



THE CITY OF SAN DIEGO
Historical Resources Board

DATE ISSUED: November 15, 2012 REPORT NO. HRB-12-065
ATTENTION: Historical Resources Board
Agenda of November 29, 2012
SUBJECT: **ITEM #6 – Canada Dry Bottling/Stromberg-Carlson Building**
APPLICANT: Jonathan Segal represented by Marie Burke Lia
Owner: Maidhof Bros LTD
LOCATION: 1895 Hancock Street, Midway-Pacific Highway Community, Council District 2
DESCRIPTION: Consider the designation of the Canada Dry Bottling/Stromberg-Carlson Building located at 1895 Hancock Street as a historical resource.

STAFF RECOMMENDATION

Designate the Canada Dry Bottling/Stromberg-Carlson Building located at 1895 Hancock Street as a historical resource with a period of significance of 1947 and 1955-63 under HRB Criteria A and C. The Criterion A designation applies to the original 1947 building and the 1958 and 1959 additions; while the Criterion C designation applies only to the original 1947 building. This recommendation is based on the following findings:

1. The resource is a special element of San Diego and the Nation's historical and engineering development and retains integrity to the 1955-1963 period of significance. Specifically, the resource, which was occupied by the Stromberg-Carlson Division of General Dynamics beginning in 1955, housed research and production for equipment - including the Charactron - which was used at NASA's Mercury Control Center during the Project Mercury program between 1959 and 1963.
2. The original 1947 building originally operated by Canada Dry embodies the distinctive characteristics through the retention of character defining features of Streamline Modern architecture and retains a good level of architectural integrity from its 1947 date of construction and period of significance. Specifically, the resource features a flat roof with slight parapet; stucco over concrete block; a rectangular pop-up at the roof with ribbons of steel awning clerestory windows; a corner entry accented by a rounded corner, a slightly raised parapet, a double-wide entry door and concrete block enclosure set under a cantilevered canopy, and extensive use of glass block in three panels; and fenestration consisting of 4-lite steel frame windows, large fixed pane windows with single lite awning windows above, and ribbon window systems set within a raised stucco band consisting of multiple sections of 9-lite pivot windows.

Development Services Department

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BACKGROUND

This item is being brought before the Historical Resources Board in conjunction with the applicant's desire to have the site designated as a historical resource. The subject site reflects three phases of development, a 1947 Streamline Moderne commercial building originally used by the Canada Dry company as a bottling plant, a 1958 Contemporary style addition constructed by the Stromberg-Carlson division of General Dynamics, and a 1959 Contemporary style addition to the 1958 addition, also constructed by Stromberg-Carlson. Notices of Completion are available for the original building, which was completed on November 13, 1947, and the first addition, which was completed on January 3, 1958 (referenced in the applicant's report as the 1957 addition). The site is located on the southeast corner of Hancock Street and Noell Street in the Middletown subdivision, and is surrounded by other commercial uses and buildings.

The historic name of the resource, the Canada Dry Bottling/Stromberg-Carlson Building has been identified consistent with the Board's adopted naming policy, which states that a commercial site may be named for its historical use or tenant. The historic name reflects the name of Canada Dry, the original occupant for which the 1947 Streamline Moderne building was constructed, and Stromberg-Carlson, which constructed the 1958 and 1959 additions.

ANALYSIS

A historical resource research report was prepared by Kathleen Crawford of the Office of Marie Burke Lia, which concludes that the resource is significant under HRB Criteria A and C, and staff concurs. This determination is consistent with the *Guidelines for the Application of Historical Resources Board Designation Criteria*, as follows.

CRITERION A - Exemplifies or reflects special elements of the City's, a community's or a neighborhood's historical, archaeological, cultural, social, economic, political, aesthetic, engineering, landscaping or architectural development.

Beginning in late 1955, 8 years after the construction of the original Streamline Moderne building, the Stromberg-Carlson division of General Dynamics began the process of adapting and expanding the site to meet their needs for engineering research, development and production. Originally established in 1894 as a telecommunications company, Stromberg-Carlson was acquired by General Dynamics in 1955. The acquisition was the result of a larger effort by General Dynamics to consolidate industry and expertise in a variety of fields under a single company, thereby greatly improving their competitiveness for lucrative government contracts, specifically military and aerospace.

The Stromberg-Carlson division expanded the subject site in 1957-58 and again in 1959 to house engineering staff and manufacturing/production in a single facility. The primary technology developed and produced at the subject site was the Charactron, a cathode-ray tube used in information display units to reproduce letters, numbers, map symbols, and other characters. The Charactron was used in two principal applications, direct view where the user observed the information and images on the face of the tube, and photographic output where the display screen was photographed by a microfilm camera. Originally developed in 1954 by Convair, further

development and production of the Charactron was moved to Stromberg-Carlson when it was acquired by General Dynamics, the parent company of both entities. The technology was a precursor to more advanced computer systems of the 1960s and 1970s.

The Charactron would be used by the US Air Force in the Cold War-era Semi-Automatic Ground Environment (SAGE), an automated air defense system in operation from 1958-1983; and by NASA for Project Mercury, the first human spaceflight program in the United States, which launched 6 flights between 1959 and 1963. Control and coordination of all activities associated with NASA's Project Mercury flight operation was provided by the Mercury Control Center (MCC) at Cape Canaveral Air Force Station. According to an advertisement from Stromberg-Carlson included in the applicant's addendum, "The vital Cape Canaveral nerve center for Project Mercury, the U.S. program to put a man in space, is being designed and built by Stromberg-Carlson-San Diego. Display information about the flight will be fed to the operations room from computers and from a world-wide network of tracking and telemetry stations. One wall of the 40 by 60 ft. operations room will be a large map display, visually summarizing all pertinent information about the flight. It will show the capsule moving along its orbital flight path around the earth and will also show the location, range and status of all ground based equipment and communications links."

