate*, as Mr. McGuire took young Benjamin aside to discuss his future, proclaimed "I want to say one word to you. Just one word. Plastics."²⁰

"In their Manifesto of Futurist Architecture (1914), the founders of futurism, the architect Antonio Sant'Elia and the poet Filippo Marinetti, declared that the buildings of the future would be dynamic and mobile, and throughout the 1960s, these concepts were developed further. But whereas many designs existed only on paper, the Futuro is an intriguing physical example of space-age utopian architecture."²¹ The 1970 September edition of *Playboy* magazine also had an article called the Portable Playhouse, noting, "It's a flying-saucer-shaped hideaway designed for whirlybird delivery and instant livability in any climate. The Futuro is virtually maintenance-free; its sealed-up saucer shape ... all but eliminate dust and humidity..."²² The *Playboy* Magazine Summary of the Best of 1969-1970 notes: "The most popular feature we've [sic] ever ran was, surprisingly, about a \$14,000 home, September 1970s Portable Playhouse. Letters are still coming in; at last count, they totaled 7,763."²³

Marko Home and Mika Taanila's film *Futuro, A New Stance for Tomorrow* (1998), concentrating on the years 1968-1973, had toured by 2002 to over 50 international film festivals. Historian Elke Gensel called the Futuro "Space-Age Architektur."²⁴ Historian Arnt Cobbers noted: "It was a simple ski house... that ultimately resulted into [sic] an icon of the belief in progress predominant in the age of space travel during the late 1960s; it attracted world-wide attention."²⁵

Finnish architect Matti Suuronen was born in 1933 in Lammi, Finland. He graduated from the Finnish Institute of Technology in 1961 with a Diploma in Architecture. Having worked at several architectural offices while studying between 1955 and 1961 he established his own architectural bureau upon graduation.²⁶ Suuronen was commissioned by a former schoolmate to design a ski cabin that would be “quick to heat and easy to construct in rough terrain.”²⁷ Suuronen played with various ideas based around domes before finally settling on a perfect elliptical form. Suuronen designed the final shape of the Futuro to evolve into an ellipsoid shell for structural strength. “An elliptic paraboloid shape is an example of an anti-elastic shell (like an egg) that is the excellent structural form for obtaining optimum structural efficiency.”²⁸

“While the plastic Futuro was designed and serially produced, it was meant to be portable while the comparable Monsanto house was land-tied. In addition, the plastic structure of the Monsanto house was limited to the exterior skin only. The extended segments were designed to resemble an airplane wing cantilevered off a fuselage, where the symmetrical forces from each wing are carried indeterminately and continuously through the central core.”²⁹ “The Monsanto House of Tomorrow was a cellular cantilevered system with a fiberglass shell for exterior skin.”³⁰ The Monsanto House was demolished in 1967.³¹ As the first serially produced portable plastic house, the Futuro was the only and first all-structural glass-reinforced polyester house in California, beginning in 1969.

“Suuronen emphatically denies that the Futuro was inspired by futuristic utopian visions, insisting that the design is based purely on mathematics, and that the space-age look of the Futuro is a pure coincidence.”³² The Futuro design is a structural reinforced fiberglass polyester plastic portable home, meant to be easily moved, either by component pieces or by a helicopter to a desired site. The contract for production was given to Helsinki-based company Polykem Ltd., and the first prototype was built in early 1968 although only when the third one was manufactured was the name Futuro born. Suuronen was familiar with using fiberglass structures as he previously designed a large plastic dome, twenty-six feet in diameter, for the roof of a grain silo in Seinäjoki, Finland.³³

Researched and developed by Polykem, the firm developed a production system to be potentially suited to serialized industrial production as a portable prefabricated single-family house (Figure 6). The Finnish prototype measured 26'-4" (8 m) in diameter, 13'-2" (4m) in height, 269 square feet (25 square meters) in floor area and weighed approximately 8,800 pounds (4,000 kg). The Finnish model was built in sixteen sections, so it could be easily transported and bolted together on site, taking two days to assemble or disassemble without the use of motorized equipment (Figure 7). The model also nested in



Figure 6 Finnish model prototype exhibited at the Frankfurt Fair, 1970. Source: Home, *Futuro*.



Figure 7 Finnish model under construction, n.d. Source: Justin McGuirk.



Figure 8 Finnish model prototype, kitchen interior. Source: Home, *Futuro*.



Figure 9 A Futuro airlifted in Sweden, October 22, 1969. Source: Home, *Futuro*.



