Building N-200 Reuse Guidelines

NASA Ames Research Center, California

prepared for:

NASA/Ames Research Center

prepared by:

Architectural Resources Group

Architects, Planners & Conservators, Inc.

San Francisco, California

October 2007

Table of Contents

Introduction i
I. Executive Summary 1
II. Project Team 2
III. Methodology 3
IV. Building Summary 5
V. Historical Background and Site Context 6
VI Building Description 7
VII. Character-Defining Features 10
VIII. Opportunities for Reuse 12
IX. Code Evaluations and Recommendations 12
- A. Fire/Life Safety
- B. Glossary of Terms: Construction & Occupancy Types
- C. Disabled Accessibility
- D. Energy Conservation

X. Future Studies Needed 18
- A. Hazardous Materials
- B. Mechanical and Electrical Systems
- C. Structural Systems

Appendix 1. Historic Character-Defining Features
Appendix 2. Existing Floor Plans and Rehabilitation
Appendix 3. Historic Character-Defining Significance Diagrams
Appendix 4. Historic Aerial Photographs
Appendix 5. Current Conditions Photographs (2006)
Appendix 6. Construction Plans
Appendix 7. NRHP Ames Aeronautical Laboratory Administration Building Nomination

Introduction

NASA Ames Research Center and Architectural Resources Group, Architects, Planners & Conservators, Inc. (ARG) have developed Reuse Guidelines for the AMES Administration Building, Building N-200, at NASA Ames Research Center, California. The Reuse Guidelines have been designed to assist NASA Ames professional staff, tenants, and their consultants in rehabilitating historic structures by identifying character-defining features, outlining the opportunities for reuse and evaluating code deficiencies for each building.

I. Executive Summary

Constructed in 1943 at the southwest corner of Moffett Field, Building N-200, also known as the Ames Administration Building, is a two-story over basement, reinforced concrete, stripped classical style building with Streamline Moderne influences. Rectangular in plan, it is connected to Building N-201 at its north elevation and is characterized by granite steps and cast concrete decorative fluting on the exterior. Since its construction, the building has been continuously used as the NASA Ames Administration Building. There have been no major alterations to the exterior, though the interior has been significantly modified since 1943. Thus, the exterior of Building N-200 retains a high degree of integrity, however the interior does not retain its character-defining features. (Character-defining features, including significance and condition ratings are listed in section VII and Appendix 1.)

The building's continued use as Administrative Offices is appropriate. Rehabilitation of the building should comply with *The Secretary of the Interior's Standards for Rehabilitation (The Standards)*. The *Standards* can be accessed on the National Park Service website (www.nps.gov) and are presently located at the following URL: http://www.nps.gov/history/hps/tps/tax/rhb. Plans for the reuse of Building N-200 should take into consideration the preservation of the building's character defining and contributing features, including, but not limited to, the overall form of the building, fenestration pattern, materials, and interior space. Changes to non-character-defining features may be undertaken, but the impact to the character-defining and contributing features should be carefully evaluated.

The most recent upgrades were completed in 1983 based on " Administration Building N-200 Handicapped Accessibility Improvements project" which was approved on January 21, 1983. Future major renovations will require Fire/Life Safety and Disabled Accessibility upgrades to comply with current codes. These include, but are not limited to, exit path of travel and exit door upgrades, and disabled access improvements to door and door hardware. The impact of these upgrades to the character-defining and contributing features should be carefully considered before changes are made.

Further analysis is required for the management of hazardous materials and upgrades to the mechanical, electrical and structural systems. Signage at the basement indicates that there are hazardous materials in the building, including but not limited to asbestos materials. Mechanical, electrical, and structural systems seem to be appropriate for the current building use but should be evaluated and confirmed with an in-depth study.

II. Project Team

Client
National Aeronautics & Space Administration (NASA)
Ames Research Center
Mail Stop 19-12
Moffett Field, CA 94035-1000

Consultant
Architectural Resources Group, Inc.
Pier 9, The Embarcadero
San Francisco, CA 94111

Aaron Jon Hyland, AIA, Principal
Paul Nachtsheim, Associate
Jennifer Costa, LEED AP, Associate
Kim Sykes, AIA, Designer
Serpil Gezgin, Designer
Vanessa Miller, LEED AP, Designer
Sara Cone, Designer
Anny Su, Architectural Historian
Lauren MacDonald, Architectural Historian
Nicole Fannin, Intern

III. Methodology

ARG staff conducted a site review of Building N-200 in March 2006. During the site visit notes were taken on the character-defining features of the building and photographic documentation was completed on the exterior as well as major interior spaces. ARG staff utilized the available documents provided by the NASA Ames Research Center to assist in the development of this report. The documents provided by NASA Ames Research Center were used as a general reference in the production of this report. The verification of the accuracy of the documents was not included in the scope of work.

The site review was conducted with the understanding that the current use of the building would be continued. The site review was limited to a general observation of the buildings and building components and detailed survey of all interior spaces was not included in the scope of work. Furthermore, limited access to some areas of the building were required due to issues of security, privacy, safety, or other limitation.

ARG staff reviewed both primary and secondary research materials at the following institutions:

- 1950 Navy Docks & Yards Micro Film;
- Engineering Documentation Center (located in Building N-213); and
- Ames Imaging Library (located Building in building N-241).

The following documents were utilized as the main sources of information:

- The 1994 National Register of Historic Places Nomination Form for the US Naval Air Station Moffett Field Central Historic District;
- Aerial photographs dating from 1931 through 1944;
- Architectural Drawings including;
    - Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building Basement Plan." Drawings dated 4 July 1942;
    - Ames Aeronautical Laboratory, Moffett Field, California. " Building N-200: Administration Building First Floor Plan." Drawings dated 4 July 1942;
    - Ames Aeronautical Laboratory, Moffett Field, California. " Building N-200: Administration Building Second Floor Plan." Drawings dated 4 July 1942;
    - Ames Aeronautical Laboratory, Moffett Field, California. " Building N-200: Administration Building Front Entrance Details." Drawings dated 4 July 1942;
    - Ames Aeronautical Laboratory, Moffett Field, California. " Building N-200: Administration Building Rear Entrance Details." Drawings dated 4 July 1942;
    - Ames Aeronautical Laboratory, Moffett Field, California. " Building N-200: Elevations." Drawings dated 4 July 1942;

- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building Interior Walls – Finish Details Reception Room (Room 101)." Drawings dated 30 August 1942;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Longitudinal and Transverse Sections." Drawings dated 14 July 1942;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building Interior Walls – Finish Details Reception Room (Room 101)." Drawings dated 29 January 1943;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building Stair Details." Drawings dated 29 January 1943;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building Interior Finish and Painting Schedule." Drawings dated 29 January 1943;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building N200 Handicapped Accessibility Improvements Floor Plans." Drawings dated 1 October 1982;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building N200 Handicapped Accessibility Improvements Miscellaneous Details." Drawings dated 1 October 1982;
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building N200 Handicapped Accessibility Improvements Sections." Drawings dated 1 October 1982; and
- Ames Aeronautical Laboratory, Moffett Field, California. "Building N-200: Administration Building N200 Handicapped Accessibility Improvements Enlarged Plans and Elevations." Drawings dated 28 December 1982.

South Elevation of Building N-200.

IV. Building N-200 Summary

Location:	Moffett Field, California
Area:	NASA Ames Research Center
Date of Construction:	1943
Historic Structure:	Draft National Register Nomination submitted to SHPO Nov. 2006 for Historic Eligibility Determination.
Historic Use:	Ames Administration Building
Current Use:	Ames Administration Building
Hazard Level:	Ordinary
Number of Floors:	Two, with Basement
1st Floor:	12,120 gross ft^2
2nd Floor:	12,120 gross ft^2
Basement:	12,120 gross ft^2
Total:	36,360 gross ft^2
Exterior Materials:	Cast concrete, granite steps, cast fluting
Construction Frame:	Poured-in-place, reinforced concrete walls, floors and roof

"Ames Research Center, Moffett Field, California., Building Location Plan." February 2000.

V. Historical Background and Site Context

The NASA Ames Research Center was initially founded on December 20, 1939, as an aircraft research laboratory by the National Advisory Committee on Aeronautics (NACA), the forerunner of NASA. Ames has played a pioneering role in science and technology for over six decades. The center was named for Dr. Joseph S. Ames, NACA Chairperson from 1927 to 1939. Ames was NACA's second laboratory, established after the Langley facility in Hampton, Virginia. In 1958, Ames became part of the National Aeronautics and Space Administration (NASA). Since its inception, Ames researchers have broken new ground in all flight regimes—the subsonic, transonic, supersonic, and hypersonic—using a collection of wind tunnels and research aircraft, the sophistication of which has increased over time. Ames has evolved into a diverse and sophisticated research campus of buildings influenced by the clean lines and materials of the International style, fussed with elements of the Streamline Moderne; both styles are very well suited to industrial building types.

Ames specializes in research geared toward creating new knowledge and new technology, encompassing the fields of supercomputing, networking, numerical computing software, artificial intelligence, and human factors to enable advances in aeronautics and space. In aeronautics, Ames is the leading NASA agency in airspace operations systems, including air traffic control and human factors. Ames also has major responsibilities in the creation of design and development process tools and wind tunnel testing. Ames houses one of the world's largest collections of wind tunnels and simulation facilities.

The National Aeronautics and Space Administration (NASA) Ames Research Center borders the northern California towns of Sunnyvale and Mountain View near the heart of the Silicon Valley. The Ames campus occupies approximately 430 acres of the approximately 2,000-acre Moffett Field site, which once served as a United States Naval Air Station-Sunnyvale. (See Appendix 4 for historic aerial photographs.)

The Ames Administration Building is located at the southwest corner of Moffett Field, centrally placed in Bush Circle, directly north of Arnold Avenue. The building measures 202 ft. long by 60 ft. wide totaling approximately 12,120 ft. per floor. The Administration Building contains a full basement below two above ground floors. The total floor area of the building is approximately 36,300 ft^2 (See Appendix 6 for historical building plans.)

VI. Building Description

Historic Appearance of the Ames Administration Building
The Ames Administration Building was originally designed to reflect both the International and Streamline Moderne styles of architecture. Completed in 1943, the two-story, flat roofed building has a rectangular plan with a symmetrical composition dividing the building into three sections comprised of a center volume flanked by two wings. According to historic drawings of the building, each wing measured approximately 79 ft. in length and the center volume measured 42 ft. in length with return walls that extended out approximately three ft. from each wing. The building originally displayed signage on the front façade with lettering incised at a depth of 2½ in. reading "Ames Aeronautical Laboratory."

Modifications to the Ames Administration Building
The Administration Building has undergone several phases of interior alterations and minor exterior modifications as a result of the change in the regulatory framework governing the facility.

Exterior Building Modifications:
Approximately one year after the Administration Building was constructed, the Ames Auditorium, identified as Building N-201, was constructed to the rear of the Administration Building. Construction of the two-story building began on May 20, 1943 and was completed on February 26, 1944. Designed in the same Modern architectural Style with smooth concrete exterior walls, incised grooves, and steel sash windows with concrete surrounds, Building N-201 is set in a north/south orientation inside Bush Circle and is perpendicular to the Administration Building. The upper floors of the Administration Building and the Auditorium are connected through the construction of a loggia that provides entrances to both buildings. The loggia employs basic post and lintel construction and features the incised groove pattern found along the upper portion of the Administration Building. The Auditorium does not contribute to the significance of the Administration Building.

In November and December 1958, the original "Ames Aeronautical Laboratory" signage was removed from the Administration Building and replaced with three, four-foot long pre-cast concrete panels inscribed with "Ames Research Center." The font employed in the second sign was the same font as originally used. The signage replacement was a result of the center's federal administration change to the National Aeronautics and Space Administration (NASA).

In the late-1990s an elevator was installed in the Administration Building in order to comply with the American with Disabilities Act of 1990. The elevator shaft was constructed on the exterior of the building near the northeast corner. The shaft's exterior walls are stucco clad; it clearly reads as a modern addition.

Exterior Landscape/Setting Modifications:
The building was originally constructed as the focal point for Ames with a central location inside Bush Circle, a roundabout sited near the front entrance of the facility. The setting of the Administration Building remains unchanged from when it was first constructed, and only minor landscaping changes have occurred through the addition and removal of various trees and hedges as part of regular landscape maintenance.

Interior Building Modifications:
In 1972 the interior of the Administration Building was upgraded as part of a broad rehabilitation program implemented at the Ames facility. The two interior modification projects were divided into six phases so that the building could be occupied while construction occurred inside.

The first and largest project involved major changes to the first floor and basement, which were upgraded to house the Center's communication functions. Valued at approximately $250,000 the project was completed in 1972. The second interior remodel project consisted of changes designed to provide integrated space for each of the Center's directorates and for several of the Director's staff offices. The project was completed sometime in 1974. Upon completion of construction, the cost of the Administration Building modification projects totaled approximately $500,000.

Several smaller interior modifications have been completed within the past five to seven years. The first floor lobby was completely modernized including the addition of an elevator, and several second floor offices and meeting rooms were renovated. A majority of the original interior finishes once featured in the Administration Building was removed as part of the interior upgrades.

Current Appearance of the Ames Administration Building
Overall, in form, materials and detail, the exterior portion of the Ames Administration Building retains its historic appearance. Historic photographs reveal that but for the change in signage on the front elevation, construction of the rear loggia leading to the upper level of the Ames Auditorium, some replacement of original window material, and construction of an elevator shaft along a portion of the rear elevation, the Ames Administration Building remains unchanged from its original design and appearance.
The symmetrically composed smooth concrete building features an original granite staircase and landing at the front and rear elevations, originally fluted concrete planters adjacent to the front entrance landing, and original 7 ¾ in. glass block employed on the north elevation. Four rows of incised grooves span the perimeter of the building at the roofline, providing a strong horizontal division in the form of a cornice.

Features of the front, south elevation include a vertically subdivided center volume containing three recessed vertical bays divided by two narrow concrete vertical partitions which span from the entry landing to the second floor windows. The first floor section contains a set of double entry doors with a single-pane transom window, and flanked on each side by a fixed window with a T-shaped sash pattern. Three fluted pre-cast concrete panels are located above the first floor windows and entry doors. Each panel displays a series of mitred squares descending in size from the largest outside square to the smallest center square. The second floor section features three additional windows, with one window per section. Each of the recessed windows features a single, canned, soffit light. Three pre-cast concrete panels are mounted above the second floor window s at the roofline and display incised lettering stating "Ames Research Center."

The front (south) elevation walls of the Administration Building's east and west wing each feature five, aligned, rectangular fixed windows with a six-pane sash pattern. Some of the original window materials have been replaced. Incised grooves are also present on the wing walls. In addition to the series of grooves at the roofline, grooves incised at varying levels of the two facades create a grid pattern comprised of square and rectangular sections between the lines.

The east and west elevations feature the exact configuration and each elevation wall measures 60' in length (building depth) and features six, aligned, rectangular shaped casement windows with a six-pane sash pattern, three on the first floor and three on the second floor. Incised lines similar to those displayed on the south elevation exterior wall are present here.

The rear (north) elevation is similar to the front, south elevation. The rear façade of the Administration Building is divided into three sections, with a central portion flanked on either side by a wing. Contrary to the south elevation, the north elevation center section wall is slightly recessed with the wing walls extended slightly past the center portion. The northeast wing wall features six, aligned, windows with a six-pane sash pattern, three on the first floor and three in the second floor. Features of the center portion include twelve, aligned, rectangular shaped windows, with six sited along the first floor and six sited along the second floor, some of which are filled in with glass block rather than an operable glass window; a large fixed twelve-pane sash window with a pre-cast fluted concrete panel below; and a concrete loggia placed between the Administration Building and the front entrance of the Ames Auditorium Building.

Manicured hedges and a simple grass lawn border the building's south, east, and west elevations. A surface asphalt parking lot is located on either side of the auditorium building at the north side of the Administration Building. Additional surface parking is located in Bush Circle.

Overall, in form, materials, and details, the exterior portion of the Ames Administration Building retains its historic appearance.

Illustration 1. Ornamental striping and rectangular overflows are significant and contributingfeatures, respectively (Source: ARG, October 2007)

Illustration 2. Multi-lite, metal sash replacement windows are a contributing feature. (Source: ARG, October 2007)

Illustration 3. Ornamental, concentric square banding over front doors are a significant feature. (Source: ARG, October 2007)

VII. Historic Character-Defining Features

Refer to Appendix 1 for a matrix of character defining features, including specific location of building components. For illustrated plans and elevations, see Appendix 3, Significance Diagrams. Alteration of significant and contributing building components shall be in keeping with original design, configuration and material. For more information, see *The Secretary of the Interior's Standards for the Treatment of Historic Properties. The Standards* can be accessed on the National Park Service website (www.nps.gov) and are presently located at the following URL: http://www.nps.gov/history/hps/tps/tax/rhb.

See Appendix 5, Current Conditions Photographs for photos showing the character-defining building components listed below. For building floor plans, see Appendix 2, Existing Floor Plans and Rehabilitation.

1. Significant Character-Defining Features: these are the features that convey the building's historic character and significance. Alteration or removal of these features could result in a loss of integrity and should be avoided.

The following are significant features:

- Smooth concrete surface articulated with grid of control joints;
- Concrete planters;
- Ornamental striping (parapet);
- Simplified buttresses/fin walls flanking doors;
- Ornamental concentric square banding (over doors);
- Ornamental striping and lettering (parapet);
- Covered passage with columns between N-200 and N-201;
- Granite entrance stairs and blocks under planters; and
- Wood sash awning windows in basement window openings.