In 2010, the MCC, which was listed on the National Register in 1984 as a contributing resource to the Cape Canaveral Air Force Station National Register Landmark District, was demolished due to the infeasibility of its reuse. Prior to the demolition, all equipment remaining at the facility that had not previously been transferred to the Kennedy Space Center was documented and transferred to allow reconstruction of the Flight Control Area. A document titled "Assessment Report: Inventory of Historic Artifacts from the Mission Control Center, Cape Canaveral Air Force Station, Brevard County, Florida, May 2009" documents this remaining equipment and is included, in part, as Attachment 2 of this report. Listed among the items recovered are products manufactured by Stromberg-Carlson, including plot boards, consoles, a Mission Event Sequence Console, an Altitude Maneuver Control, an Environmental Monitor, a Network Status Console, a Network Status and Liftoff Clock Console, an Abort Control Console, and a Recovery Status Console. Additionally, historic photographs provided on NASA's website provide clear documentation of how the Flight Control Area appeared during the Mercury missions. A selection of these photographs is provided in Attachment 3 of this report. The world map and trend charts depicted in the Stromberg-Carlson advertisement rendering dominate the room, and NASA astronauts and control staff can be seen at consoles produced by Stromberg-Carlson, as documented in the 2009 inventory. The arrangement and function of the equipment is described in the last page of the 2009 inventory document.

The applicant's report states that the subject property is historically significant under HRB Criterion A as a special element of San Diego's economic and engineering development due to its association with General Dynamics and the on-site production of the Charactron and other technological advances, with a recommended period of significance of 1946-present.

Upon review of the applicant's report and addendum, as well as additional resources located online through NASA's website and other sources, staff finds that the significance of this property in regard

to Criterion A lies with its association with Project Mercury. Although other equipment was developed and produced at this site, it is the equipment associated with Project Mercury, the Mercury Control Center and the Flight Control Area that is of greatest historical importance and significance. The Mercury program put the first American astronauts into space, and was the precursor to the Gemini and Apollo programs. Project Mercury and the seven original astronauts selected - Lt. M. Scott Carpenter, Capt. Leroy G. (Gordo) Cooper, Lt. Col. John H. Glenn, Capt. Virgil I. (Gus) Grissom, Lt. Cmdr. Walter (Wally) M. Schirra, Lt Cmdr. Alan B. Shepard, and Capt. Donald K. (Deke) Slayton, captured the imagination of the American people and fueled the Cold War space race with the Soviet Union.

The equipment produced by Stromberg-Carlson at the subject site between 1955 and 1963 played a significant role in the Mercury program, facilitating all aspects of the Mercury spaceflights including launch; monitoring the position of orbiting spacecraft and vital statistics including fuel, electrical power, oxygen and the health of the astronauts; and landing. The link between the equipment used at the MCC and the subject site is clearly established through the advertisement produced by Stromberg-Carlson, and the 2009 inventory. Additionally, based upon the information in the applicant's report, facilities operated by General Dynamics had very specific and distinct functions, depending upon the division housed in the facility. Although General Dynamics had several facilities in San Diego, the subject property is the only building in which the Charactron was produced.

All three buildings on site, the 1946 Streamline Moderne building and the 1958 and 1959 Contemporary style additions, were operated by the Stromberg-Carlson Division of General Dynamics and are directly associated with the development and production of equipment used at the Mercury Control Center during the 6 flights of Project Mercury, a nationally significant program that put the first American astronauts into space. Therefore, staff recommends designation of these buildings under HRB Criterion A as a special element of San Diego and the Nation's historical and engineering development, with a period of significance of 1955 when Stromberg-Carlson first improved the building and began work on the Charactron, through 1963 when Project Mercury ended.

CRITERION C - Embodies distinctive characteristics of a style, type, period or method of construction or is a valuable example of the use of natural materials or craftsmanship.

The original 1947 building constructed for Canada Dry is a one story building constructed in the Streamline Moderne style, and features a flat roof with slight parapet; stucco over reinforced concrete block construction; and a reinforced concrete foundation. A rectangular pop-up is centered on the roof and features ribbons of steel awning clerestory windows on the east and west elevations. Accessed via a flared, scored concrete walkway and 3 concrete steps, the building's entrance is set at the corner of Hancock and Noell streets, and is accented by a rounded corner; a slightly raised parapet; a double-wide entry door and concrete block enclosure set under a cantilevered canopy; and extensive use of glass block in three panels, one above the entry canopy measuring 15 blocks tall by 12 blocks wide and two flanking panels over fluted metal panel detailing measuring 22 blocks tall by 6 blocks wide. As the building turns the corner, the parapet steps down along the Hancock and Noell street elevations. Both elevations are identical, and feature a single 4-lite steel frame window to the side of the entry; followed by 5 large fixed pane

windows with 10 single lite awning windows above, all set at a slight angle back toward the building; and lastly a ribbon window system set within a raised stucco band consisting of 10 sections of 9-lite windows, with the upper 6 panes being operable pivot windows.

The east side elevation (described in the applicant's report as the south elevation) has been largely consumed by the 1958 and 1959 additions; however, vertical pilasters that curve over the top of the parapet, and a tall bay with roll-up door is present along this elevation. The south elevation (described in the applicant's report as the west elevation) fronts onto the trolley and railroad tracks, and features 3 bays of ribbon windows within a continuous stucco band. Each bay contains 8 sections of 9-lite windows, with the upper 6 panes being operable pivot windows. Some of the windows in the first bay have been boarded over. Aside from the 1958 and 1959 additions discussed below and the boarded windows previously noted, no other modifications have occurred.

The San Diego Modernism Context Statement identifies c.1925-1950 as the period for Streamline Moderne architecture, which is characterized primarily by flat roofs with coping or flat parapets; an asymmetrical façade; horizontal massing and emphasis; smooth stucco or concrete exterior and horizontal accents and restrained detailing. The style is characterized secondarily by curved building corners; curved horizontal railings, overhangs and coping with horizontal projections above doorways and at the cornice line; steel sash windows; corner windows; glass block and round "porthole" windows.