Figure 10 Poly-Pod System Model, ca. 1970. Source: E.O. Speidel, Architect, Designer and Model Maker.

an exposed metal ring once all the sections were bolted together.³⁴ Once completed the prefabricated plastic interior features, furniture, cabinets, heating system, equipment and furnishings were added for ready move-in (Figure 8). The portable Futuro, manufactured to be structurally sound once the sections were together could also be moved as a single unit by helicopter (Figure 9).³⁵ The first #000 prototype ended up in the collection of the Centraal Museum, Utrecht, the Netherlands in 1997.³⁶

In the late 1960s, mobile homes accounted for twenty percent of all new housing sold in the United States.³⁷ "The portable home symbolized the neo-nomadic lifestyle idealized by Western youth. It became fashionable to live in an industrially produced capsule like an astronaut. Plastic furniture, objects and clothing mass-produced, fast food, and modern entertainment industry of Sci-Fi fantasies completed the package adding the finishing touches to the space-age life style."³⁸

In 1970, California's Ant Farm's Truckin' Univ.—a mobile plastic inflatable structure delivered and erected by four large trucks "to move with the change of environmental sensory overload and inadequacy of current educational systems" that could move across the countryside to link up with other global

villages—illustrated the desire to be constantly moving and interacting, long before the internet.³⁹ British architect Cedric Price remarked, “Houses should be transportable in order to give the occupants freedom to choose surroundings rapidly. It should include means integral to the structure itself and include a plug-in system.”⁴⁰ Futuros were sold with comments such as, “We like to think that you can just plug the place in like an appliance.”⁴¹

Milford Wayne Donaldson’s 1972 Master of Science in Architecture thesis, *Biostructures*, noted,

One of the most profound influences on providing shelter for people of the western society and notably, the United States, has been mobility. However, the rush for this demand on housing has resulted in a deterioration of the environment.... Biostructures create a special environment responsive to the needs of the inhabitants, both physiological and psychological, in a biological manner. At the same time, the interdependence on the environment and the inhabitants for survival creates an atmosphere of mutual co-existence between organism and structure. These environments are dynamic, sensitive, and reactive to atmospheric and biospheric forces.⁴²

A prototype was constructed at the University of Strathclyde, Glasgow, Scotland. The Japan World Exposition, Osaka in 1970 featured capsule apartments, UFO shaped pavillions, bubble houses and pneumatic halls.⁴³

Another similar project involving moveable structures was architect Elbert Speidel’s Poly-Pods in Confluence, Pennsylvania. In the summer months of 1970 and 1971, Donaldson was the prototype construction manager for Poly-Pods, a modular glass-fiber reinforced plastic housing system. “The Poly-Pod system is designed to be mass-produced and transported to any place in the world. The total dwelling unit can be like a living thing, adding elements and subtracting them as the demand dictates.”⁴⁴ “The Poly-Pod is a low maintenance structure which will last indefinitely. Imagine a house that may be erected on any terrain, in a day, with practically no site preparation (Figure 10). A roof that never leaks and insulation so effective that heating and air conditioning costs are unbelievably low. The Poly-Pod system is the ultimate in flexibility.”⁴⁵

By 1970, the Futuro and its plastic brethren were no longer in production due to the Organization of the Petroleum Exporting Countries (OPEC) induced oil crisis. During that era’s Arab oil embargo, when motorists lined up for gas, petroleum prices rocketed. Relying on fossil fuels and inexpensive crude oil, the attraction of low-cost plastic in the product industry all but vanished. Plastic was

no longer cheap, nor competitive with wood or metal as an architectural material. “Embargo or no, the Futuro came with some built-in problems. It was small, oddly shaped, and expensive. Critics called it ‘the Mercedes-Benz’ of prefabricated houses.”⁴⁶

While most people blame the failure of plastic homes on the oil crisis, according to Donaldson in a 2007 interview with Stephanie Pain, Associate Editor of the Science Museum in London.

There are lots of reasons why the Futuro failed. The oil crisis was a problem but the Futuro house had never been cheap. It was more a house for the affluent who wanted a stylish holiday home. Nor did plastic turn out to be as trouble-free as touted. The idea that if it’s plastic it will last forever and all you have to do is wash it was a misconception. There was certainly a shift away from traditional housing and people had become much more mobile. But that didn’t mean they wanted to take their homes with them everywhere they went. People weren’t really ready for this sort of life. The shape however gives it the strength to withstand high winds in the mountains. When its windy the house sometimes oscillates—although that can be kind of nice and rocks you to sleep. New plastics are far better and should last much longer. Plastic houses are very efficient and don’t use much energy: you could fit solar cells and not need to be attached to the energy grid. And making plastic from oil is much better than burning gasoline.⁴⁷

As documented in the Description, Donaldson’s unique conservation approach brought together his engineering experience with a portable plastic housing system and his architectural experience with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties*. The restoration effort, and resulting preservation of this fragile resource, was essential to saving the building and raising the profile of the entire family of similar buildings. The resource continues to attract worldwide notice from across the spectrum, from academic to artistic, including a CNN special report,⁴⁸ music videos, digital artwork, and photography. As documented in the References, Donaldson is in demand internationally for lectures, papers, and presentations on the restoration.