2. Contributing Features: these features are important elements that contribute to the understanding of the original design. Alteration or removal of these features may be necessary for

programmatic or building system requirements. However, removal should be minimized and where necessary mitigated.
The following are contributing features:

- Multi-lite metal sash windows with operable hopper segments, replacement material in keeping with the historical appearance of the original sash;
- Multi-lite metal sash windows with operable casement segments at ground floor and second floor at center bay;
- Metal doors and frame;
- Single-lite transom;
- Rectangular overflows (east elevation); and
- Corridor configuration.

3. Tertiary Features: these features are original elements of the building that are of a lower importance relative to the understanding of the original design. Alteration or removal of these features, if necessary, would have a limited effect on the integrity of the building.

Building N-200 has no tertiary features.

4. Non-Contributing Features: these features are elements of the building that have been remodeled or areas where additional alteration would not affect the original integrity of the building. In some cases, removal of the non-contributing features may be beneficial to the historic integrity of the building.

The following are non-contributing features:

- One converted door opening with detached elevator on north elevation;
- Metal door and frame with storefront windows on north elevation;
- New ADA elevator and ramp;
- Interior finishes in the following spaces:
  - Lobby;
  - First floor bathrooms, and stairs;
  - Second floor bathrooms and committee room; and
  - Offices, including basement offices.

Illustration 5. Lettering at south elevation parapet is a significant feature. (Source: ARG, October 2007)

Illustration 5. Covered passage with columns is a significant feature. (Source: ARG, October 2007)

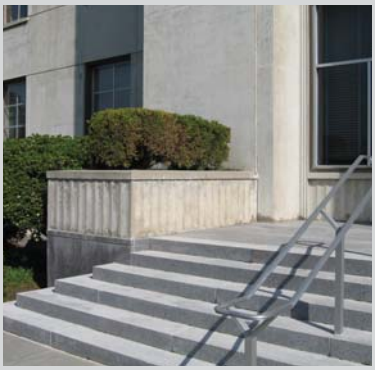


Illustration 6. Granite entrance stairs and concrete planters are significant features. (Source: ARG, October 2007)

VIII. Opportunities for Reuse

Building N-200 functions well as an office building, and the arrangement and configuration of the rooms suggest a continued use for offices.

Any alterations to the significant character-defining features should be approached carefully and sensitively following The Secretary of Interior's Standards for Rehabilitation (The Standards). *The Standards* define rehabilitation as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values". Alteration of significant character-defining features will require consultation with the California Office of Historic Preservation.

IX. Code Evaluations and Recommendations

A. Fire/Life Safety

Description

Building N-200 is organized with a central lobby with wings on either side containing a linear corridor with enclosed office space on either side. The second floor has a large meeting room located above the lobby space. The building has a gross square footage of 30,120 $ft^{2.}$ consists of concrete floors and concrete exterior walls.

The building is not equipped with a sprinkler system. The rear canopy addition between the two buildings contains sprinklers.

There are smoke detectors present. Egress signage is clearly marked.

Administration Building N-200 has been upgraded to meet Accessibility requirements as required in the prevailing building code in 1983.

The building is classified as B occupancy and is being used as administration offices. The construction type is Type III-N. The following review is based on the occupancies remaining the same. If a change in occupancy is proposed, further detailed code analysis will be required. Section IX B. includes a glossary of building construction types and occupancy types that exist within the scope of this report.

California's State Historical Building Code (SHBC), located in chapter 34 of CBC, shall be used in conjunction with the California Building Code as stated in section 8-102.1: "These regulations are applicable for all issues regarding building code compliance for qualified historical buildings or properties. These regulations are to be used in conjunction with the regular code to provide alternatives to the regular code to facilitate the preservation of qualified historical buildings or properties. These regulations shall be used whenever compliance with the regular code is required for qualified historical buildings or properties."

Analysis

1. Occupancy and Construction type: The building is classified as Group B and Type III-N construction. Table 5-A of the CBC allows Occupancy B to be construction type III-N.

Recommendation: The current occupancy type is permitted in the existing building type.

2. Location on Property: CBC Table 5-A limits the exterior bearing walls to be minimum 4-Hr N/C less than 5 ft. and 2-Hr N/C elsewhere. Exterior openings are not permitted less than 5 ft. and protected less than 20 ft. Building N-200 is connected to building N-201 with a covered / sprinklered passage and the distance between two buildings is less than 20 ft. The exterior bearing wall, facing Building N-201, meets the requirement to be 2-Hr N/C as a concrete wall. The sum of the area of openings at that portion of the north façade does not exceed 50% of the total area at each story (CBC Section 503.2.2) and it meets the requirement due to the distance to the property line.

Recommendation: No modifications are required based on the building's location on the property.

3. Allowable Area: According to CBC Table 5-B Allowable area for B Occupancy/ Type III-N is 12,000 ft^2. CBC Section 505.1.2 allows area increase up to 100 percent if the building is separated on three sides. Building N-200 allowable area can be doubled by this section, but without a code compliant automatic sprinkler system the allowable area cannot be reached the actual 30,120 ft^2. SHBC Section 8-302.4 Exception allows historic buildings provided with and approved automatic sprinkler system unlimited floor area without fire resistive area separation walls.

Recommendation: Utilize the SHBC in conjunction with the installation of an approved fire suppression system to allow the building occupancy to remain.

4. Allowable Height: SHBC section 8-302.5 allows the height of the structure to not be limited, "provided such height or number of stories does not exceed that of its designated historical design."

Recommendation: Building N-200 is within the allowable height.

5. Means of Egress Identification: Section 1003.2.8.2 requires the path of travel to and within exits to be identified with code compliant exit signs. Exit signs are clearly marked.

Recommendation: The means of egress systems appear to be compliant.

6. Doors: CBC Section 1003.3.1.3 requires a clear opening of 32 in. SHBC section 8-603.2 allows certain doors to have a clear dimension as narrow as 30 in. CBC section 1003.3.1.5 requires the door to swing in the direction of egress. Section 1003.3.1.6.2 requires a level landing on each side of all doors that are part of the means of egress system. This section also requires the landing to be 44 in. in length when the door swings away and 60 in. in the direction of the door swing. The door at the elevator landing does not meet 44 in. landing requirement.

Recommendation: Correct the existing landing to meet the 44 in. required landing clearance.

7. Stairs and Guardrails: CBC section 1003.3.3.3 requires the rise and run of the stair to be a minimum of 7 in. and 11 in., respectively. CBC section 1003.3.3.6.1 requires all stairs (two or more risers) to have a handrail on each side. Section 509 of the CBC requires guardrails at all unenclosed floor or roof openings, open or glazed stairways, aisles, landings, ramps, balconies, or porches, which are over 30 in. above grade or the floor below. SHBC section 8-502.1 exception 5 allows the enforcing agent to accept "any other condition which will allow or provide for the ability to quickly and safely evacuate any portion a building with out undue exposure and which will meet the intended exiting and life safety stipulated by these regulations." CBC Section 1003.3.1.7 requires landings to have a width not less than the width of the door or the width of the stairway served, whichever is greater. The width of the stair landing varies at both east and west stairs from 31 in. to 42 in. because of the closure (the original landing was 46 in. wide.) Considering the width of the stair is 47 ½ in. the egress path is reduced at landing.

> *Recommendation:* The temporary panel, which closes the glass-block window at stair landings, should be removed to meet the 44 in. required landing clearance.

8. Ramps: Section 1003.3.4.3 of the CBC requires ramps to have a slope no greater than 1:12. Section 1003.3.4.4 requires ramps to have code compliant landings at the top and bottom of the runs. Construction drawings dated January 21, 1983, indicate that the ramps, both interior and exterior were built to current accessibility codes. However, the slip-resistant surface of the ramp (required by CBC Section 1133. B.7.1.2), may have worn off, and appears to be non-code compliant.

> *Recommendation:* The exterior ramp at north entry surface should be upgraded to meet the slip-resistant surface requirements.

9. Travel distance: Section 1004.2.5.2.2 requires that the maximum travel distance in non-sprinklered buildings not exceed 200 ft. Travel distance is that distance an occupant must travel from any point within occupied portions of the exit access to the door of the nearest exit. Where path of travel includes unenclosed stairways or ramps the distance of travel on such components must be included in the travel distance measurement. The travel distances from the first floor and second floor are less than 200 ft.

> *Recommendation:* The exiting travel distance is compliant.

10. Fire Alarm: A fire alarm system has been provided. Any new office spaces will require horns and strobes be added.

> *Recommendation:* The existing fire alarm system appears to be compliant.

Summary of Fire/Life Safety Recommendations

1. Occupancy and Construction type: The current occupancy type is permitted in the existing building type.

2. Location on Property: No modifications are required based on the building's location on the property.

3. Allowable Area: Building should be furnished with a code compliant fire sprinkler system to meet the area requirement.

4. Allowable Height: Building N-200 is within the allowable height.

5. Means of Egress Identification: The means of egress systems appear to be compliant.

6. Doors: Correct the existing landing to meet the 44 in. required landing clearance.

7. Stairs and Guardrail: The temporary panel, which closes the glass-block window at stair landings, should be removed to meet the 44 in. required landing clearance.

8. Ramps: The exterior ramp at north entry surface should be upgraded to meet the slip-resistant surface requirements.

9. Travel distance: The exiting travel distance is compliant.

10. Fire Alarm: The existing fire alarm system appears to be compliant.

B. Glossary of Terms: Construction and Occupancy Types
The following is a summary description of the Construction and Occupancy Types for Building N-200.

Glossary of Construction Types, referenced from the 2001 California Building Code:

Type III-N	Structural elements in Type II buildings may be of any materials permitted by this code. Exterior walls shall be constructed of noncombustible materials and shall comply with the fire-resistive requirements set forth in CBC Section 503 and Tables 5-A and 6-A. Bearing partitions, when constructed of wood, shall comply with CBC Section 2308.

Glossary of Occupancy Types: Referenced from the 2001 California Building Code

Group B	A building or structure, or a portion thereof, for office, professional or service-type transaction, including storage of records and accounts; eating and drinking establishments with an occupant load of less than 50.

C. Disabled Accessibility

Analysis

1. Accessible Parking: CBC section 1129B.1 requires that where parking is provided for the public as clients, guests, or employees, accessible parking will also be provided. Section 1129B.4 requires one van accessible space for every eight spaces. Currently there are two accessible parking spaces, one on each side of the north entry. The parking space on the east side has direct access to accessible ramp and elevator.

> *Recommendation:* As per CBC Table 11B-6 the number of accessible parking spaces required is six. The north entry, accessible ramp side parking area is adequate to provide six regular accessible parking stalls; one space should be van accessible.

2. Accessible Route: CBC Section 1114B.1.2 requires an accessible route of travel to all portions of the building that are required to be accessible. The SHBC Section 8-604 allows for equivalent facilitation to be provided in lieu of a path of travel to all areas of the building where providing access "would threaten or destroy the historical significance or character-defining features of the building or site or cause unreasonable hardship." Currently the only accessible route to the building is from the east rear parking lot.

> *Recommendation:* The accessible entry designated for N-200 at the rear east of the building should have directional signage along Bush Circle, and the access path should indicate the location of accessible entry for the building.

3. Doors: Section 1133B.2.4 of the CBC requires a level landing on each side of a door. Section 1133B.2.4.2 requires maneuvering clearance to be 60 in. on the swing side of interior doors and 48 in. on the non-swing side of the door with a closer (44 in. without closer). The clearance on the swing side shall extend 18 in. beyond the strike side of the door for interior doors and 24 in. on exterior doors. The clearance for the non-swing side shall extend 12 in. when the door has a closer. Section 1133B.2.5.2 requires hardware that is hand operable with a single effort without requiring the ability to grasp. Currently most of the doors meet these requirements. However, some of them do not have code compliant lever-handled locksets and the elevator door does not meet the 48 in. non-swing side clearance.

> *Recommendation:* All the doors that need to be accessible shall have code compliant lever-handled locksets. The elevator door landing needs to be updated to meet the requirement of the 48 in. non-swing side clearance.

4. Stairs and Elevators: Section 1133B.4.4 of the CBC requires striping for the visually impaired on the lowest and upper most treads of a run of stairs. Currently the interior stairs do not meet this requirement. Exterior north entry stairs have striping on each step. CBC Section 1133B.4.2 requires handrails to extend 12 in. beyond the top nosing and 12 in. plus the tread width, beyond the bottom nosing. Interior stairs meet this requirement, but the size and the shape of the handrail and the distance from the wall are not code compliant.

Recommendation: Modify interior stair handrail configuration as per CBC Section 1133B.4.2 to achieve code compliance. Provide striping for the visually impaired on the lowest and upper most treads of a run of stairs at building interior and exterior. We recommend that the exterior elevator and stair at the north of the building to be removed, since they are not in keeping with the historical character of the building. The elevator should be relocated inside the building at the shortest distance from the north accessible entry.

5. Restrooms: CBC Section 1115B.1 requires buildings which are required to be accessible to have accessible restrooms. The restrooms have disabled accessible stalls but the upstairs restroom lavatory countertop height is 32 in., which is required to be minimum 34 in. (CBC Figure 11B-1D.)

Recommendation: Modify the accessible lavatories in the restrooms as per CBC Figure 11B-1D.

6. Signage: Sections 1103.2.4, 1127B.3, 1129B.5, and 1115B.5 of the CBC require code-compliant signage identifying accessible entrances, parking, areas of refuge, passenger loading zone, toilet and bathing facilities, and exit signage at the exit stairs. In addition to the international symbol of accessibility, each toilet room shall be identified by a tactile sign including raised letters and Braille. Some of this signage is provided, but signage is not complete throughout the building.

Recommendation: Provide code-compliant signage identifying accessible entrances, parking, areas of refuge, passenger loading zone, toilet and bathing facilities, and exit signage at the exit stairs throughout the building. Identify each toilet room by a tactile sign including raised letters and Braille.

Summary of Disabled Accessibility Recommendations

1. Accessible Parking: As per CBC Table 11B-6 the number of accessible parking spaces required is six. The north entry, accessible ramp side parking area is adequate to provide six regular accessible parking stalls; one space should be van accessible.

2. Accessible Route: The accessible entry designated for N-200 at the rear east of the building should have directional signage along Bush Circle, and the access path should indicate the location of accessible entry for the building.

Unfortunately, parking on the west side forces wheelchair users to go around the building to the elevator or accessible ramp. In addition, although code compliant, it is not ideal (and does not constitute equal access) to have the only access to the second floor on the exterior of the building.

3. Doors: All the doors that need to be accessible shall have code compliant lever-handled locksets. The elevator door landing needs to be updated to meet the requirement of the 48 in. non-swing side clearance.

4. Stairs and Elevators: Modify interior stair handrail configuration as per CBC Section 1133B.4.2 to achieve code compliance. Provide striping for the visually impaired on the lowest and upper most treads

of a run of stairs at building interior and exterior. We recommend that the exterior elevator and stair at the north of the building to be removed, since they are not in keeping with the historical character of the building. The elevator should be relocated inside the building at the shortest distance from the north accessible entry.

5. Restrooms: Modify the accessible lavatories in the restrooms as per CBC Figure 11B-1D.

6. Signage: Provide code-compliant signage identifying accessible entrances, parking, areas of refuge, passenger loading zone, toilet and bathing facilities, and exit signage at the exit stairs throughout the building. Identify each toilet room by a tactile sign including raised letters and Braille.

D. Energy Conservation

Description

The historic structure was designed with some energy-conserving features; monolithic concrete floors throughout the building and thick concrete walls contribute to passive climate control for the building. Insulation in the exterior walls could not be confirmed without destructive testing. Some interior wall partitions have most likely received upgraded insulation during remodeling. The window sashes are single glazed. The building has a forced air mechanical system; its efficiency could not be confirmed. Energy-efficient fluorescent lighting is the primary lighting source.

Analysis

Building N-200 has been submitted to SHPO for a determination of eligibility for the National Register of Historic Places and could be exempt from energy code requirements. However, measures to reduce energy consumption and provide for user comfort are recommended.

> *Recommendation:* Recommended actions may include insulating the ceiling and exterior walls during future construction work. High efficiency mechanical systems should be used to replace mechanical systems that have reached the end of their useful life.

X. Future Studies Needed

A. Hazardous Materials

Although a hazardous materials report has not yet been completed, there are several types of historical materials and finishes are known to contain asbestos and other hazardous materials in the building construction. Signage is posted at the basement level indicating that Asbestos material is present in numerous materials.

It is recommended that a complete hazardous materials report be completed on the building.

B. Mechanical and Electrical Systems

The mechanical and electrical systems were not inspected as part of this report. It is assumed that should the rehabilitation and reuse of Building N-200 be undertaken, it will entail the installation of an upgrade to mechanical and electrical systems, and potentially the plumbing drainage/waste system. All new mechanical and electrical systems should be designed to preserve the character of the significant materials and spaces identified in this report.

C. Structural Systems

The exterior walls of Building N-200 are reinforced concrete. The roof and floor structures are reinforced concrete construction, with structural concrete columns adjacent to the central longitudinal corridor. The exterior stairs at the elevator addition at the north elevation are steel construction.

The building appears to be in excellent condition. In the course of rehabilitating the building the structural system should be analyzed for seismic and gravity load deficiencies and reinforced as necessary. Strengthening provisions should be designed to preserve significant materials and spaces.