The subject building exhibits all of the primary features of Streamline Moderne architecture with the exception of an asymmetrical façade. In addition, the building displays secondary features including curved building corners; curved horizontal overhangs and coping with horizontal projections above doorways and at the cornice line; steel sash windows; corner windows; and glass block. The 1958 and 1959 additions at the rear do not alter the character defining features of the building or significantly impair its integrity as a Streamline Moderne commercial building. The building continues to convey the historic significance of Streamline Moderne architecture by embodying the historic characteristics associated with the style, as detailed in the Modernism Context Statement. Therefore, staff recommends designation of the subject building under HRB Criterion C as a resource that embodies the distinctive characteristics of Streamline Moderne architecture and retains integrity to the 1947 period of significance.

The additions constructed in 1958 and 1959 were built in the Contemporary style and were designed by the office of Frank L. Hope, Sr. The 1958 addition, located on the east façade of the original 1947 building, fronts onto the railroad tracks. The only feature of the concrete block and stucco building is three groupings of four windows on the south façade fronting the tracks. The 1959 addition was constructed in front of the 1958 addition on its north façade. The addition measures 121 feet long by 48 feet deep and features two floors over a basement. The north façade features the only character defining element of the building, consisting of a ribbon of 12 fixed pane single lite windows at the first and second floors within raised stucco banding. A smaller band of 4 fixed panes is located at the second floor to the right of the larger ribbon windows. The east façade of the building is blank and contains no windows, doors or other features. The south side of the building fronting onto the tracks is also very plain.

The Contemporary style was ubiquitous in San Diego between 1955 and 1965 as a style for commercial buildings. These commercial buildings display many of the same design features as Contemporary style homes. Primary character defining features include strong roof forms including flat, gabled, shed or butterfly, typically with deep overhangs; large framed windows, often aluminum framed; and non-traditional exterior finishes that include vertical wood siding, concrete block, stucco, flagstone, and mullion-free glass. Secondary characteristics include angular massing; sun shades, screens or shadow block accents; horizontally oriented commercial buildings; distinctive triangular, parabolic or arched forms; “eyebrow” overhangs on commercial buildings; and integrated, stylized signage on commercial buildings.

In regard to the 1958 addition, although the applicant’s report indicates that this addition was constructed in the Contemporary style, it is in essence a very basic stucco box with a few windows, and exhibits even fewer character defining features of the Contemporary style than the 1959 addition. The 1959 addition exhibits a flat roof and stucco coated concrete block walls. The windows may be large, but not particularly so when the scale of the building is considered. As to secondary character defining features, the building exhibits no secondary character defining features aside from a horizontal orientation. Given that the additions exhibit very few of the character defining features of the style, and that those features are expressed in a very limited manner, the additions cannot be considered to embody the distinctive characteristics of Contemporary architecture in a significant way. Therefore, staff does not recommend designation of the 1958 and 1959 additions under HRB Criterion C.

CRITERION D - Is representative of a notable work of a master builder, designer, architect, engineer, landscape architect, interior designer, artist or craftsman.

The original 1947 Canada Dry Bottling building was constructed by Trepte & Sons. Building permit records indicate that the 1958 and 1959 additions were both designed by Frank L. Hope Sr. and constructed by the R.E. Hazard Company.

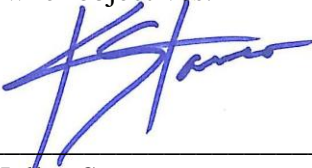
Frank L. Hope Sr. was declared a Master Architect with the designation of the Frank Hope, Jr. House at 371 San Fernando Street, HRB Site #803 in February 2007. His firm designed many well-known high rise structures, residences, Catholic churches, schools, hospitals, cultural and academic structures and complexes. Among these are the Timken Museum of Art in Balboa Park, the former Aquarium at the Scripps Institute of Oceanography in La Jolla, the La Jolla Repertory Theatre, The US Naval Underwater Warfare Center, the San Diego International Airport Terminal Expansion, Cuyamaca College, the Mesa College Master Plan and Building Design, and the Home Federal Tower which was San Diego’s first high-rise structure in 30 years when it was constructed. As detailed in the applicant’s report, the 1958 and 1959 additions are highly limited examples of Contemporary style architecture, with minimal expression of character defining features. The buildings are very utilitarian in nature, and this is reflected in the design, or lack thereof. As such, the additions would not be considered representative of the notable work of established Master Architect Frank L. Hope Sr. Therefore, staff does not recommend designation under HRB Criterion D.

OTHER CONSIDERATIONS

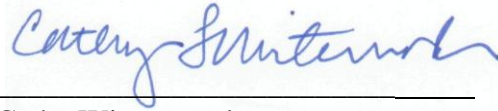
If the property is designated by the HRB, conditions related to restoration or rehabilitation of the resource may be identified by staff during the Mills Act application process, and included in any future Mills Act contract.

CONCLUSION

Based on the information submitted and staff's field check, it is recommended that the Canada Dry Bottling/Stromberg-Carlson Building located at 1895 Hancock Street be designated with a period of significance of 1947 and 1955-1963 under HRB Criterion A as special element of San Diego and the Nation's historical and engineering development for its association with Stromberg-Carlson and the production of equipment between 1955 and 1963 used at the Mercury Control Center during Project Mercury; and HRB Criterion C as a resource that exhibits the character defining features of Streamline Moderne architecture and retains integrity to its 1947 date of construction and period of significance. The Criterion A designation applies to the original 1947 building and the 1958 and 1959 additions; while the Criterion C designation applies only to the original 1947 building. Designation brings with it the responsibility of maintaining the building in accordance with the Secretary of the Interior's Standards. The benefits of designation include the availability of the Mills Act Program for reduced property tax; the use of the more flexible Historical Building Code; flexibility in the application of other regulatory requirements; the use of the Historical Conditional Use Permit which allows flexibility of use; and other programs which vary depending on the specific site conditions and owner objectives.