The Futuro embodies the distinct features and is an iconic representation of Modern Movement Futuristic space-age style architecture with its elliptic paraboloid shape, bubbled acrylic windows, and downward hinged door with airstairs. “Its design encapsulated the distinctive themes of the 1960s utopian architecture: mobility, increased leisure time and the new plastic material. Even by international standards, it is the art icon among the most striking samples of utopian Space-Age [sic] design.”⁴⁹

The Futuristic space-age style is characterized by the “birth of atomic science [that] brought promises of advanced societies powered by nuclear energy, while the beginnings of the space race made people realize that humans might soon venture to the Moon or Mars. And because a futuristic era seemed just beyond the horizon, the shift to an ultramodern architectural style was almost inevitable.”⁵⁰ Modern Futuristic style exemplified this fascination by the use of unconventional shapes, eye-catching colors, and modern materials, including glass, chrome, and lots of plastic.⁵¹

The Futuro was conceived by Matti Suuronen in 1968, a year prior to Apollo 11’s historic landing on the moon, and advertised as a “portable” ski chalet with a quick heating system.⁵² It was later hyped as the home of the future that catered to optimists interested in gadgets and explorations in building materials and also publicized as an adaptable housing solution for all climates and topography.

In America, this portable Futuro was the first serially produced plastic house. It was the first to arrive and be assembled in California in 1969 and the only Futuro in the state for forty-six years. Since 2015, two other Futuros have made California their home. One arrived in Los Angeles in 2015, and the Area 51 Futuro House in Joshua Tree arrived in 2019.

The Los Angeles Futuro, originally located on 715 Clark Road, Bailey, Colorado, was purchased by Mark Haddawy (Photo 34).⁵³ Haddawy had the Futuro moved in sections and assembled in the backyard of his home. The exterior was restored, and the interior remained an unfinished shell.⁵⁴ It does not have a permit for occupancy and is treated as a playhouse. The Area 51 Futuro was moved from Rockland, Wisconsin circa December 2019 for use as an Airbnb. Owner Ronald Jackson purchased the Futuro and moved it in sections to Joshua Tree. This Futuro does not have water, sewer, bathroom, or kitchen and is an open shell with no windows. Amenities are located in a portable facility parked near the Futuro.⁵⁵ Neither of these Futuros has undergone the extensive restoration, to the exterior and interior, to the level that the Donaldson Futuro has undergone.

Approximately sixty-one Futuros are extant worldwide with at least seventeen confirmed in the US, in various physical conditions (Figure 11) including many that are not salvageable.⁵⁶ Matt Damon, a New York City art collector, hired Donaldson in 2008 as a consultant to



Figure 11 Altered Futuro in New Jersey showing attached door entry. n.d., Steve, *The Futuro House: Space Age UFO Architecture Comes of Age*.



Photo 34 Bailey, CO Futuro with replacement operable window. n.d., Milford Wayne Donaldson, FAIA, photographer.

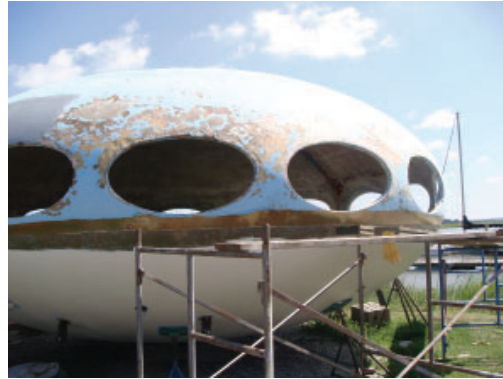


Photo 35 Matt Damon's Futuro at a boat yard in Greenwich, NJ. August 10, 2008, Milford Wayne Donaldson, FAIA, photographer.

help in the restoration of a Futuro used originally for Star Trek and then for The Planet of the Apes Wildwood attraction at Moery's Pier Boardwalk in New Jersey in 1975 (Photo 35).⁵⁷ This Futuro, in extremely poor condition, was relocated to a boat harbor at Greenwich, New Jersey, for restoration by a boat finisher and his son. Donaldson spent a week August 8-15, 2008 in consultation on-site and then time over the following year (Photo 35). Another contractor, Joe Pepin, took over the project on July 23, 2009 and shut down on December 8, 2009. After a year's attempt to restore the Futuro and lacking the construction skills and escalating costs with no end in sight, the project was finally abandoned.

By the 1970s, the architectural culture in America had changed. The oil crisis hit, and materials, such as plastic, was no longer ecologically favorable or economical.