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 1. Character-Defining Features

Character-Defining Features

Elements	Significance	Condition	Comments
Exterior			
North Elevations			
Water table base course	S	F	
Cement plaster surface	S	F	
Windows:			
6/6 Double hung wood windows	S	P	one at second floor exposed, one at ground floor (concealed behind wood infill panel)
Doors:			
Metal roll-away door	S	P	fixed in place (conceals Signal Tower)
Ornamental copper bands			
Upper band	S	P	at round portion of Tower
Lower band	S	F	
Collection box	S	F	
Vents	S	G	
East Elevation			
Water table base course	S	F	patched spall, new spalling at SE corner
Cement plaster surface	S	F	
Windows:			
6/6 double hung wood windows	S	P	one at second floor exposed, one at ground floor (concealed behind wood infill panel)
Doors:			
Metal roll-away door	S	F	fixed in place (conceals Signal Tower)

Significance Rating
S=Significant
C=Contributing
T=Tertiary
N=Non-contributing

Condition Rating
G=Good
F=Fair
P=Poor

Ornamental copper bands			
Upper band	S	P	at round portion of Tower
Lower band	S	F	
Collection box	S	F	painted at first floor only
Exterior lighting fixtures	N	P	on parapet wall
South Elevation			
Water table base course	S	F	
Cement plaster surface	S	F	
Windows			
6/6 double hung wood windows	S	P	one at second floor exposed, one at ground floor concealed behind wood infill panel (N)
Vent	S	G	
Ornamental copper band	S	F	
Exterior lighting fixtures	N	F	on parapet wall
West Elevation			
Water table base course	S	F	
Cement plaster surface	S	F	
Windows			
6/6 double hung wood window	S	P	
Doors			
Wood replacement door with 4-lite transom and frame	N/S	P	original transom (S) partially concealed behind wood infill panel
Ornamental copper band	S	F	
Light fixture	S	P	
Concrete steps	S	F-P	rusted and broken at corners
Interior			
Ground floor			

Significance Rating
S=Significant
C=Contributing
T=Tertiary
N=Non-contributing

Condition Rating
G=Good
F=Fair
P=Poor

Configuration	S	G	
Wood stair	S	P	
Floor (concrete)	S	P	
Walls (plaster)	S	P	
Ceiling (plaster)	S	P	ceiling finish missing in places
Metal pipe railing	S	G	
Second floor	S	N/A	not observed

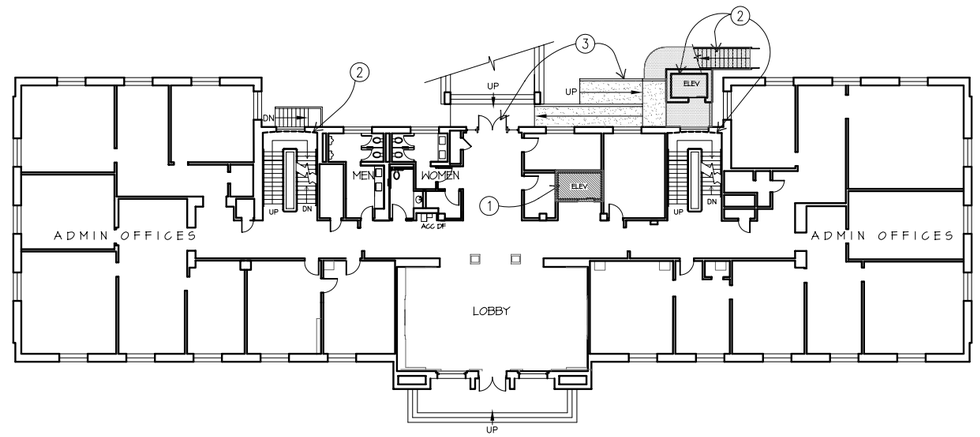
Character Defining Features Matrix

Significance Rating
S=Significant
C=Contributing
T=Tertiary
N=Non-contributing

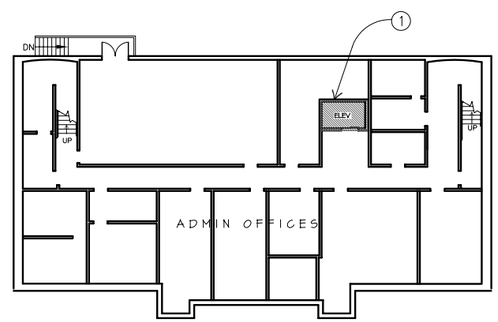
Condition Rating
G=Good
F=Fair
P=Poor

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 2. Existing Floor Plans & Rehabilitation



N-200 FIRST FLOOR PLAN



N-200 BASEMENT PLAN

REHABILITATION LEGEND & NOTES

1. SUGGESTED AREA FOR NEW LOCATION OF ELEVATOR
2. SUGGESTED ELEVATOR DEMOLITION (SEE ITEM 1 FOR NEW LOCATION.)
3. EXISTING ACCESSIBLE RAMP & BUILDING ENTRY

GENERAL NOTES

1. NOT ALL KEY NOTES APPEAR ON ALL SHEETS, KEY NOTES MAY APPLY TO ONE FLOOR ONLY.
2. REFER TO SECTION IX. "CODE EVALUATIONS AND RECOMMENDATIONS" FOR DETAILED DESCRIPTION.

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

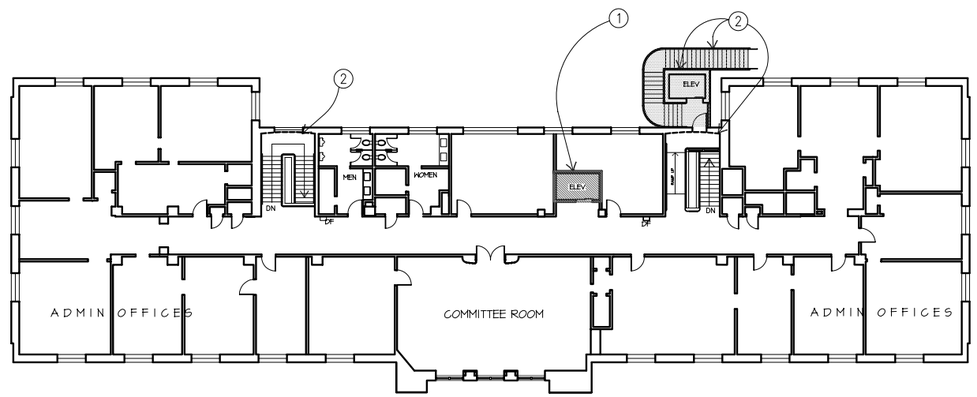
EXISTING PLANS & REHABILITATION

32 0 32
1/32" = 1'-0"

BUILDING N200
NASA Ames Research Center
Sunnyvale, CA

October, 2007

PROJECT NORTH
TRUE NORTH



N-200 SECOND FLOOR PLAN

REHABILITATION LEGEND & NOTES

1. SUGGESTED AREA FOR NEW LOCATION OF ELEVATOR
2. SUGGESTED ELEVATOR DEMOLITION (SEE ITEM 1 FOR NEW LOCATION.)
3. EXISTING ACCESSIBLE RAMP & BUILDING ENTRY

GENERAL NOTES

1. NOT ALL KEY NOTES APPEAR ON ALL SHEETS, KEY NOTES MAY APPLY TO ONE FLOOR ONLY.
2. REFER TO SECTION IX. "CODE EVALUATIONS AND RECOMMENDATIONS" FOR DETAILED DESCRIPTION.

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

EXISTING PLANS & REHABILITATION

32 0 32
1/32" = 1'-0"

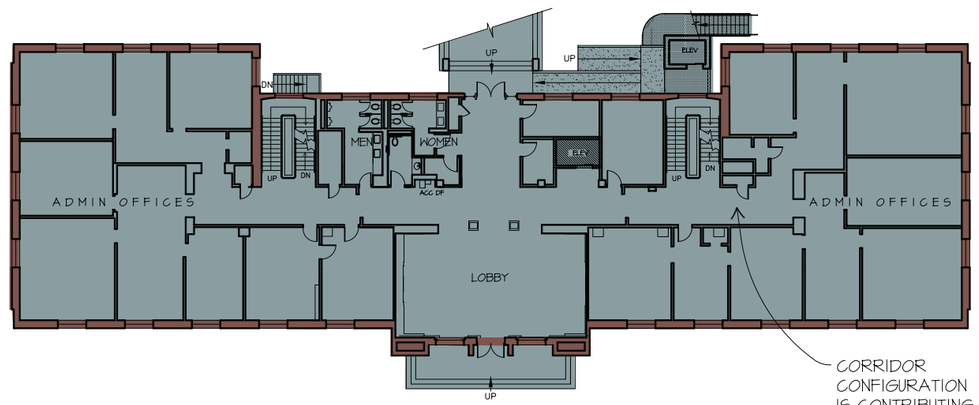
BUILDING N200
NASA Ames Research Center
Sunnyvale, CA

October, 2007

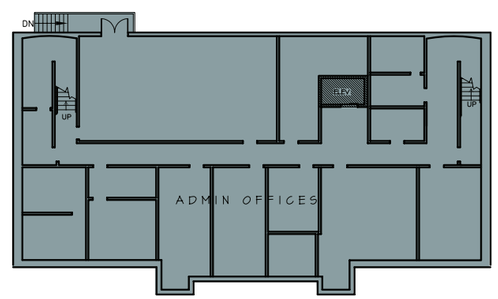
PROJECT NORTH
TRUE NORTH

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 3. Historic Character-Defining Significance Diagrams



N-200 FIRST FLOOR PLAN



N-200 BASEMENT PLAN

GENERAL NOTES

1. THESE DIAGRAMS ARE INTENDED TO SHOW THE PRINCIPAL CHARACTER-DEFINING FEATURES, NOT SPECIFIC COMPONENTS.

2. FOR A MATRIX OF SIGNIFICANCE RATINGS FOR INDIVIDUAL BUILDING COMPONENTS, REFER TO APPENDIX 1. "HISTORIC CHARACTER-DEFINING FEATURES".

CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS LEGEND

- SIGNIFICANT FEATURE
- CONTRIBUTING FEATURE
- TERTIARY FEATURE
- NON-CONTRIBUTING FEATURE
- NEW CONSTRUCTION - PROPOSED

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

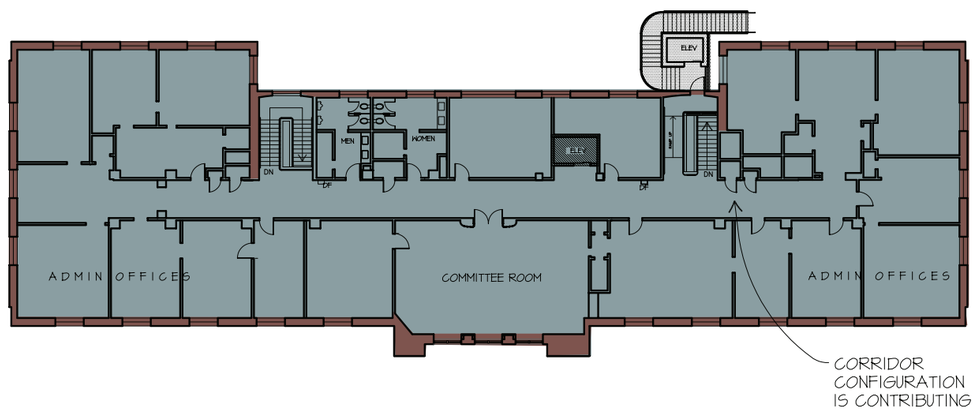
HISTORIC CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS - PLANS

32 0 32
1/32" = 1'-0"

BUILDING N200
NASA Ames Research Center
Sunnyvale, CA

October, 2007

PROJECT NORTH
TRUE NORTH



N-200 SECOND FLOOR PLAN

GENERAL NOTES

1. THESE DIAGRAMS ARE INTENDED TO SHOW THE PRINCIPAL CHARACTER-DEFINING FEATURES, NOT SPECIFIC COMPONENTS.

2. FOR A MATRIX OF SIGNIFICANCE RATINGS FOR INDIVIDUAL BUILDING COMPONENTS, REFER TO APPENDIX 1. "HISTORIC CHARACTER-DEFINING FEATURES".

CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS LEGEND

- SIGNIFICANT FEATURE
- CONTRIBUTING FEATURE
- TERTIARY FEATURE
- NON-CONTRIBUTING FEATURE
- NEW CONSTRUCTION - PROPOSED

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

HISTORIC CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS - PLANS

32 0 32
1/32" = 1'-0"

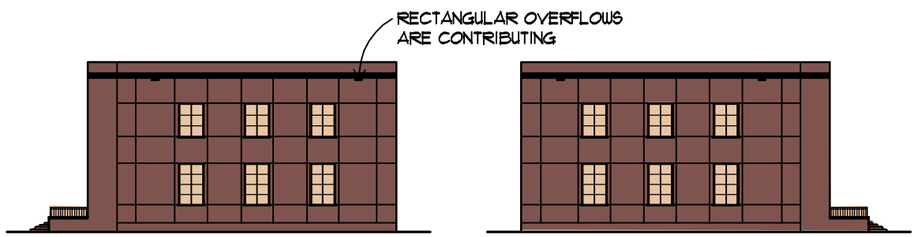
BUILDING N200
NASA Ames Research Center
Sunnyvale, CA

October, 2007

TRUE NORTH

B-26 SOUTH ELEVATION

B-26 NORTH ELEVATION



B-26 EAST ELEVATION

B-26 WEST ELEVATION

GENERAL NOTES

1. THESE DIAGRAMS ARE INTENDED TO SHOW THE PRINCIPAL CHARACTER-DEFINING FEATURES, NOT SPECIFIC COMPONENTS.
2. FOR A MATRIX OF SIGNIFICANCE RATINGS FOR INDIVIDUAL BUILDING COMPONENTS, REFER TO APPENDIX 1. "HISTORIC CHARACTER-DEFINING FEATURES".

CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS LEGEND

- SIGNIFICANT FEATURE
- CONTRIBUTING FEATURE
- TERTIARY FEATURE
- NON-CONTRIBUTING FEATURE
- NEW CONSTRUCTION - PROPOSED

ARCHITECTURAL RESOURCES GROUP
Architects, Planners & Conservators, Inc.

HISTORIC CHARACTER-DEFINING SIGNIFICANCE DIAGRAMS - ELEVATIONS

32 Ø 32
1/32" = 1'-Ø"

BUILDING N200
NASA Ames Research Center
Sunnyvale, CA

October, 2007

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 4. Historic Aerial Photographs