Kelley Stanco
Senior Planner



Cathy Winterrowd
Assistant Deputy Director/HRB Liaison

KS/cw

Attachments:

1. Draft Resolution
2. Excerpts from "Assessment Report: Inventory of Historic Artifacts From the Mission Control Center, Cape Canaveral Air Force Station, Brevard County, Florida", May 2009.
3. Historic Photos of Mercury Control Center, Compiled from NASA Website
4. Applicant's Historical Report under separate cover
5. Applicant's Historical Report Addendum under separate cover

RESOLUTION NUMBER N/A
ADOPTED ON 11/29/2012

WHEREAS, the Historical Resources Board of the City of San Diego held a noticed public hearing on 11/29/2012, to consider the historical designation of the **Canada Dry Bottling/Stromberg-Carlson Building** (owned by Maidhof Bros LTD, 3456 Ingraham Street, San Diego, CA 92109) located at **1895 Hancock Street, San Diego, CA 92110**, APN: **450-641-13-00**, further described as BLK 196 LOTS 7 THRU 12/EXC R/W LOTS 1 THRU 6 & ALL in the City of San Diego, County of San Diego, State of California; and

WHEREAS, in arriving at their decision, the Historical Resources Board considered the historical resources report prepared by the applicant, the staff report and recommendation, all other materials submitted prior to and at the public hearing, inspected the subject property and heard public testimony presented at the hearing; and

WHEREAS, the property would be added to the Register of Designated Historical Resources as **Site No. 0**, and

WHEREAS, designated historical resources located within the City of San Diego are regulated by the Municipal Code (Chapter 14, Article 3, Division 2) as such any exterior modifications (or interior if any interior is designated) shall be approved by the City, this includes but is not limited to modifications to any windows or doors, removal or replacement of any exterior surfaces (i.e. paint, stucco, wood siding, brick), any alterations to the roof or roofing material, alterations to any exterior ornamentation and any additions or significant changes to the landscape/ site.

NOW, THEREFORE,

BE IT RESOLVED, the Historical Resources Board based its designation of the Canada Dry Bottling/Stromberg-Carlson Building on the following findings:

(1) The property is historically significant under CRITERION A as a special element of San Diego and the Nation's historical and engineering development, with a period of significance of 1955-1963. Specifically, the resource, which was occupied by the Stromberg-Carlson Division of General Dynamics beginning in 1955, housed research and production for equipment - including the Charactron - which was used at NASA's Mercury Control Center during the Project Mercury program between 1959 and 1963. This finding is further supported by the staff report, the historical research report, and written and oral evidence presented at the designation hearing. The Criterion A designation applies to the original 1947 building and the 1958 and 1959 additions.

(2) The property is historically significant under CRITERION C as a resource that embodies the distinctive characteristics through the retention of character defining features of Streamline Modern architecture and retains a good level of architectural integrity from its 1947 date of construction and period of significance. Specifically, the resource features a flat roof with slight parapet; stucco over concrete block; a rectangular pop-up at the roof with ribbons of steel awning clerestory windows; a corner entry accented by a rounded corner, a slightly raised parapet, a double-wide entry door and concrete block enclosure set under a cantilevered canopy, and extensive use of glass block in three panels; and fenestration consisting of 4-lite steel frame windows, large fixed pane windows with single lite awning windows above, and ribbon window systems set within a raised stucco band consisting of multiple sections of 9-lite pivot windows. This finding is further supported by the staff report, the historical research report, and written and oral evidence presented at the designation hearing. The Criterion C designation applies only to the original 1947 building.

BE IT FURTHER RESOLVED, in light of the foregoing, the Historical Resources Board of the City of San Diego hereby approves the historical designation of the above named property. The designation includes the parcel and exterior of the building as Designated Historical Resource **Site No. 0**.

BE IT FURTHER RESOLVED, the Secretary to the Historical Resources Board shall cause this resolution to be recorded in the office of the San Diego County Recorder at no fee, for the benefit of the City of San Diego, and with no documentary tax due.

Vote: N/A

BY: _____
JOHN LEMMO, Chair
Historical Resources Board

APPROVED AS TO FORM AND
LEGALITY: JAN I. GOLDSMITH,
CITY ATTORNEY

BY: _____
KEITH BAUERLE
Deputy City Attorney

**ASSESSMENT REPORT:
INVENTORY OF HISTORIC ARTIFACTS
FROM THE
MISSION CONTROL CENTER,
CAPE CANAVERAL AIR FORCE STATION,
BREVARD COUNTY, FLORIDA**

Prepared for:

**John F. Kennedy Space Center
Environmental Management Branch
Kennedy Space Center, Florida**

Prepared by:

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**Joan Deming, MA, RPA – Principal Investigator
Trish Slovinac, MA – Architectural Historian**

May 2009

Donna Atkins, KSC-Library D (Abacus Technology)
Luis H. Berrios, KSC-XA-F2
Mario Busacca, KSC-TA-A3
Douglas M. Fisher, KSC-XA-F2
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Barbara Naylor, KSC-TA-B1C
Jennifer Ross-Nazzal, JSC Historian
Jeanne M. Ryba, KSC-XA-E
Shannah Trout, IHA-200
Sandy Van Hooser, KSC-IMCS-032 (Analex Corporation)