The interest in the future, the gee-whiz factor about plastics and nuclear power and space flight, travel to the moon, all of these that had been new and exciting in the 1950s had become more mundane—we landed on the moon in 1969 and then it was over. And also at that time new ideas came in—specifically the ecology movement which began to say that we do have limits on how we use our resources. And an interest in more lower scale, residential, traditional, architecture came into fashion.⁵⁸

Moved Properties Consideration

The Futuro maintains the essential historic features that convey its architectural significance as well as its functionality as a portable vacation home that could be easily moved and deposited on any location. Its locale within the San Jacinto Mountains is reminiscent of the mountainous setting and general environment comparable to Finnish architect Matti Suuronen's original design intent.

The Futuro was always designed to be portable and was frequently transported locally during its historic use. Similar to travel trailers and mobile homes, which accounted for twenty percent of all new housing sold in the US during this period of the late 1960s, mobile homes were prefabricated and marketed primarily as an inexpensive form of housing designed to be set up and left in a location for periods of times. Mobile homes were also essential in order to meet the immediate needs of the post-war housing shortages in many areas during this era. The transportable Futuro served as a higher end mobile vacation home, and its design also tapped into America's fascination with space travel.

Designed by Finnish architect Suuronen and constructed in 1969, the Futuro was always advertised as a portable vacation home. It was initially marketed as a portable ski chalet with a quick heating system. A year later, *Playboy* entitled its article about the Futuro "Portable Playhouse." The article describes the Futuro as whimsical, effortlessly mobile, and easy to maintain. "It's a flying-saucer-shaped hideaway designed for whirlybird delivery and instant livability in any climate. The Futuro is virtually maintenance-free; its sealed-up saucer shape... all but eliminate dust and humidity..."⁵⁹ It would appear that its portability was found useful for the Futuro's original owner, Stan Grau, who relocated the Futuro several times throughout San Diego County.

In 2004, the Futuro was relocated to a remote site in Pine Cove, a small community about five miles north of Idyllwild in the San Jacinto Mountains at 6,500 feet elevation. The site was selected because Donaldson felt it was the most appropriate as a reflection of architect Matti Suuronen's original siting of the first Futuro in the vacation retreat mountains, near Lake Puulavesi outside of Hirvensalmi, Finland in 1968.⁶⁰ The three-quarter acre flag lot at the Donaldson Futuro is a large rock outcropping is approximately fifty feet above the road. There is no formal landscaping and there are no formal concrete stairs to reach the Futuro from the parking area below. The site has been maintained in its natural setting as though the Futuro had "just landed" (Photo 36). The concrete large pad footings have been treated with a faux rock finish to blend in with the existing granite rocks.⁶¹ Native Ponderosa Pines, California Black Oaks, White Firs, Manzanita bushes, lichen, and small ground cover bushes are found

throughout the property. Neighbors' houses are barely visible while on site. Spectacular views to the south, southeast, and east illustrate the rugged terrain of the San Jacinto Mountain Range that rises eventually to the east at a maximum height of 10,834 feet. Much of the range is embraced by the Santa Rosa and San Jacinto Mountains National Monument created in 2000. The San Jacinto Mountains are covered with snow during the winter months and can easily be seen from Coachella Valley and the deserts near Palm Springs and Rancho Mirage and from the greater San Jacinto Valley with the communities of San Bernardino, Riverside and Hemet.



Photo 36 Snow crusted Futuro site. n.d., Milford Wayne Donaldson, FAIA, photographer.

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- 1 Marko Home and Mika Taanila, *Futuro: Tomorrow's House from Yesterday* Tulevaisuuden Talo Menneisyydestä. (Helsinki, Finland: Desura Oy Ltd., 2002), 28.
- 2 Paul McNeil, Alternative Artist, Surfer, email to Donaldson, November 3, 2003. McNeil, a Futuro owner in Australia, sent an original window from his Futuro so the new windows could be duplicated to the exact size, approximately two feet by four feet, oval shaped with a 50mm (2") rise in the middle.
- 3 The fireplace components including the ceiling spotlights are wrapped and stored on site.
- 4 Period appropriate paint was chosen from a palette Donaldson used while studying architecture in 1966-1968 at Uppsala, Sweden.
- 5 Stan Grau, personal interview, August 20, 2002. Several original Navy cadets' room keys were found beneath the floor during the restoration process.
- 6 Matching replacements were found at Liz's Antique Hardware on La Brea Avenue, Los Angeles.
- 7 Grau, Stan, Personal conversation, August 20, 2002.
- 8 Stan Grau to Nicole Purvis, Preservation Planner at Architect Milford Wayne Donaldson FAIA, email August 28, 2003: "In comparison, I am quite embarrassed with having sent you my pathetic bundle of scraps. After 30 years you'd think I'd have a bookcase laden with classy memoria [sic], but 3 years ago I got married, whittled my possessions (mostly junk) to near nothing and moved to Hawaii. 'Twas a wonderful stroke of luck, having Wayne stumble across the round house and becoming obsessed with it... like me. I'll send you what I have."
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