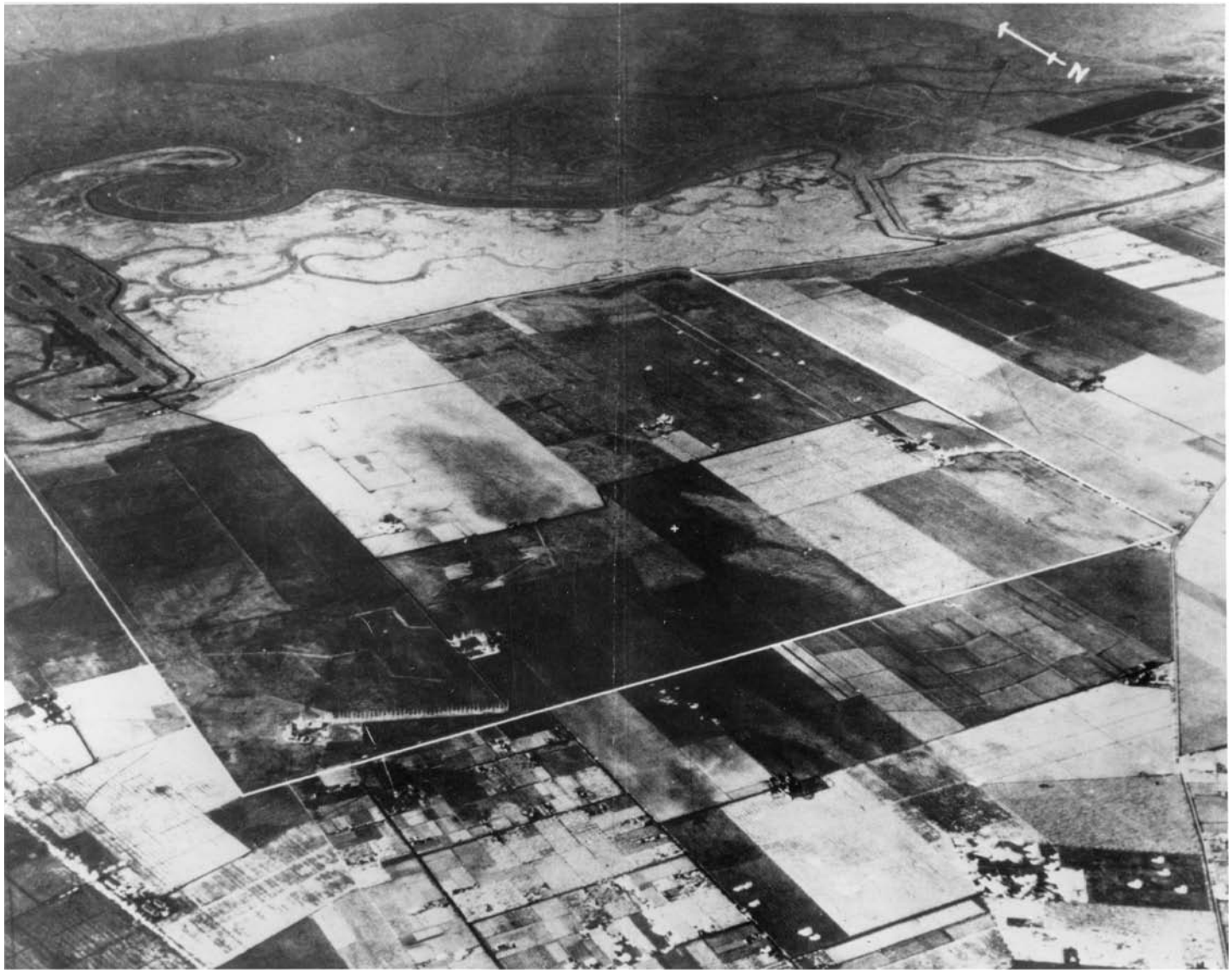


Figure 1: 1930 aerial photograph of future Moffett Field site

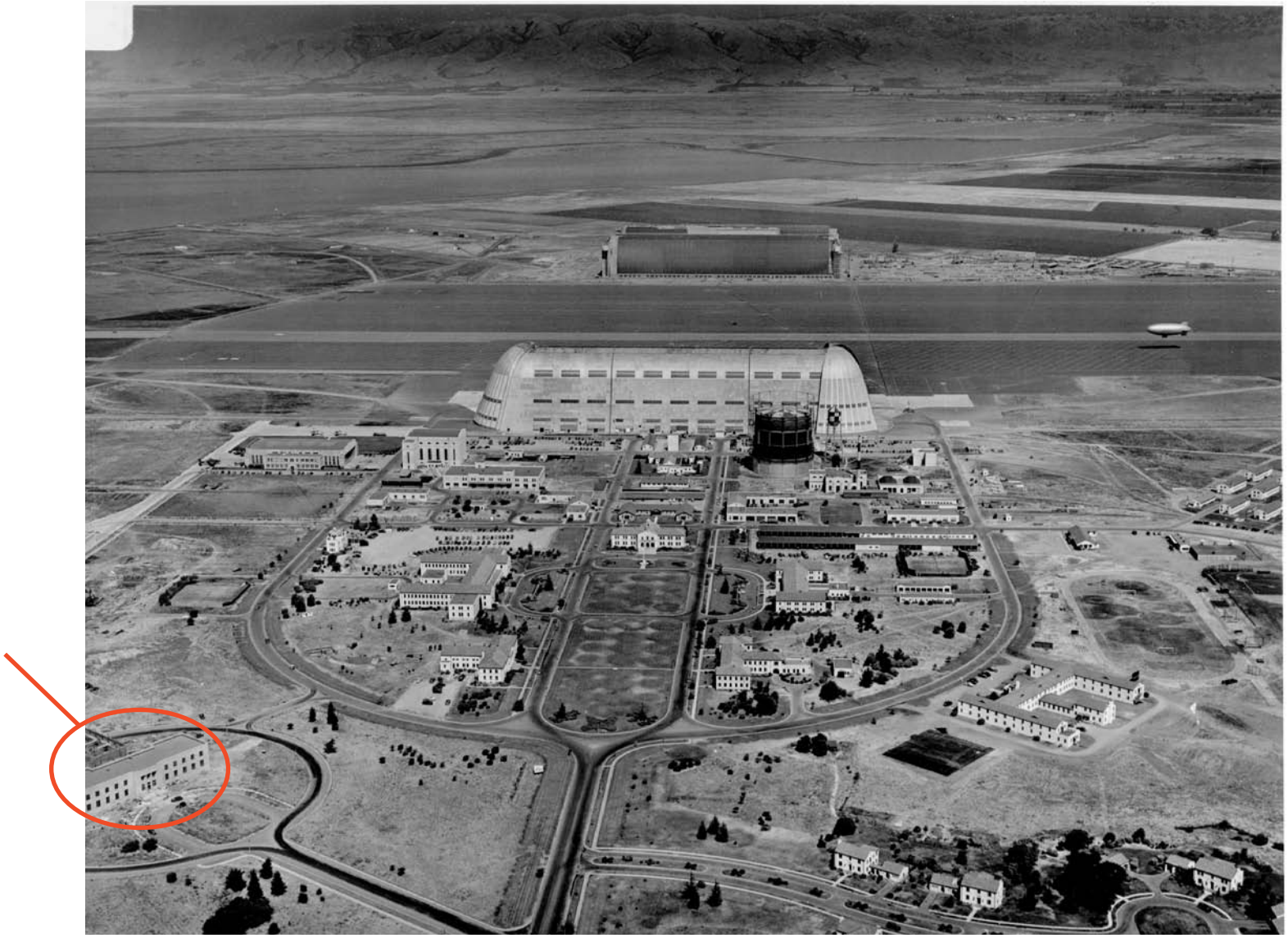


Figure 2: 1943 aerial photograph of Shenandoah Plaza and partial Building N-200

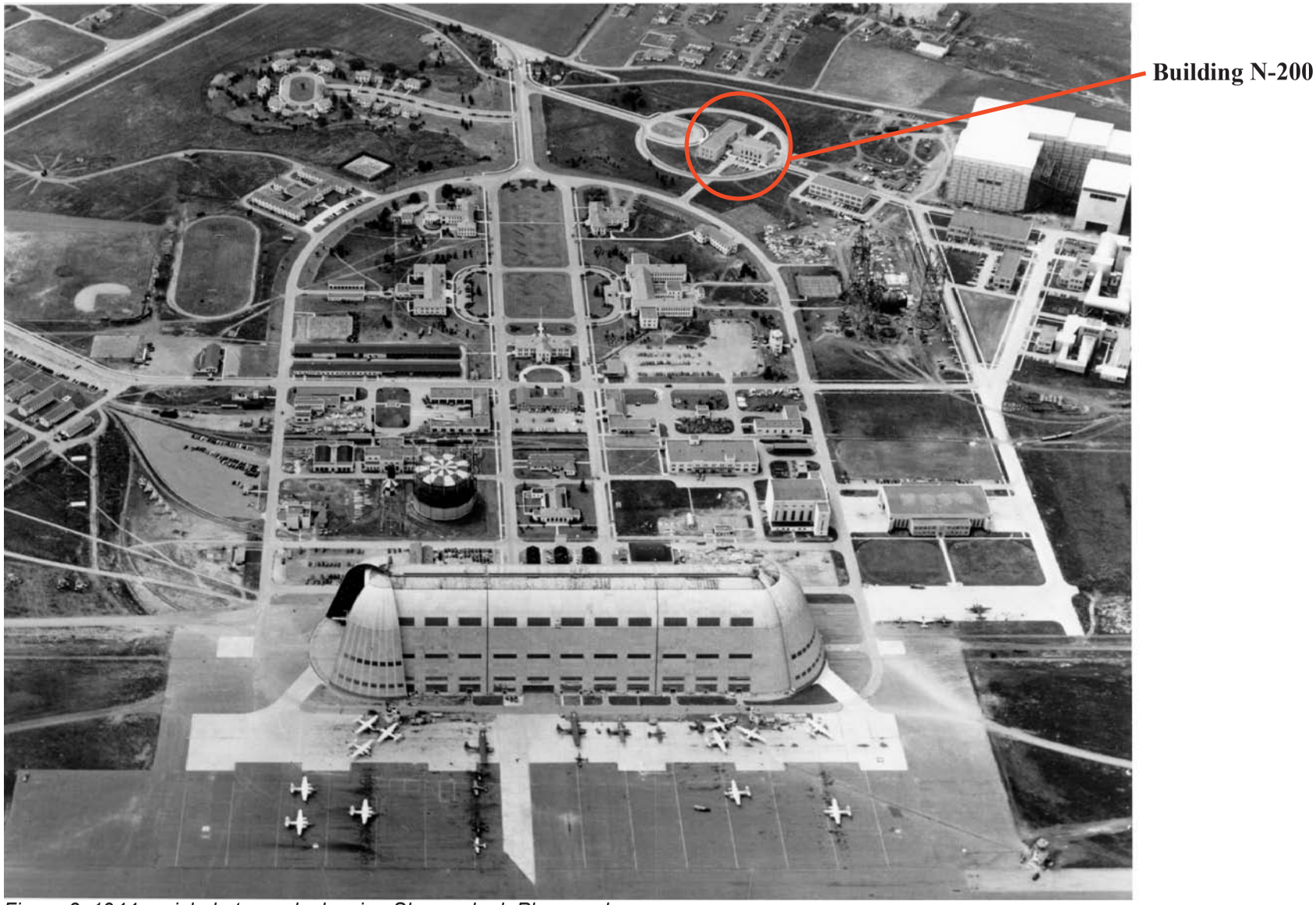


Figure 3: 1944 aerial photograph showing Shenandoah Plaza and

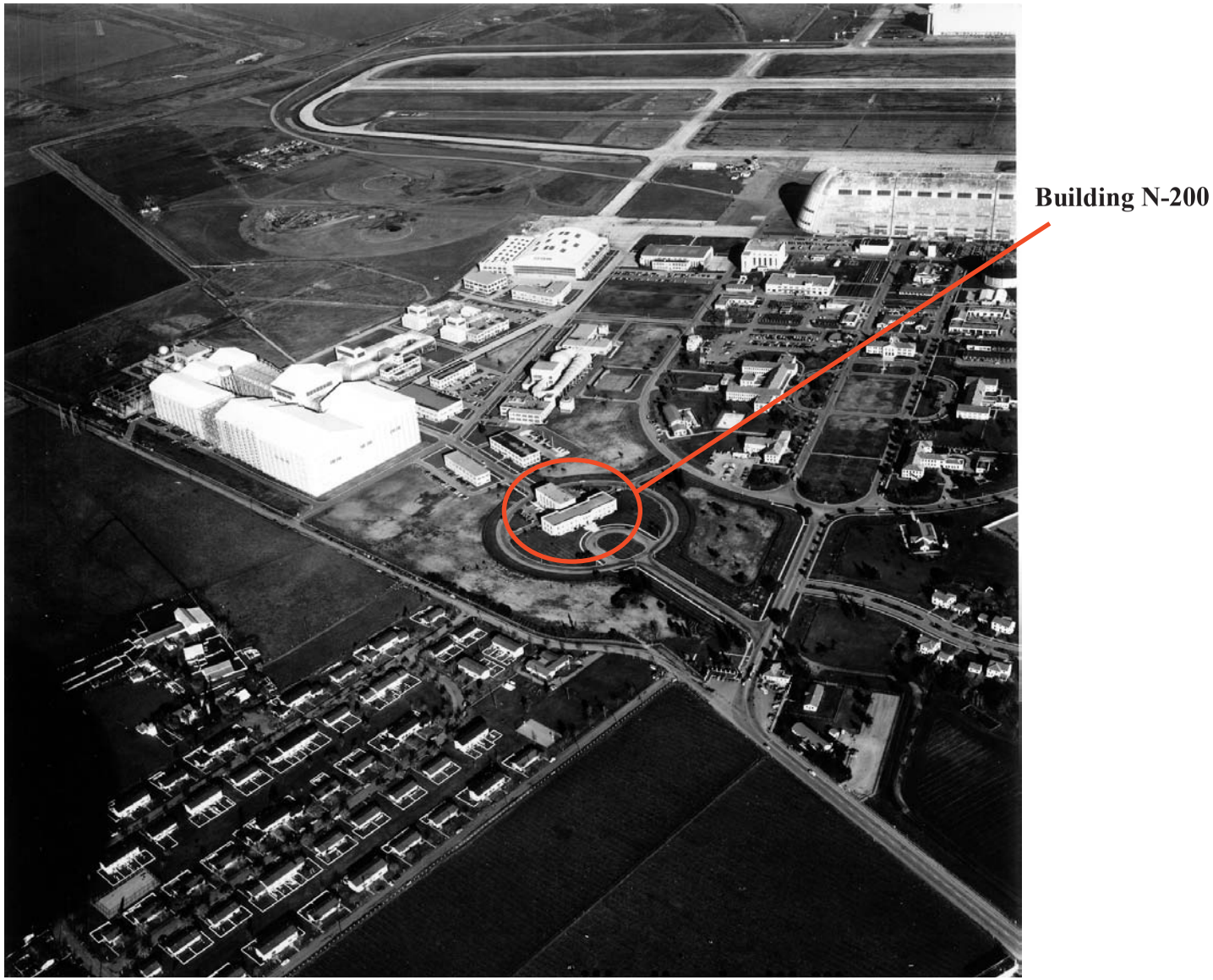


Figure 4: 1951 aerial photograph showing Building N-200 at the center

Figure 5: 1982 aerial photograph showing Building N-200, center right

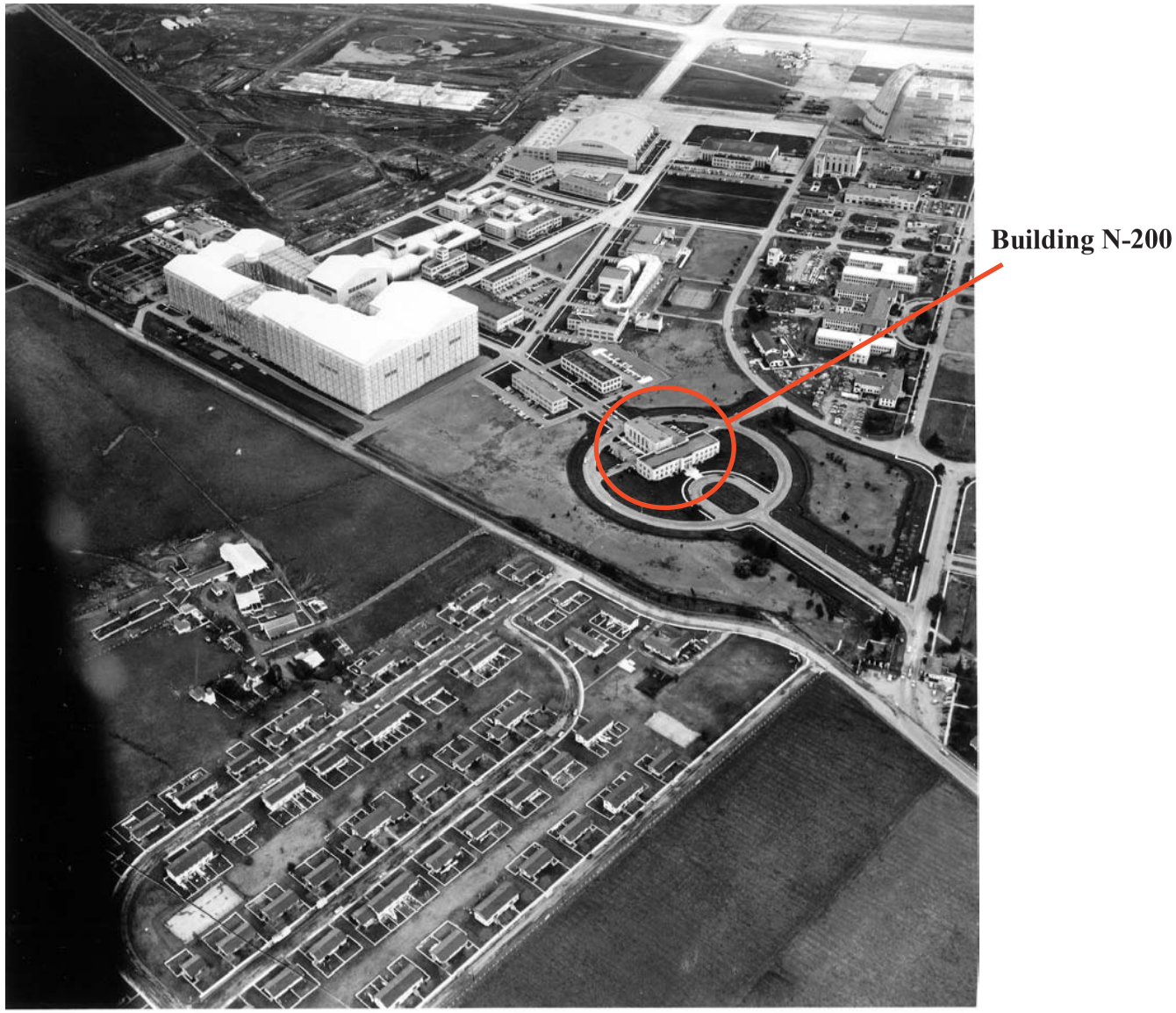


Figure 6: 1952 aerial photograph of Building N-200, center right

Figure 7: aerial photograph of Administration Building N-200

Figure 8: aerial photograph of Building N-200

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 5. Current Conditions Photographs (2006)

Figure 9. South entry of the building

Figure 10. Monumental entry on the south façade, planters and granite stairs

Figure 11. South façade

Figure 12. Northwest corner of the building, slight set-back in wall emphasized vertical line