RELEVANT HISTORY

Project Mercury extended from November 1958 through May 1963. During the first two years of the program, all test flights occurred at Wallops Island, Virginia. The Flight Control Area of the MCC was designed and constructed from 1959-1960. The facility was manned for the first time on November 21, 1960 in support of the Mercury-Redstone 1 (MR-1) mission (Swenson et al. 1966:294). Subsequently, it controlled all flights that used a Redstone or Atlas booster. The first manned flight controlled by the MCC was Alan Shepard's suborbital ballistic flight (designated MR-3) on May 5, 1961; the first orbital flight, Mercury-Atlas 6 (MA-6), performed by John Glenn, occurred on February 20, 1962. The MCC was part of a larger, worldwide network of tracking stations, and was described by Christopher Kraft (1959:6) as "the focal point of the entire operation and . . . will make all of the necessary decisions effecting the flight with the exception of certain extreme emergency situations." The primary functions of the facility were to direct all aspects of the flight; monitor aeromedical and systems status; make any decision to abort and determine all proper procedures in support of that decision; command the reentry of the space vehicle; keep the astronaut and all network stations informed of the mission's progress; maintain the flow of communication between all stations; and advise recovery forces as to the appropriate time and location of vehicle landing (Kraft 1959:6-7). The final manned Mercury flight, MA-9, extended from May 15-16, 1963.

Nearly two years elapsed before the first manned mission of the Gemini program. In preparation, the Flight Control Area was extensively modified in 1962-1963. Changes from Mercury to Gemini included the installation of four new consoles and a fifth plot board (to provide data from the guidance officer). The station and instrumentation symbols on the world display map were updated, and a rear projection screen to display flight rules, checklists, and time sequences was added to the right of the map (*Spaceport News* 18 March 1965:3).

The Gemini program missions spanned the period between April 1964 (unmanned Gemini I) and November 1966 (Gemini XII). During this time, the Cape MCC controlled

Ceiling audio speakers

A few remaining ceiling-mounted audio speakers were observed in Room 253. A partial view of the remaining speakers is shown in **Photo 36**. The speaker cover plate (**Photo 37**) consists of a brushed aluminum assembly of nested concentric metal rings; the overall size is approximately 15-1/2" in diameter. They are Slimline High Fidelity speakers manufactured by **Stromberg Carlson of San Diego, California**. The speaker cover plate illustrated in Photo 37 is identical to Artifact #'s 1515, 1558, 1559, 1560, and 1561 previously removed by Fisher and/or Gruenbaum in October 2008. These catalogued artifacts are currently stored in Room 2427 of the Public Affairs Office at the KSC Visitor Complex.



Photo 36. Pattern of ceiling audio speakers in Room 253

(Source: ACI Photo 103, March 2009). Also note the locations of recessed ceiling lights.



Photo 37. Small ceiling-mounted audio speaker cover plate

(Source: ACI Photo 27, March 2009).

Appendix A: 2008 Inventory of Artifacts Removed from the MCC (from Fisher and Gruenbaum, 2009).

Artifact No./ Object ID No.	Artifact Name/NASA Real Property No.	Description	Location	Status date
531/ 2008.0.04	Plot Board No. 1/ 1979454	Gray metal vertical console with slanted control surface. Stromberg Carlson and Bell Telephone Laboratories, Inc. X-4 Recorder Model 3010	ESE	6/27/08
532/ 2008.0.25	Plot Board No. 2/ 653723	Gray metal cabinet with backlit display and controls on slanted surface. Made by Electronic Association, Inc. and RCA (made for the AF Missile Test Center) Veriplotter Model 205 J, Plotting Board Control Cabinet Model # RCA 1000	ESE	6/27/08
533/ 2008.0.26	Plot Board No. 3/ 653724	Gray, metal, vertical cabinet with backlit display and controls. Stromberg Carlson and Bell Telephone Labs, Inc.	ESE	No date
534/ 2008.0..27	Retro console/ 653720	Horizontal, gray metal with desk surface and slanted controls. Stromberg Carlson and Bell Telephone Labs, Inc.	ESE; row in front of recorders	6/27/08
535/ 2008.0..28	Sanborn Recorder #1/ 653719	Horizontal gray metal cabinet with slanted controls and horizontal paper chart. Sanborn, Co. Waltham, MA. Model #958B-600	ESE Row 1	6/27/08
536/ 2008.0..29	Console	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 1; next to Sanborn Recorder	6/27/08
537/ 2008.0..30	Console	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 1; 3 rd from right	6/27/08
538/ 2008.0..31	Mission Event Sequence Console/ 653716	Horizontal gray cabinet with slanted controls and desk surface with monitor. Stromberg Carlson	ESE Row 1; 4 th from right	6/27/08
539/ 2008.0..32	Altitude Maneuver Control (from GSFC #180438)/ 653715	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 1; 5 th from right	6/27/08
540/ 2008.0..33	Environmental Monitor/ 653714	Horizontal gray cabinet with slanted controls and desk surface with monitor. Stromberg Carlson	ESE Row 1; 6 th from right	6/27/08
541/ 2008.0..34	Sanborn Recorder No. 2/ 653713	Horizontal gray metal cabinet with slanted controls and horizontal paper chart. Sanborn, Co. Waltham, MA. Model 958B-600	ESE Row 1; 7 th from right	6/27/08