Figure 13. North entry and covered passage between N-200 and N-201

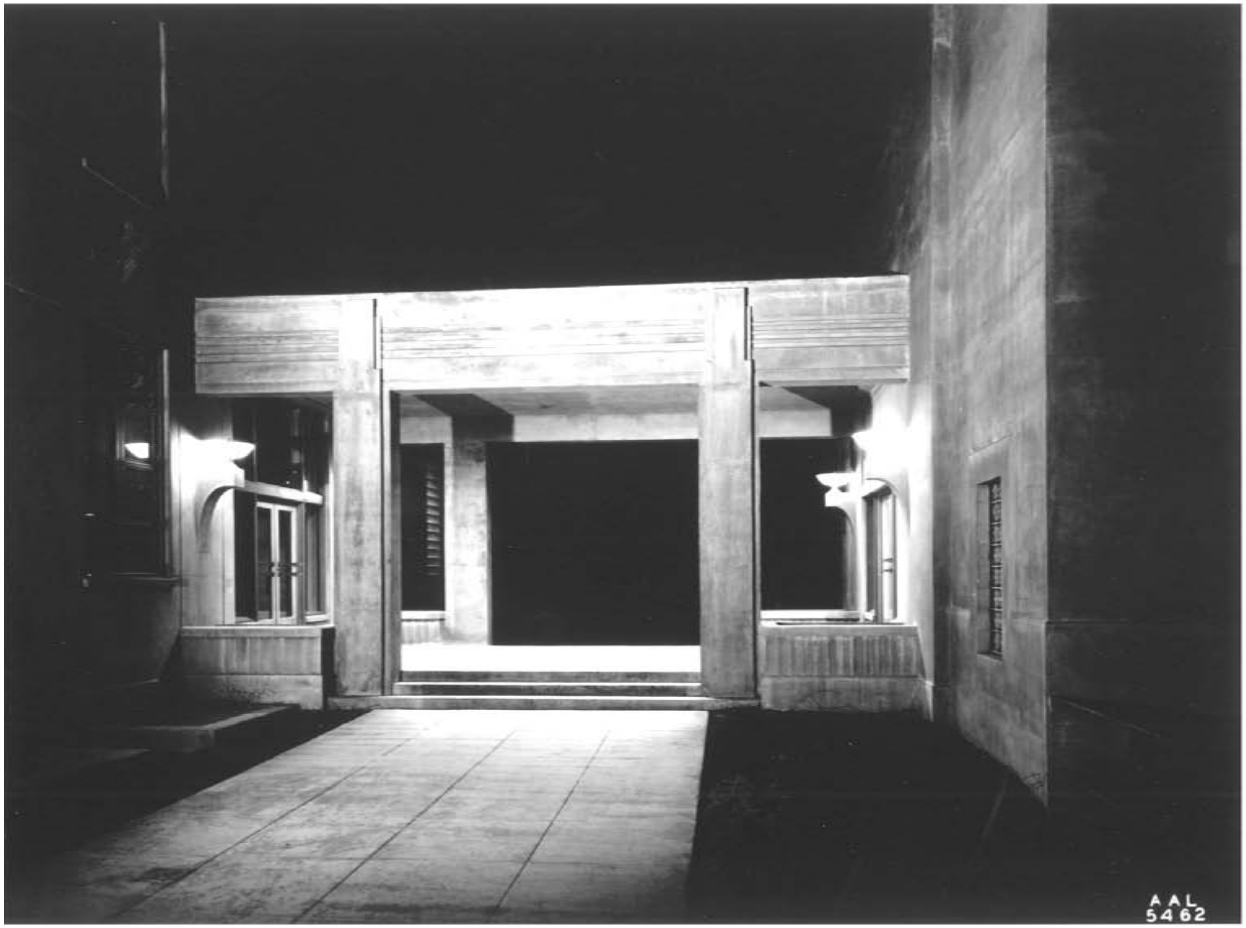


Figure 14. Historical photo of covered passage between N-200 and N-201

Figure 15. Northeast corner showing elevator and stair under construction

Figure 16. Elevator at north façade

Figure 17. Accessible ramp at north entry

Figure 18. North lobby

Figure 19. Lobby

Figure 20. West corridor looking from lobby

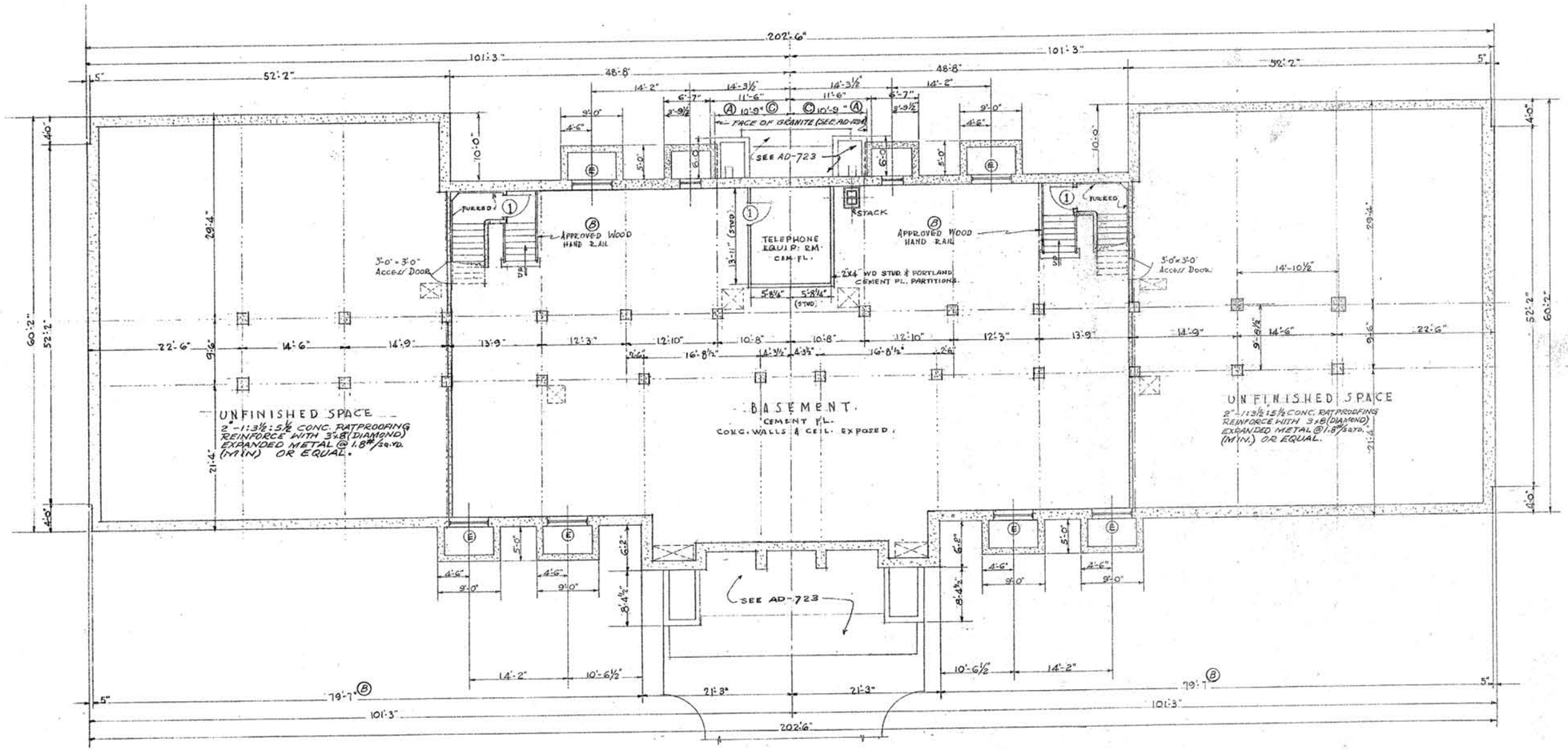
Figure 21: Original wood window at basement office

Figure 22. Interior stairs

Figure 23. Accessible ramp landing and elevator lobby door

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 6. Construction Plans



BASEMENT PLAN
SCALE 1/8" = 1'-0"

C	9/16/42	10'-9" WAS 10'-9½" NOTE ADDED.	FLM
B	9/10/42	79'-7" WAS 79'-6" HAND RAIL WAS 1½" PIPE	FLM
A	7/20/42	CORRECTED TO DATE - DIMENSION ADDED	FLM

REVISIONS

ADMINISTRATION BUILDING
BASEMENT PLAN

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

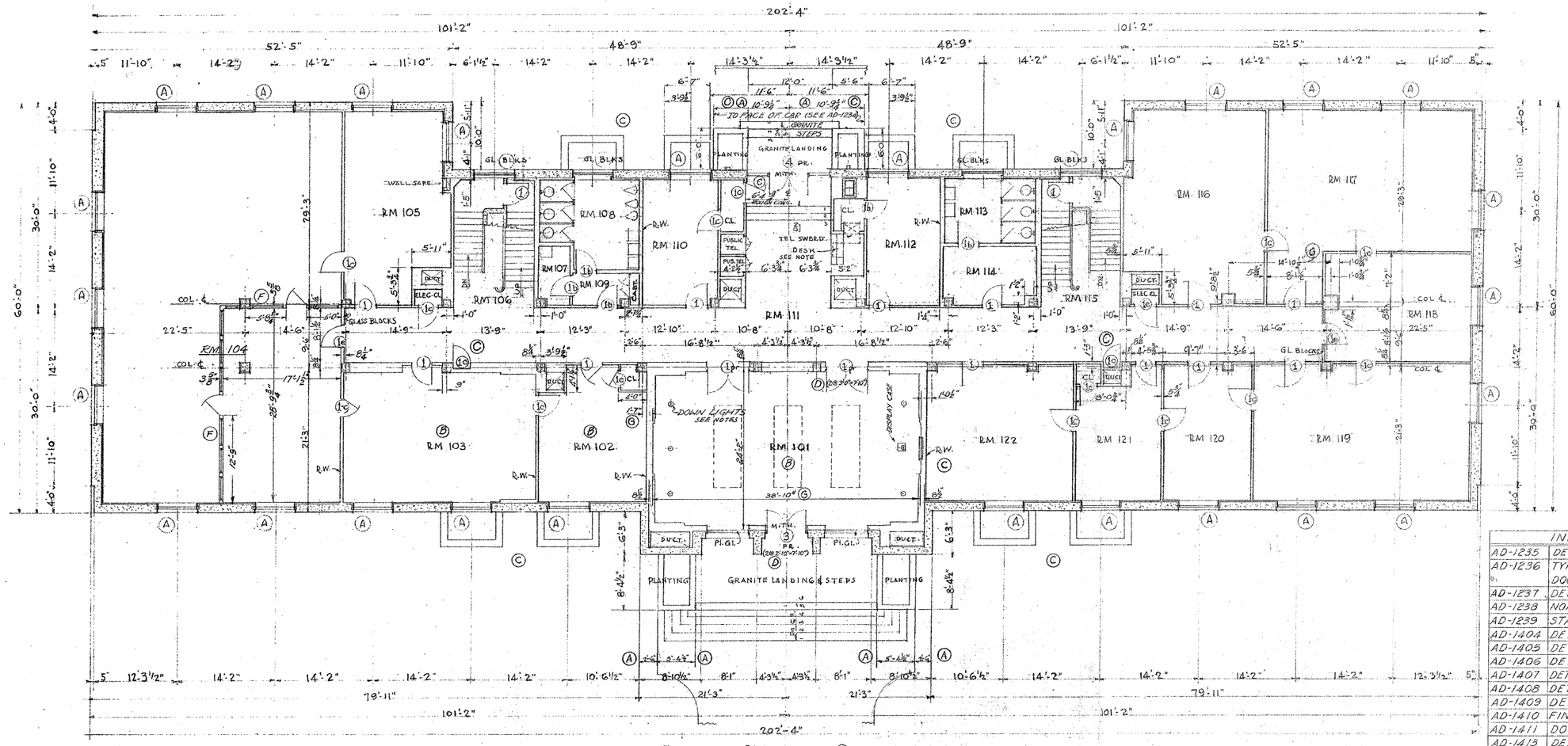
DR. FLM 7-1-42
CH. FLM 7-2-42
APP. 7-2-42
APP.

AD-711C

A 630-4 2 0 1 A - 1 - 1 - 2 711

SCALE 1/8" = 1'-0"

AD-711



FIRST FLOOR PLAN

Scale 1/8" = 1'-0"

INDEX - DWGS.	
AD-1235	DETAILS - ROOM 101
AD-1236	TYP. WINDOW DETAILS & RM. 101
"	DOOR & WINDOW DETAILS.
AD-1237	DETAILS - RM. 102 & 103
AD-1238	NORTH LOBBY & TEL. BOOTH
AD-1239	STAIR DETAILS
AD-1404	DETAILS - RM. 201 & 223
AD-1405	DETAILS - RM. 201 & 223
AD-1406	DETAILS - RM. 202, -3, -4, -5
AD-1407	DETAILS - RM. 206, 220, -1, -2
AD-1408	DETAILS - RM. 219
AD-1409	DETAILS OF TOILETS
AD-1410	FINISH SCHEDULES
AD-1411	DOOR FRAMES
AD-1413	DETAILS - RM. 104 (F)

(E) FOR FINISH SCHEDULE SEE AD-1410

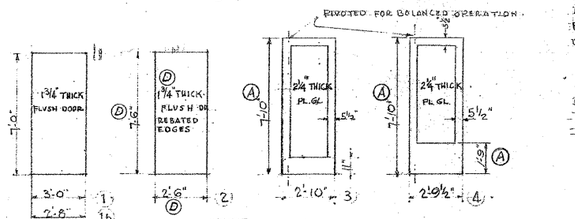
SCHEDULE OF ROOMS & INTERIOR FINISHES - 1st FLOOR

ROOM NAME	RM. NO.	FLOOR: CER. TILE	FLOOR: TERRAZZO	FLOOR: ASPHALT TILE	FLOOR: RUBBER TILE	FLOOR: ACOUSTIC PLAS.	FLOOR: PRECISION LIVING WOOD PARQUET	WALLS: CER. TILE	WALLS: STRUCTURAL GL.	WALLS: ACOUSTIC PLAS.	WALLS: ACOUSTIC TILE	WALLS: TYCO WEB BATE	WALLS: MARBLE DADO	WALLS: TYP. 1/4" & WOOD TRIM	WALLS: SOME STR. & WOOD TRIM	WALLS: CER. OR WALL MOULD.	WALLS: BULLTAN EQUIP.	WALLS: S.S. & S.	WINDOW TRIM	WINDOW SILL	DOORS, SASH & CONNECTING	PAINT: DOORS, SASH & CONNECTING	PAINT: HALLS, WALL PLAS.	MISCELLANEOUS
RECEPTION ROOM	101		X																					LEATHER @ NORTH & SOUTH WALLS (B)
ADMINISTRAT. ASS'T.	102			1																(C)				(B)
ADMINISTRATN OFF.	103			1																				(B)
CLERICAL & FILES	104			2													B	B	B	E	B			
MAILING & MIMEO.	105			2		X											B	B	B	E	B			
STAIRWAY	106																		D	E				
JANITOR CLOS.	107	X						X										B	B	E				5'-0" HIGH WAIN/2 SHVS & HOOKS TRIP CEIL 10'-0"
MEN'S TOILET	108	X						X											B	E	B			STR. GL. & PLAS. WINDOW REVEAL
ANTE ROOM	109	X						X											B	E	B			TILE BASE/GL BLOCKS FACING RM 108/CEIL. 10'-0"
COORDINATN OFFICE	110			2													B	B	B	E	B			
CORRIDOR	111		X																D	E				GL Block panels at ends; Furr Ceil. to 10'-0"
CONFERENCE RM	112			2													B	B	B	E	B			
WOMEN'S TOILET	113	X						X											B	E	B			STR. GL. & PLAS. WINDOW REVEAL
REST ROOM	114	X						X											B	E	B			GL. BLKS FACING RM 113/CEIL. HGHT 10'-0"
STAIRWAY	115																		D	E				
DUPLICATING MACHINES	116			2													B	B	B	E	B			ACOUS. PL. ON WALLS ABOVE DOOR HEAD
COST & BUDGET	117			2													B	B	B	E	B			
BID OPENING	118			2													B	B	B	E	B			
PURCHASING CLERK	119			2													B	B	B	E	B			
PURCHASING OFFICE	120			2													B	B	B	E	B			
PERSONNEL OFFICE	121			2													B	B	B	E	B			
PERSONNEL CLERKS'	122			2													B	B	B	E	B			
CLOSETS OFF ROOMS					1	2														E				SHELF-ROD & HOOKS TRIP/5 SHVS. IN 109-212
CLOSETS OFF CORRIDOR			X																	E				

SEE FINISH SPEC.

FIN (A) - EXT. FRAMES - SASH - TRIM EXCEPT - EXT. DOORS.
FIN (C) - SASH RUNS - WOODWORK - IN BASEMENT - ALL WOODWORK NOT OTHERWISE INDICATED.
FIN (D) ALL CORRIDOR DOORS - BOTH SIDES
FIN (F) EXTERIOR DOORS - BOTH SIDES.

DOOR SCHEDULE (TYPICAL ALL FLOOR)



NOTE:
DOORS TO CABINETS IN ROOMS 109 & 212 SHALL BE 1'-8" x 7'-0" x 1 3/4" FLUSH VENEERED DOORS - 2 PR. REQ'D.
TOILET ENCLOSURE DOORS SHALL BE 1 3/4" FLUSH VENEERED DOORS.
PROVIDE APPROVED 3'-0" x 3'-0" x 1 3/8" ACCESS DOORS FROM BASEMENT TO UNFINISHED AREAS UNDER 1st FLOOR WINGS - 2-REQ'D

DIMENSION NOTES.

(E) ALL DIMENSIONS ARE TO THE ROUGH WALLS OR STUDS.

ABBREVIATIONS.

M.TH. - MARBLE THRESHOLD
B.B. OR BLK BRD - BLACKBOARD
GL. BLKS. - GLASS BLOCKS.

PATHING NOTES: TYP. FOR 1st & 2nd FLS.

GYPSUM LATH - OUTSIDE WALL FURRING
" " FURRING AROUND COLUMNS.
" " CORRIDOR SIDE OF CORRIDOR PARTITIONS

NOTE: FOR ADDITIONAL DETAILS OF,

TOILET ROOMS, SEE AD-1409
RECEPTION ROOM (101) SEE AD-1235, 1236, (B)
TELEPHONE BOOTHS, SEE AD-1238
SWITCHBOARD DESK, SEE AD-1238
ELECTRICAL CLOSETS, SEE AD-775 (A)
STAIRS, SEE AD-1239
DOWNLIGHTS SEE AD-1235 & 1236
ROOMS 102, 103, SEE AD-1237
PLUSH WOOD DOORS IN PANELED RMS. SHALL HAVE GRAIN MATCHING ADJACENT PANELS EXCEPT PAINTED DOORS. (E)
ALL LEATHER AS NOTED FOR ROOM #101 (B) SHALL BE MOUNTED ON PLYWOOD
R.W. INDICATES ROCK WOOL FILLED PARTITIONS
FOR FINISHES NOT GIVEN IN SCHEDULE SEE SPECIFICATIONS (F)
FOR ADDITIONAL DETAILS OF ROOM #104 SEE AD-1413 (F)

(E)

G	9/11/43	1'7" WAS 1'-0" - 38'10" WAS 38'-4 1/2" 14'-10 1/2" WAS 14'-1 1/2" IN RM 117.	RRB
F	2/4/43	PARTITION ADDED TO ROOM 104 - NOTE ADDED	CFM
E	1/28/43	DIMENSIONS CHANGED. NOTES ADDED. FIN SCHEDULE REMOVED	SJM
D	12/22/42	DOOR (B) REVISED, DIMEN'S ADDED	RRB
C	11/1/42	FIRE HOSE CLOSETS AND DIMENSION 1'-3" ADDED. 10'-9 1/2" WAS 10'-9 1/4" - NOTE ADDED. MARBLE THRESHOLDS @ INTERIOR DOORS DELETED. DIMENSIONS & NOTE DELETED; NOTE ADDED; 6'-4 1/2" ADDED; FINISH NOTATIONS DELETED.	EL/FM
B	7/16/42	(12) DOOR WAS (13). ROOMS 101, 102, & 103 REVISED CORNER LIGHTS REMOVED; LIGHT COVES REMOVED; SIDE PANELS ADDED.	EL/M CFM
A	7/16/42	DIMENSION 10'-9 1/4" ADDED. DOORS (5) & (7) -7'-10" WAS 7'-6" & 1'-9" WAS 1'-1". AD-775 WAS AD-771 FRONT & REAR ENTRANCES REVISED - DIMENSIONS ADDED	RS/H FM

REVISIONS

ADMINISTRATION BUILDING
FIRST FLOOR PLAN

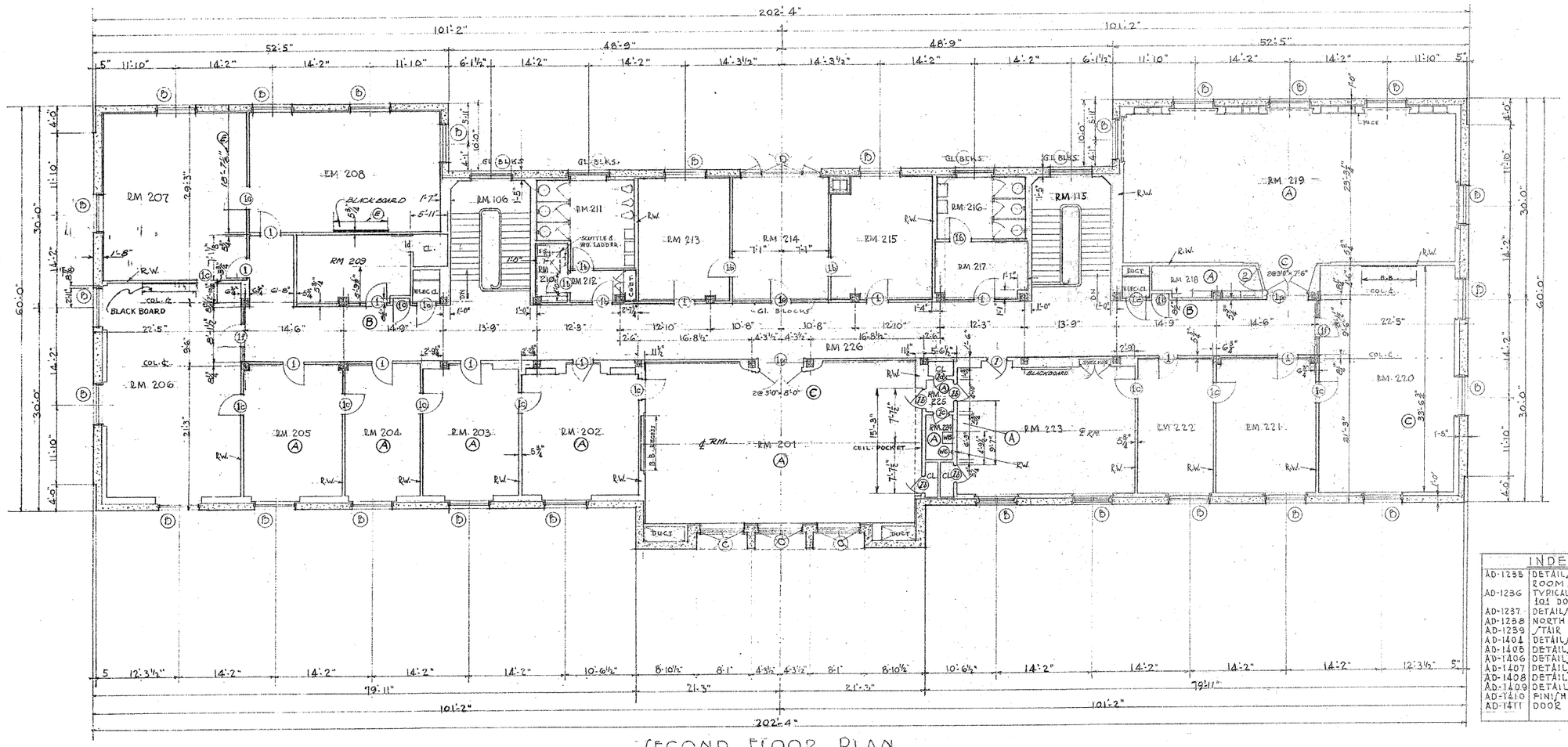
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

DR. / CH. / APPR. / APPR. / APPR.

AD-712G

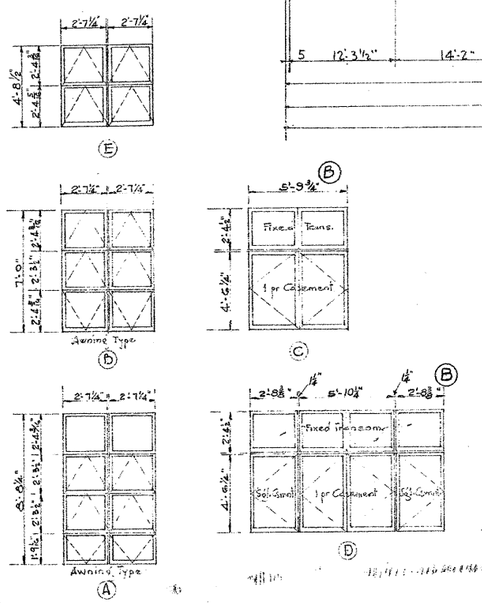
200-1201A-113

SCALE 1/8" = 1'-0"



SECOND FLOOR PLAN

Scale 1/8" = 1'-0"



WINDOW SCHEDULE

1/4" = 1'-0"

(D) NOTE: FOR FINAL SCHEDULE, SEE AD-1410

SCHEDULE of ROOMS & INTERIOR FINISHES - 2nd FLOOR

ROOM NAME	RM. NO.	CER. TILE	FLOORS: TERRAZZO	FLOORS: ASPHALT TILE	FLOORS: HARDWOOD, OAK	FLOORS: ACOUSTIC, OAK	FLOORS: TRACRAL MOLDING	WALLS: WOOD PANELS	WALLS: CERAMIC TILE	WALLS: STRUCTURAL GL.	WAINSCT: HARDWOOD PLAS.	CEILING: ACOUSTIC PLAS.	CEILING: ACOUSTIC TILE	TRIM: TILE WOOD BASE	TRIM: MARBLE BASE	TRIM: TILE PLAS. BASE	TRIM: CPR. TRIM & WOOD BASE	TRIM: GL. BLKS. & PLAS. WINDOW REVEALS	TRIM: GL. BLKS. & WOOD REVEALS	TRIM: DOOR & WINDOW TRIM	PAINT: OTHER WOOD TRIM	PAINT: WOOD & PLAS.	PAINT: DOORS & SASH	PAINT: CEILINGS	MISCELLANEOUS
COMMITTEE ROOM	201		1		X						X		X								B				
DIRECTOR'S ROOM	202		1		X						X		X												
ASS'T. DIVISION CHIEF	203		1		X						X		X												
SECRETARY	204		1		X						X		X												
DIVISION CHIEF	205		1		X						X		X								B				
CONFERENCE ROOM	206		1		X						X		X												
THEORETICAL AERO.	207		2		X						X		X				B	B	B	E	B				
EDITORIAL	208		2		X						X		X				B	B	B	E	B				
PROJECTION ROOM	209		2		X						X		X						B	E	B				
STAIRWAY	106				X						X		X						D	E					
JANITOR'S CLOS.	210	X			X				X		X		X						B	E	B				5'-0" HIGH WAIN./25 SHS & WOOD STRIP/CEIL. 10'-0"
MEN'S TOILET RM	211	X			X				X		X		X						B	E	B				STR. GL. & PL. WINDOW REVEAL.
ANTE ROOM	212	X			X				X		X		X						B	E	B				TILE BASE GL. BLKS. FACING RM 211/CEIL. 10'-0"
MANUFACTURERS	213		2		X						X		X				B	B	B	E	B				
LIAISON	214		2		X						X		X				B	B	B	E	B				
MANUFACTURERS	215		2		X						X		X				B	B	B	E	B				
WOMEN'S TOILET	216	X			X				X		X		X						B	E	B				STR. GL. & PLAS. WINDOW REVEAL.
REST ROOM	217	X			X				X		X		X						B	E	B				GL. BLKS. FACING RM 216, CEIL. HGHT. 10'-0"
STAIRWAY	115				X						X		X						D	E					
LIBRARY UTILITY RM.	218		(B) 1		X						X		X						D	E	D				
LIBRARY	219		1		X						X		X												
CONFERENCE RM	220		1		X						X		X								B				
DIVISION CHIEF	221		1		X						X		X												
SECRETARY	222		1		X						X		X												
ENGINEER IN CHARGE	223		1		X						X		X												Furr Ceiling to 8'6"
TOILET ROOM	224	X			X				X		X		X								B				Furr Ceiling to 8'6"
PASSAGE	225		1		X						X		X						D	E					GLASS BLOCKS RM-214 -
CORRIDOR	226				X						X		X												FINISH SAME AS ON 1ST FLOOR.
CLOSETS																									

MISCELLANEOUS:
FIN. (A) EXT. FRAMES, SASH, TRIM EXCEPT: EXT. DOORS.
FIN. (B) SASH RUNS, WOODWORK IN BASEMT. ALL WOOD WORK NOT OTHERWISE INDICATED
FIN. (D) ALL CORRIDOR DOORS BOTH SIDES.
FIN. (F) EXTERIOR DOORS BOTH SIDES - SEE PAINTING SPECIF.

DIMENSION NOTES

ALL DIMENSIONS ARE TO THE ROUGH WALLS OR STUDS. (D)

ABBREVIATIONS

M.TH. - MARBLE THRESHOLD.
B.B. OR BLK BRD. - BLACKBOARD.
GL. BLKS. - GLASS BLOCKS.

NOTE: FOR ADDITIONAL DETAILS OF,
STAIRS - SEE AD-1239 (D)
TOILET ROOMS - SEE AD-1409 (D)
ROOMS 201, 223, 224 & 225 - SEE AD-1404 & 1405 (D)
LIBRARY - SEE AD-759
ELECTRICAL CLOSETS - SEE AD-775
BLACKBOARD - SEE AD-1228 (D)
ROOMS #202 - 206 - SEE AD-1230
ROOM #219 - SEE AD - 1231
ROOMS #220 - 222 - SEE AD-1229

FOR FINISHES NOT GIVEN IN SCHEDULE (B)
SEE SPECIFICATIONS.
R.W. - INDICATES ROCK WOOL INSULATION (D)

INDEX - DRAWINGS

AD-1235	DETAIL/ - ENTRANCE LOBBY - ROOM 101
AD-1236	TYPICAL WINDOW DETAIL/ & ROOM 101 DOOR & WINDOW DETAIL/
AD-1237	DETAIL/ - RM/ 102 & 103
AD-1238	NORTH LOBBY & TEL. BOOTH
AD-1239	/STAIR DETAIL/
AD-1404	DETAIL/ - RM/ 201 & 223
AD-1405	DETAIL/ - RM/ 201 & 223
AD-1406	DETAIL/ - RM/ 202, 203, 204 & 205
AD-1407	DETAIL/ - RM/ 206, 220, 221 & 222
AD-1408	DETAIL/ - RM. 219
AD-1409	DETAIL/ OF TOILETS/
AD-1410	FINISH /SCHEDULE
AD-1411	DOOR FRAMES

E	4/11/42	BLACKBOARD ADDED IN RM. 208 (13 1/8" - 7 7/8" WAS 10'-10 3/8" IN RM. 207)	DR.
D	1/26/42	DIMENSIONS - GENERAL REVISIONS AND CORRECTIONS	H.A.
C	12/29/41	DIMEN'S. ADDED, DIMEN. CORRECTED	RRB
B	11/7/41	FIRE HOSE/CLOSET'S ADDED IN ROOM 209 & 218; 86'-5 21/64" ADDED; 5'-0 1/4" & 2'-0" DELETED. 2'-8 3/8" WAS 2'-3 3/8"; 5'-10 1/4" WAS 5'-7 3/8"; 5'-3 3/8" WAS 5'-0 3/8"; 1 3/8" ADDED; MARBLE THRESHOLDS @ INTERIOR DOORS DELETED; 1 WAS 2; NOTE ADDED, FINISH NOTATIONS DELETED.	E.J.M. RRB
A	9/24/41	ROOMS #201, 202, 203, 204, 205, 206, 218, 219, 223, 224 & 225 REVISED	

REVISIONS

ADMINISTRATION BUILDING
SECOND FLOOR PLAN

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

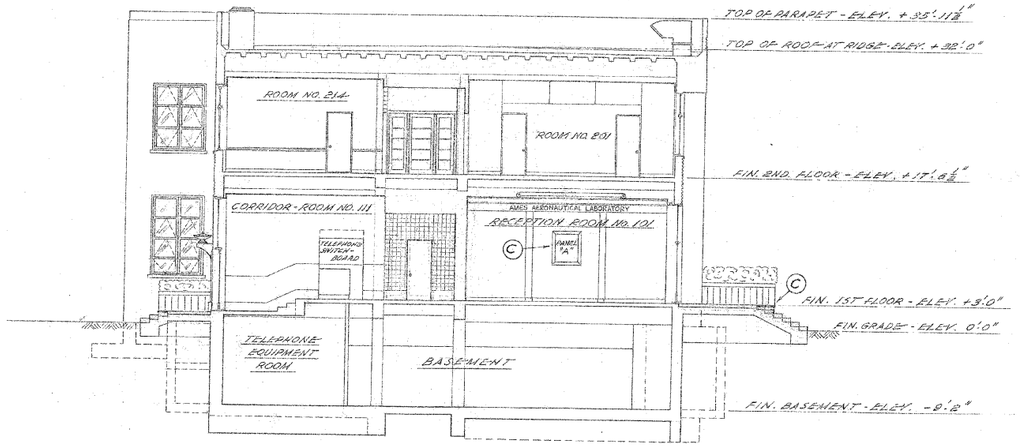
DR. 8/1/41 — 12-2-41
CH. 8/4/41 — 12-2-41
APP. 8/7/41 — 12-2-41

AD-713E

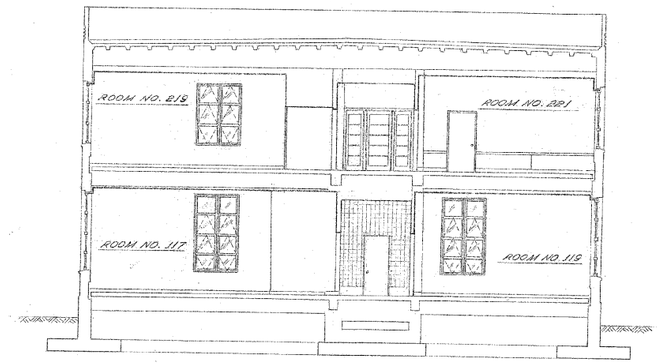
SCALE 1/8" = 1'-0"

AD-713

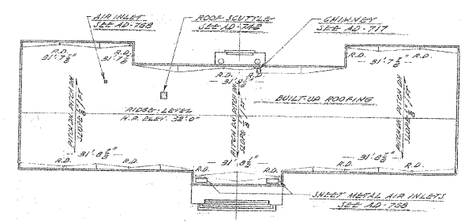
Encl. PH-4



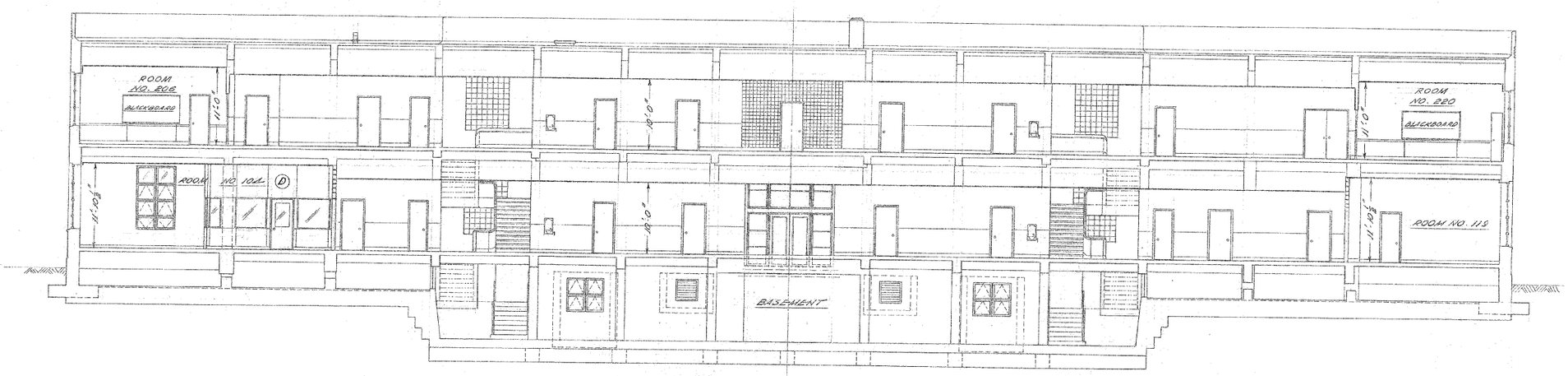
TRANSVERSE SECTION THRU CENTER OF BUILDING
LOOKING EAST



TRANSVERSE SECTION THRU EAST WING



ROOF PLAN - SCALE: 1/32" = 1'-0"