Artifact No./ Object ID No.	Artifact Name/NASA Real Property No.	Description	Location	Status date
542/ 2008.0..31	Network Status Console/ 653725	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 2; 1 st on right	6/27/08
543/ 2008.0.36	Network Status and Liftoff Clock Console/ missing	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 2; 2 nd from right	6/27/08
544/ 2008.0.37	Mission Event Sequence Console/ missing	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 2; center	6/27/08
545/ 2008.0.38	Abort Control Console/ missing	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 2; 4 th from right	6/27/08
546/ 2008.0.39	Recovery Status Console/ missing	Horizontal gray cabinet with slanted controls and desk surface. Stromberg Carlson	ESE Row 2; 5 th from right	6/27/08
547/ 2008.0.40	Desk (54" W x 29" H x 30" deep)	Gray metal with slab legs and vanity panel. Stromberg Carlson	ESE Row 3; 1 st on right	6/27/08
548/ 2008.0.41	Desk (53 3/4" W x 29" H x 30" deep)	Gray metal with slab legs and vanity panel. Stromberg Carlson	ESE Row 3; 3 rd from left	6/27/08
549/ 2008.0.42	Desk (36" W x 29" H x 30" deep)	Gray metal with slab legs and vanity panel. Stromberg Carlson	ESE Row 3; 2 nd from left	6/27/08
550/ 2008.0.43	Desk (54" W x 29" H x 30" deep)	Gray metal with slab legs and vanity panel. Stromberg Carlson	ESE Row 3; 1 st on left	6/27/08
551/ 2008.0.44	Mission Events Sequence Console/ missing	Horizontal gray metal console with desk top surface. Most of the controls have been recorded. Stromberg Carlson	ESE; left side of room	6/27/08
552/ 2008.0.45	Mission Status Display (world map) (299" W x 117" H)/ 653751	Large formed backlit display of mission status sharing longitude and latitude and project flight path	ESE; front of room	6/27/08
553/ 2008.0.46	Telephone	Yellow plastic, rotating style, no dial. Western Electric	ESE Row 3; Desk 1 (No. 547)	6/27/08
554/ 2008.0.47	Telephone	Black plastic rotary. Western Electric	ESE; desk 3 rd from the left	6/27/08
555/ 2008.0.48	Telephone	Black plastic rotary with dial and push button extensions. Western Electric	ESE; 2 nd desk from left (No. 549)	6/27/08
556/ 2008.0.49	Telephone	Yellow plastic, rotating style, no dial. August 1962, Western Electric	ESE; 1 st desk on left (No. 550)	6/27/08
557/2008.0.50 558/2008.0.51	Telephone Switches (2)	Gray metal slanted box with push buttons	ESE; Desk 1 on right (No. 547)	6/27/08
559/ 2008.0.52	Switch Box	Red "hold" button and green "proceed" button	ESE; 2 nd desk from right (No. 548)	6/27/08
560/ 2008.0.53	Switch Box	6 buttons (with numerals)	ESE; #.41 desk	6/27/08
561/ 2008.0.57	Switch Box	6 buttons (with numerals)	ESE; desk 3 from right (No. 549)	6/27/08

Artifact No./ Object ID No.	Artifact Name/NASA Real Property No.	Description	Location	Status date
1509	Sign	¼ masonite, painted. Red background with beige circle interior. Red lettering for “FOR FIRES FIRE EXT.” Black lettering “ELECTRICAL GASOLINE OIL PAINT- ETC CARBON DIOXIDE” Black lettering “WOOD PAPER, TRASH ETC. WATER TYPE	XA-Room 2427 VC	DF, DG – cataloged 10/2/08
1510	Sign	1/8” aluminum sign. White background with red lettering “No Smoking in Viewing Room”	XA-Room 2427 VC	DF, DG – cataloged 10/2/08
1511 & 1512	Intercom Speaker	Birch enclosure with slanted front, cloth covered grille and black painted knob for volume control	XA-Room 2427 VC	DF, DG – cataloged 10/2/08
1513 & 1514	Intercom Speaker	Circular brushed aluminum speaker assembly. Installed in hallway, MCC #1514 has volume control on button	XA-Room 2427 VC	DF, DG – cataloged 10/2/08
1515	Intercom Speaker	Brushed aluminum assembly of nested ceramic metal rings. Mounted in ceiling in control room	XA-Room 2427 VC	DF & DG 10/6/08
1516	Board	Red painted wall-mounted plywood board for fire extinguisher. Goes with artifact #1508 red mounting bracket	XA-Room 2427 VC	DF & DG 10/6/08
1556 & 1557	Vent (2) (from MCC ceiling)	Round HVAC vent, ceiling mounted, formed metal painted silver – 2 pieces – center made of concentric rings. Center will be #1556B	Exhibit storage cage	DG 10/13/09
1558, 1559, 1560, 1661	Speaker (4); ceiling mounted (from MCC ceiling)	Audio speaker, ceiling mounted, consisting of steel, round box, transformer, speaker and cover plate (8” speaker). Cover plate consists of 4 concentric rings of brushed aluminum. Slimline High Fidelity Speaker by Stromberg Carlson	Exhibit storage cage	DG 10/13/09