LONGITUDINAL SECTION

D	7/6/42	PARTITION ADDED - ROOM 104	HRC
C	7/7/42	TRANSVERSE SECTION CORRECTED	RRB
B	7/24/42	CORRECTED TO DATE	RB
A	1/8/38	CORRECTED TO DATE	HRC

REVISIONS

ADMINISTRATION BUILDING
LONGITUDINAL & TRANSVERSE SECTIONS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

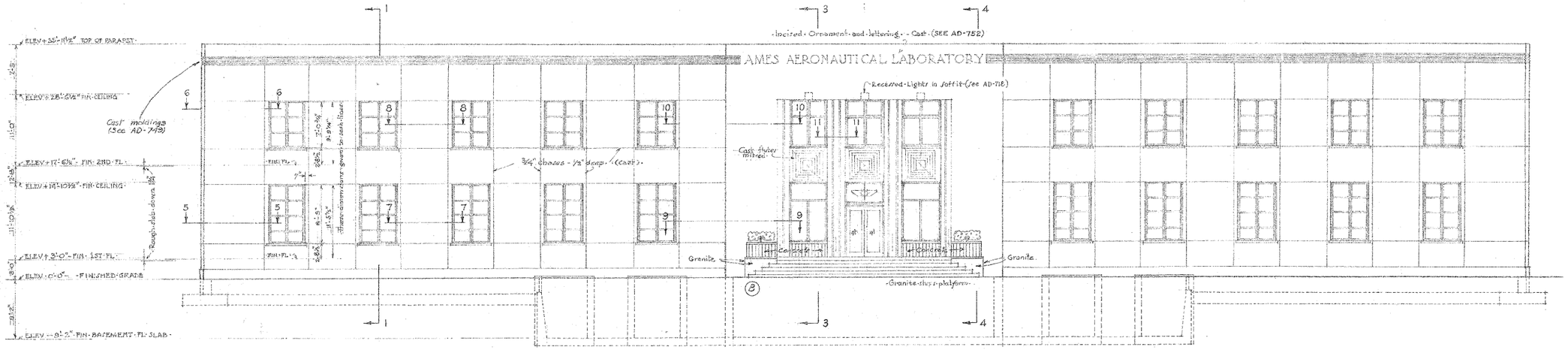
DR.	HRC	7-3-42
CK.	RB	7-6-42
APP.		7-6-42
APP.		

AD-715D

AD-715

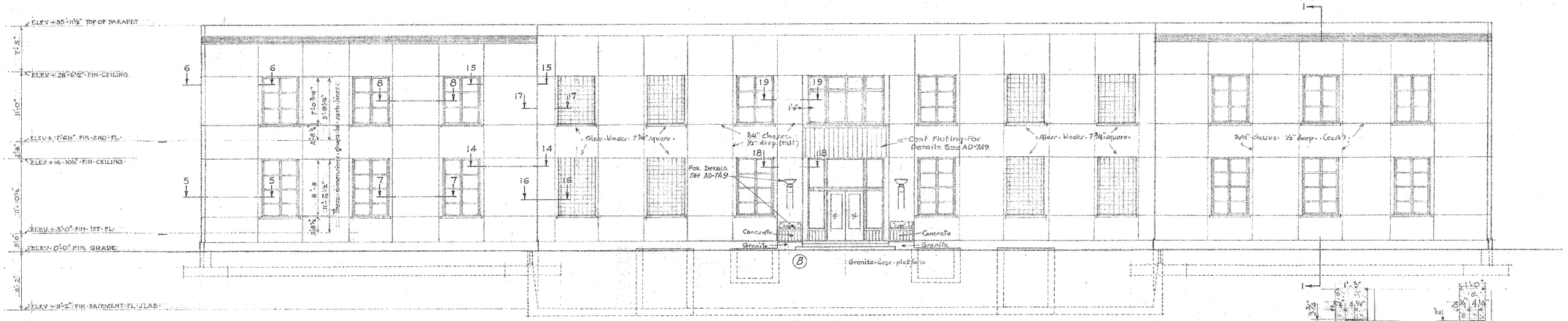
900-42011A-1-6

PH-4



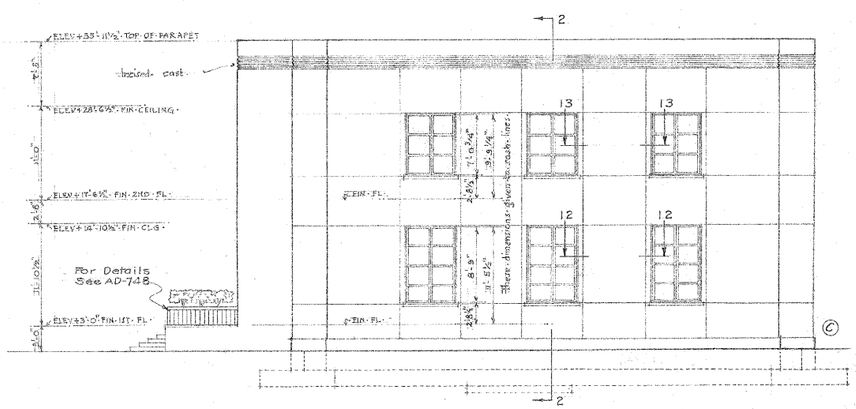
FRONT ELEVATION (SOUTH)
Scale 1/8"=1'-0"

NOTE:
FOR SEC'S "1-1", "2-2" SEE AD-716
"3-3", "4-4" SEE AD-717
"5-5"—"13-13" SEE AD-718
"14-14"—"19-19" SEE AD-719

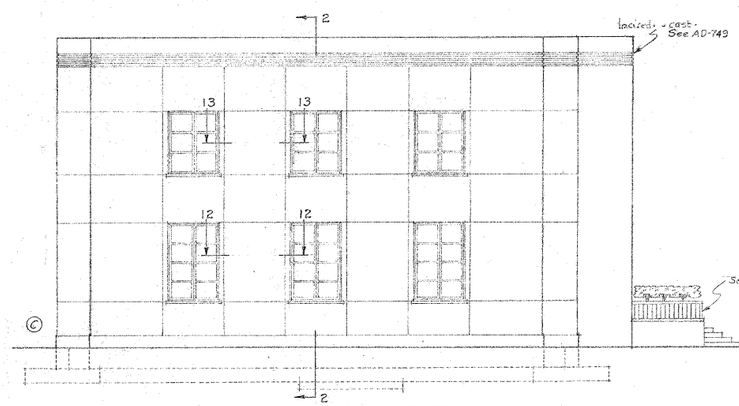


REAR ELEVATION (NORTH)
Scale 1/8"=1'-0"

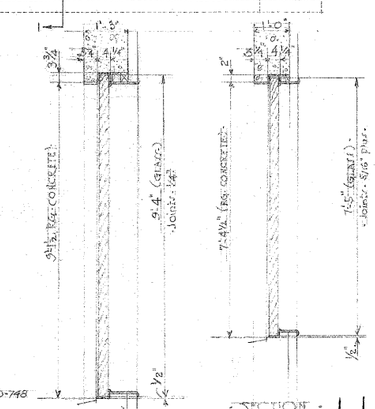
NOTE:
FOR ADDITIONAL DETAILS OF GLASS BLOCK PANELS SEE AD-760



END ELEVATION (EAST)
Scale 1/8"=1'-0"



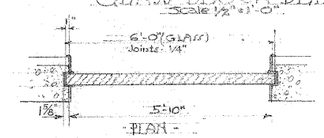
END ELEVATION (WEST)
Scale 1/8"=1'-0"



SECTION FIRST STORY

SECTION SECOND STORY

GLASS BLOCK DETAILS
Scale 1/2"=1'-0"



PLAN

C	11/14/42	E & W. END ELEVATIONS CORRECTED	PH
B	1/14/42	ENTRANCE STEPS REVISED.	RRG
A	7-8-40	REVISED TO DATE	TSJ

REVISIONS

ADMINISTRATION BUILDING ELEVATIONS

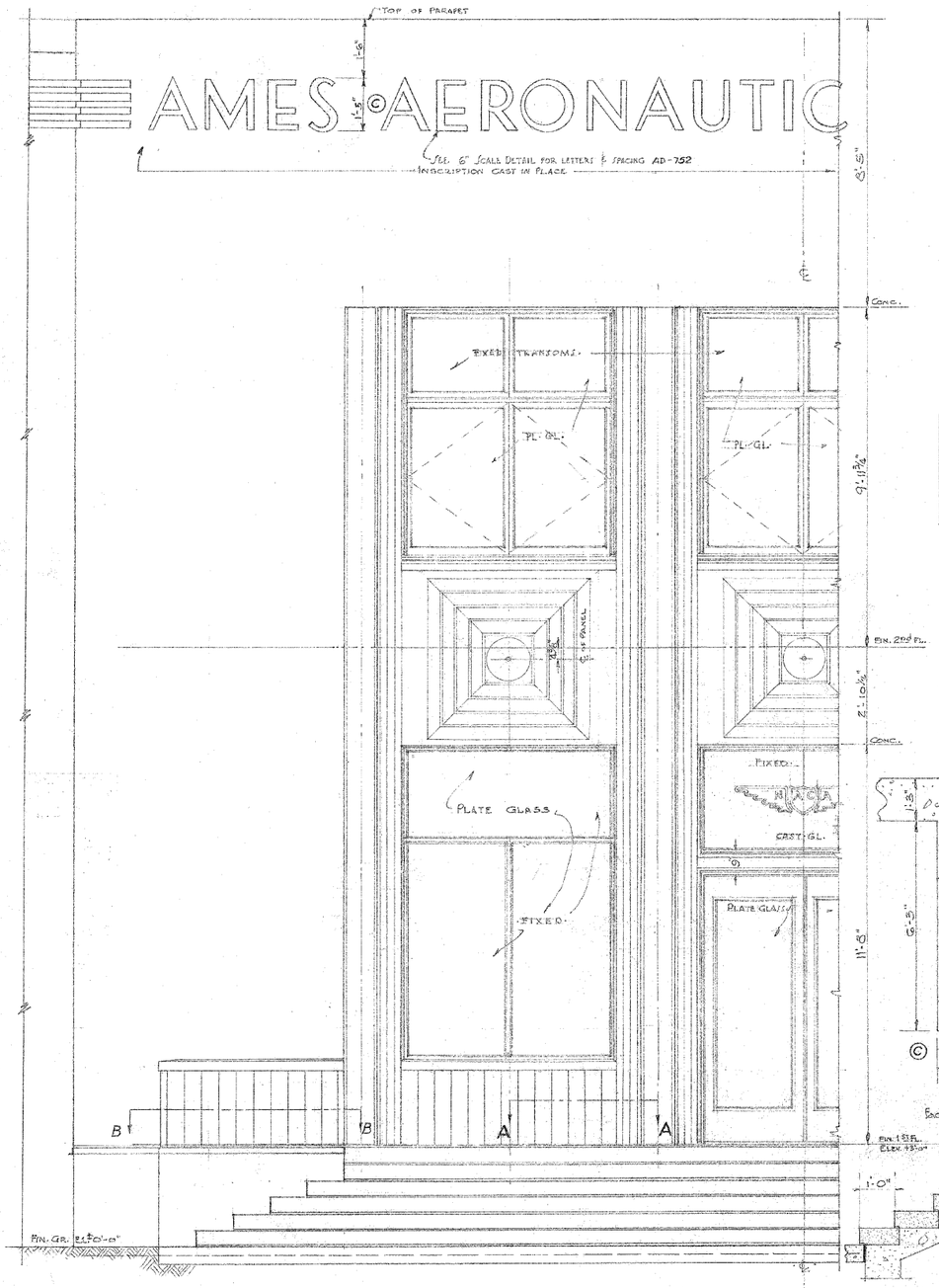
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

DR. 7-7-40
CH. 7-8-40
APR. 7-7-40
APR.

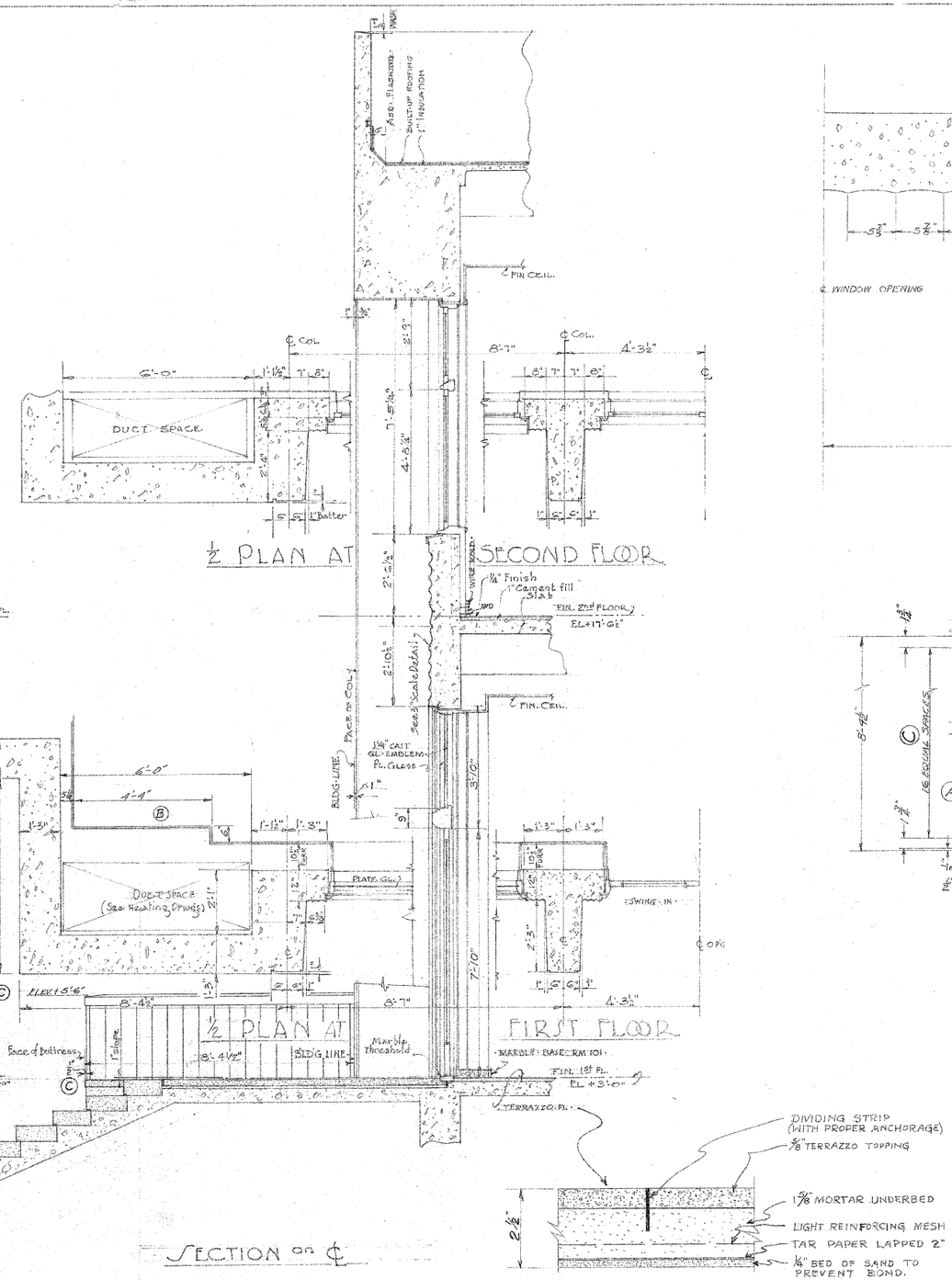
AD-714C

SCALE AS NOTED

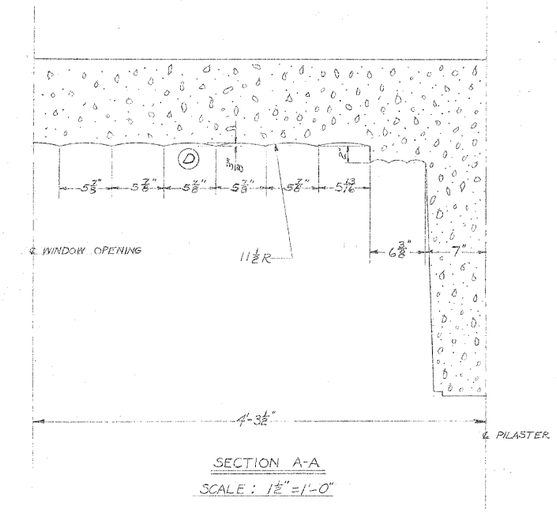
PH-4



HALF ELEVATION

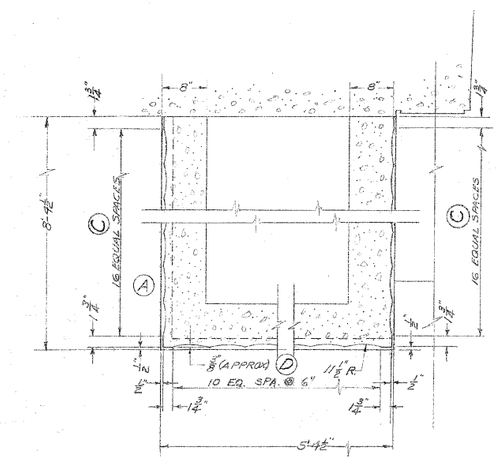


SECTION ON ¢



SECTION A-A

SCALE: 1½" = 1'-0"



SECTION B-B

SCALE: 1" = 1'-0"

½" SCALE DETAILS AT MAIN ENTRANCE

D	7/24/42	SECTION A-A CORRECTED ⅜ (APPROX) WAS ⅞ IN SEC. B-B.	LEP
C	1/16/42	1⅝" WAS 1⅞"; 16 EQUAL SPACES WAS 17 SPACES; 1⅞" DIMENSION & ELEV. +5'-6" ADDED 1'-5" WAS 1'-5½"; ½" WAS 1" STEPS CORRECTED.	EJM TR.R.B
B	8/24/42	½ PLAN AT FIRST FLOOR CORRECTED	R.L.N.
A	7/16/42	SEC. A-A & SEC. B-B ADDED FRONT ENTRANCE DETAILS REVISED. (ELECTROLIER REMOVED, ORNAMENTAL BAND & LETTERING REVISED, PLANTING AREAS REVISED, DOOR HEIGHT WAS 7'-6", TRANSOM MULLION IN SIDE LIGHTS REMOVED, LIGHT RECESSES ADDED)	R.L.N.