P P Pics 531a.jpg



P P Pics 531b.jpg



P P Pics 532a.jpg



P P Pics 532b.jpg



P P Pics 532c.jpg



P P Pics 533a.jpg



P P Pics 533b.jpg



P P Pics 533c.jpg



P P Pics 534a.jpg



P P Pics 534b.jpg



P P Pics 535a.jpg



P P Pics 535b.jpg



P P Pics 536.jpg



P P Pics 537.jpg



P P Pics 538.jpg



P P Pics 539.jpg



P P Pics 540.jpg



P P Pics 541a.jpg



P P Pics 541b.jpg



P P Pics 542a.jpg



P P Pics 542b.jpg



P P Pics 543a.jpg



P P Pics 543b.jpg



P P Pics 544.jpg



P P Pics 545.jpg



P P Pics 546a.jpg



P P Pics 546b.jpg



P P Pics 547.jpg



P P Pics 548.jpg



P P Pics 549.jpg



P P Pics 550.jpg



P P Pics 551.jpg



P P Pics 552a.jpg



P P Pics 552b.jpg



P P Pics 553.jpg



PP 573.jpg



PP Pics 1501.jpg



PP Pics 1502a.jpg



PP Pics 1502b.jpg



PP Pics 1503.jpg



PP Pics 1504.jpg



PP Pics 1505a.jpg



PP Pics 1505b.jpg



PP Pics 1506a.jpg



PP Pics 1506b.jpg



PP Pics 1507a.jpg



PP Pics 1507b.jpg



PP Pics -1508.jpg



PP Pics -1509.jpg



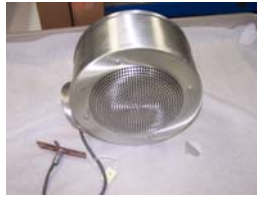
PP Pics -1510.jpg



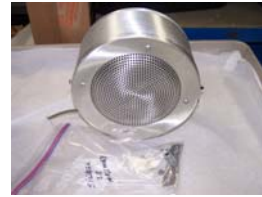
PP Pics -1511.jpg



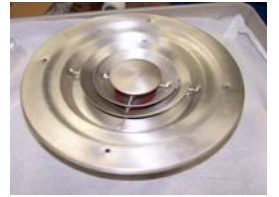
PP Pics -1512.jpg



PP Pics -1513.jpg



PP Pics -1514.jpg



PP Pics -1515.jpg



PP Pics -1516a.jpg



PP Pics -1516b.jpg



PP Pics -1517.jpg



PP Pics -1556a.jpg



PP Pics -1556b.jpg



PP Pics -1557a.jpg



PP Pics -1557b.jpg



PP Pics -1558.jpg



PP Pics -1559.jpg



PP Pics -1560.jpg



PP PICS - 1561.jpg

APPENDIX B: MCC Flight Control Area Configuration

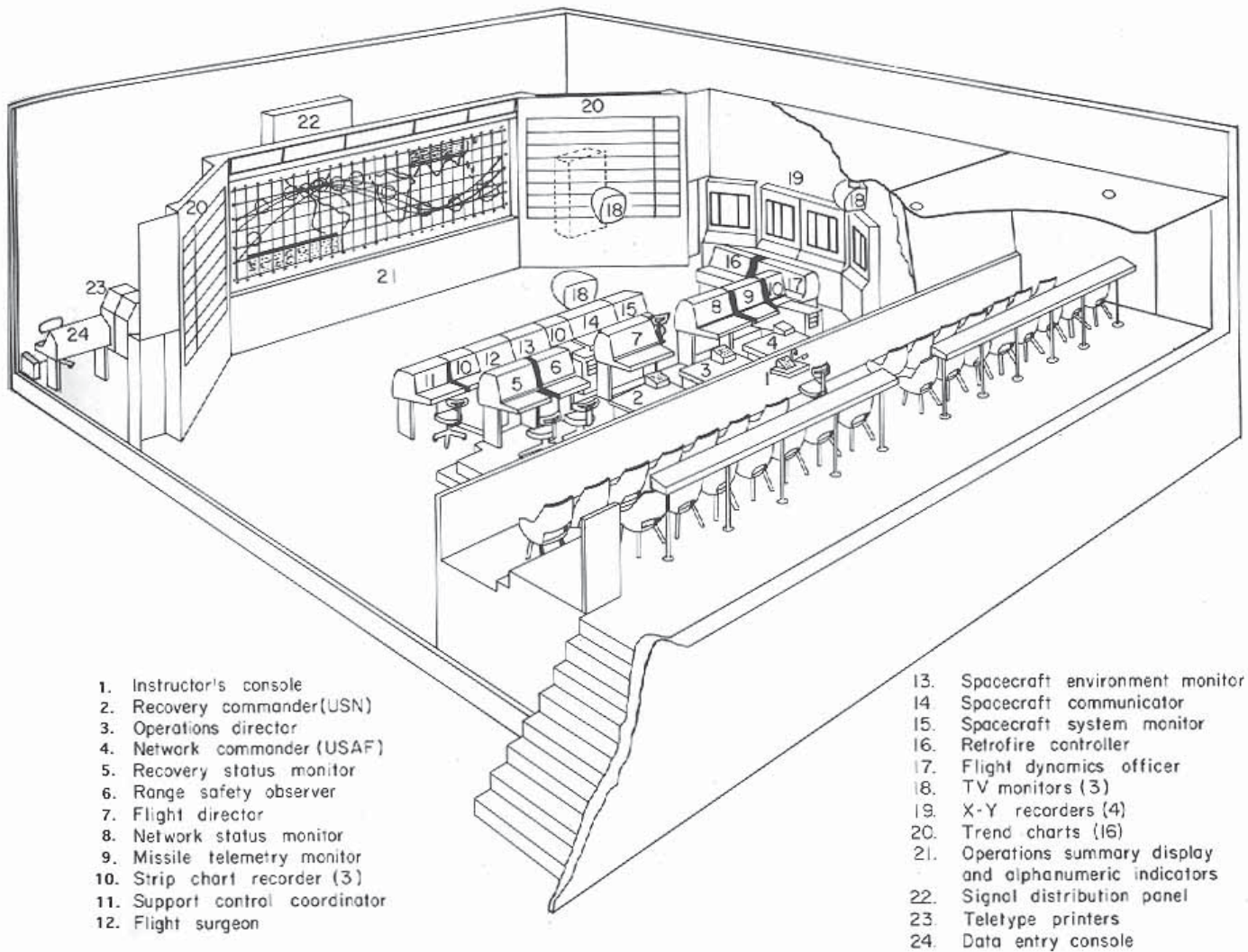


Figure B-1. Layout of the Flight Control Area during Project Mercury (KSC Archives).



As illustrated in Figures B-1 and B-2, the control room was divided into three sections: the multi-leveled central control room area, the viewing area at the east, and the support area at the west. The front of the control room was dominated by a map of the world, measuring approximately 26' long by 8' high. The map was flanked by trend charts that displayed various functions derived from the telemetry summary messages from the down-range stations (Western Electric no date: 15). The trend charts at the left hand side of the world map displayed eight functions: heart rate; respiration rate; body temperature; manual control fuel remaining; auto pilot control fuel remaining; direct current (DC) volts and DC amperes; electrical power remaining, normal and emergency; and oxygen remaining, normal and emergency. The trend charts to the right of the map also displayed eight functions, including oxygen partial pressure, carbon dioxide partial pressure, coolant quantity remaining, cabin air temperature, cabin pressure, suit inlet air temperature, and suit pressure.

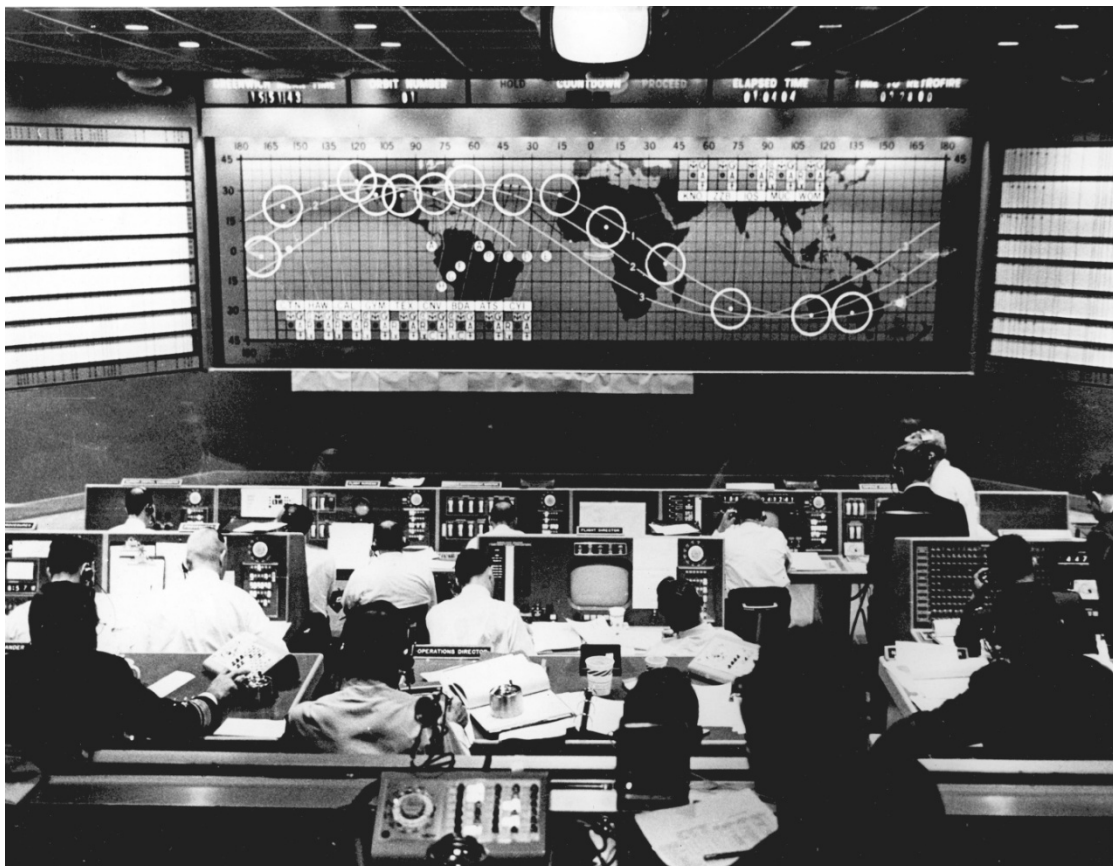
The central control room contained two rows of consoles and a back row of desks, facing the front of the room. The first row contained five consoles and two data recorders (Figure B-1). The second row was comprised of five consoles, including the Flight Director's console in the center, and one data recorder at the right end. The consoles and equipment in the second row were located on an elevated platform. Behind this row, elevated on a second tier level, were three desks manned by controllers having an administrative function (Western Electric no date: 17). The only equipment on each desk was a telephone set. Placed perpendicular to the two rows of consoles, and facing the four plot boards, were the consoles of the Flight Dynamics Officer and the Retrofire Controller. A Data Entry console and teletype printers were located behind the trend charts in the southwest corner of the Support Area. The Raised Viewing Area, separated from the Flight Control Area by a slanted pane glass partition, contained two rows of chairs, plus standing room at the rear.

Compared with the Mercury configuration, the layout of consoles and equipment during the Gemini program, as illustrated in Figure B-2, differed in a few significant ways. At the front of the control room, the trend charts were replaced with rear projection panels; a fifth plot board was added to the right side of the room; and a third console was placed in front of the plot boards to accommodate the Guidance Officer. Two consoles were located along the left side of the room, where originally no consoles were present. Two tables were added to the first row, and another desk was placed along the third row for the Public Affairs Officer. The data recorder originally located at the right end of the second row was removed to accommodate a minor structural modification, i.e., the platform corner was angled, and a safety rail was installed (Figure B-2).

Overall, despite the changes to the consoles and equipment, the basic configuration of the control room was not significantly changed. Examination of photographs from the time of both the Mercury and Gemini programs indicates that the pattern of ceiling lights and HVAC fixtures, as well as floor and wall coverings, stayed the same.



Mercury Control Center: Freedom 7 Flight - May 5, 1961



Mercury Control Center: Friendship 7 Flight - February 20, 1962



Mercury Control Center: Sigma 7 Flight – September 10, 1962



Mercury Control Center: Visit by President Kennedy, Undated



Mercury Control Center: Alan Shepherd, serving as “capcom” gives a thumbs-up, Undated



Mercury Control Center: Alan Shepherd, Undated



Mercury Control Center: John Glenn(r), facing consoles for retrofire controller & flight dynamics officer, Undated



Mercury Control Center: Christopher Kraft, Flight Director, Undated



Mercury Control Center: Alan Shepherd smiles as Virgil "Gus" Grissom informs him over his headset that he and his spacecraft are ready for launch. Fellow Mercury astronaut John Glenn intently watches the monitor from over Shepherd's shoulder during final minutes of countdown. Liberty Bell 7 Flight - July 21, 1961



Mercury Control Center: Alan Shepherd, Undated