REVISIONS.

ADMINISTRATION BUILDING
FRONT ENTRANCE DETAILS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

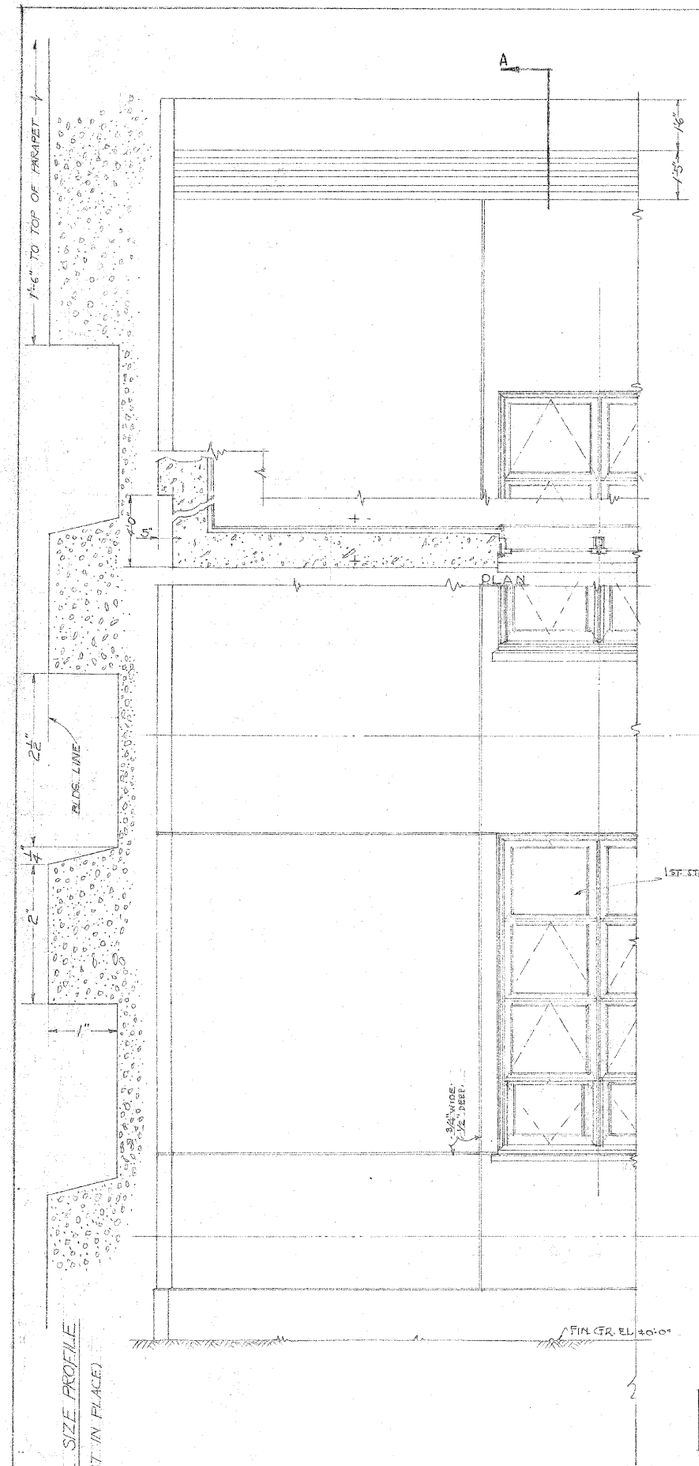
DR. 2-28-42
CH. 2-28-42
APR. 7-8-42
APP. 7-8-42

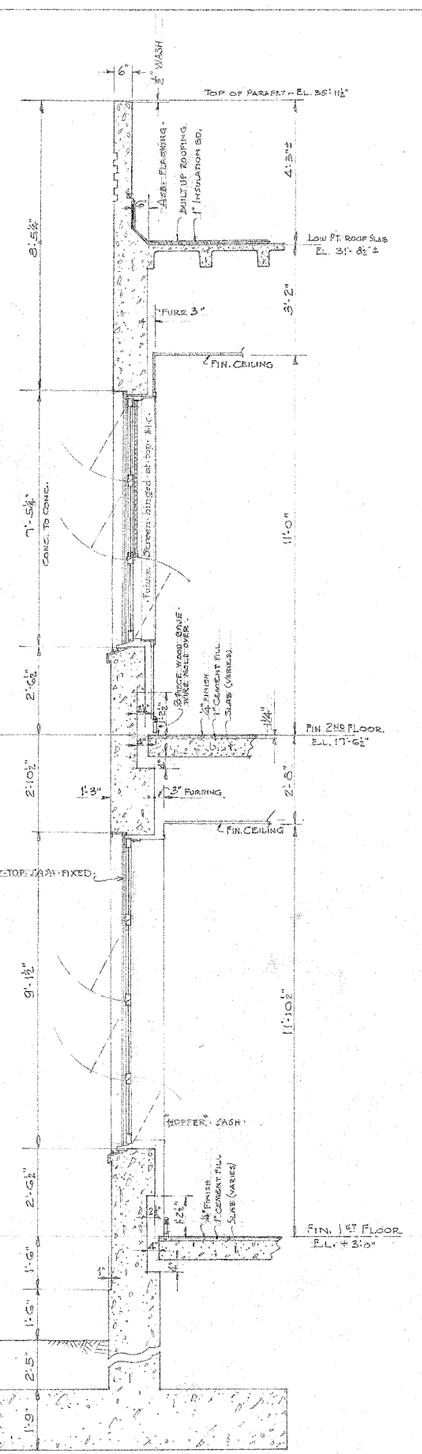
AD-748D

SCALE AS NOTED

AD-748

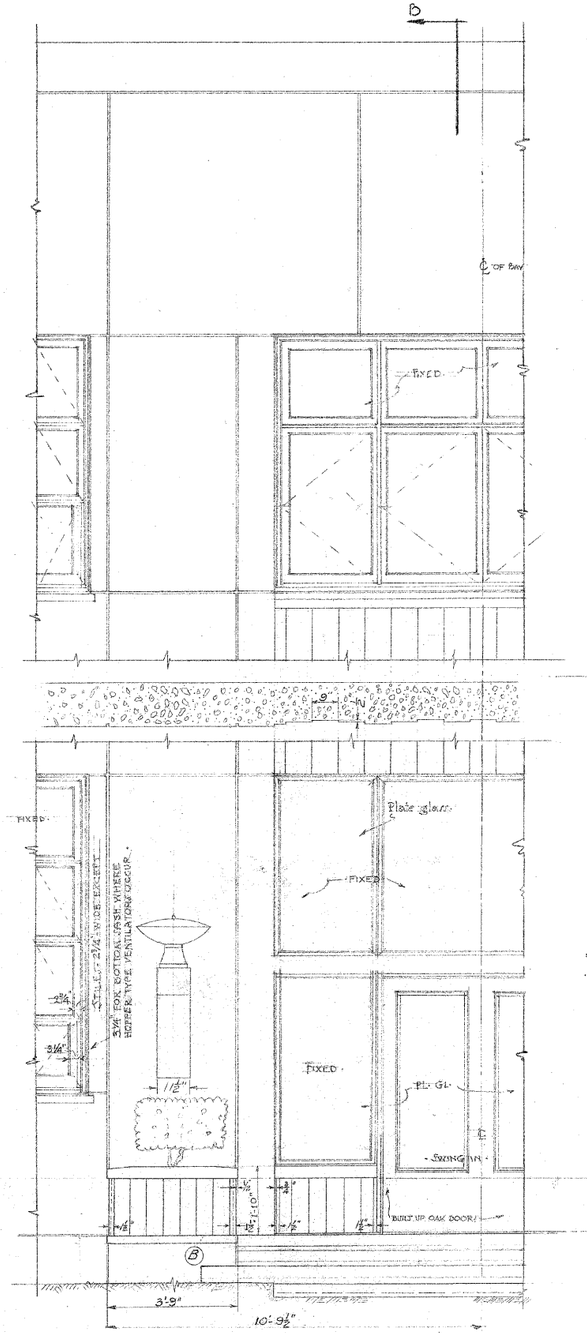
PH-4





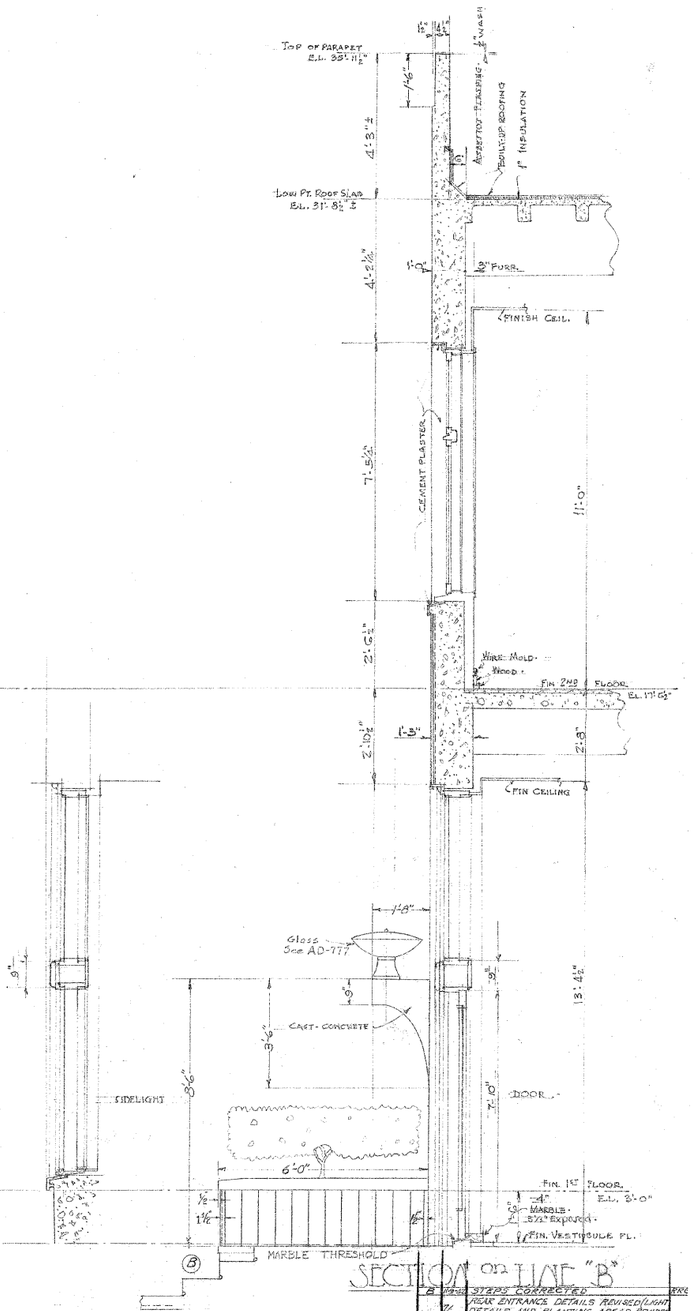
PARTIAL ELEVATION Scale ½" 1'-0" SECTION ON LINE "A"

TYPICAL SPANDREL



PARTIAL ELEVATION

½" SCALE DETAILS AT NORTH ENTRANCE



SECTION ON LINE "B"

B	7-10-45	STEPS CORRECTED	
A	7-16-45	REAR ENTRANCE DETAILS REVISED, LIGHT DETAILS AND PLANTING AREAS REVISED, SPANDREL DECORATIVE DETAIL ALTERED, SIDE LIGHT MUNTIN BAR REMOVED, DOOR HEIGHT REVISED TO 7'-10"	

REVISIONS

ADMINISTRATION BUILDING
REAR ENTRANCE DETAILS

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS
AMES AERONAUTICAL LABORATORY
MOFFETT FIELD, CALIFORNIA

DR.		5-25-45
CH.		7-3-45
APP.		7-3-45
APP.		

AD-749 B

SCALE

AD-749

PH-4

749

NASA Ames Research Center
Building N-200 Reuse Guidelines

Appendix 7. NRHP Nomination

SETTING

Situated at the southern end of San Francisco Bay, the National Aeronautics and Space Administration (NASA) Ames Research Center borders the towns of Sunnyvale and Mountain View, near the heart of Silicon Valley. The Ames facility occupies approximately 430 acres of land and hosts a number of other federal, civilian, and military resident agencies on the adjoining 1,500-acre former United States Naval Air Station, now known as Moffett Federal Airfield.

The Ames Administration Building is located at the southwest corner of Moffet Field, centrally placed in Bush Circle, directly north of Arnold Avenue. The building measures 202' long by 60' wide totaling approximately 12,120 square feet per floor. The Administration Building contains one full size basement and two above ground floors. The total square footage of the building is approximately 36,360 square feet.

HISTORIC APPEARANCE OF THE ADMINISTRATION BUILDING

Historic photographs of the Administration Building reveal that the configuration and exterior building materials have remained unchanged from the time of original construction. Although the setting of the administration building has changed, the types of changes that have occurred are consistent with the original uses employed at the site. The addition of other Ames buildings in close proximity to the Administration Building has enhanced the feel of the building and do not detract from the historic appearance of the building or its surrounding environment.

MODIFICATION HISTORY OF THE ADMINISTRATION BUILDING

The Administration Building has undergone several phases of interior alterations and has also undergone minor exterior modifications as a result of the change in the regulatory framework governing the facility. Exterior changes include minor landscaping changes through the addition and removal of various trees and hedges around the building, and a change in signage over the entrance of the building. Originally the building displayed incised lettering reading "Ames Aeronautical Laboratory." This lettering, incised to a depth of 2 ½ inches was removed in November and December of 1958 and replaced with three panels of pre-cast concrete, each four feet long, and inscribed with "Ames Research Center." The font employed in the second sign was the same font originally used. Overall, in form, materials and details, the exterior portion of the Administration Building retains its historic appearance.

Building N-201, the Ames Auditorium is a two-story building with basement and it is attached to the rear of the Administration Building through a loggia. Construction of Building N-201 began on May 20, 1943 and was completed on February 26, 1944.

By the early 1970s, building N-200 had been changed several times and in approximately 1972, the interior of the Administration Building's basement, first, and second floors were being upgraded as part of a broad rehabilitation program implemented at the Ames facility.

The modifications specific to the Administration Building were split into six separate jobs in order to allow the building to be used while construction took place inside. The largest project involved major changes to the building's first floor and basement, which was upgraded to house the Center's communication functions. The project cost $250,000 and was completed in approximately 1972. An additional modification project consisted of changes designed to provide integrated space for each of the Center's directorates and for several of the Director's staff offices. This project was completed in approximately 1974, and upon completion of construction, the cost of the Administration Building modification projects totaled approximately $500,000.

Within the past five years additional interior modifications were completed in the Administration Building. The first floor lobby was completely modernized including the addition of an elevator, and several second floor offices and meeting rooms were renovated.

As a result of the interior modifications, a majority of the original interior finishes once featured in the Administration Building are no longer extant. These modern deco interior finishes include blonde wood cabinetry pieces and wall panels, furniture, and lighting elements. The first floor lobby of the building has been completely remodeled through the removal of the original wall finishing materials and interior furnishings in order to provide the space with an updated contemporary appearance. The modification to the interior spaces of the building has resulted in a loss of interior integrity to the Administration Building.

CURRENT APPEARANCE OF THE ADMINISTRATION BUILDING

The Administration Building was designed in a stripped classical style with an observable influence by the International and Streamline Moderne styles. The two-story, flat roofed building has a basement and a general rectangular shaped plan. The symmetrically designed building is divided into three sections with a center section flanked by a wing on each side. Each wing measures 79' in length and each center section measures 42'

in length with return walls that extend out approximately three feet from each wing. A similar configuration is present on the rear, north elevation. Exterior building materials consist of exposed smooth concrete for the exterior walls, granite for the front and rear entrance steps and landing, fluted concrete for the planters on the front entrance landing, and 7 ¾" glass block employed on the north elevation.

Features of the front, south elevation include a vertically subdivided center portion with three recessed sections separated by two narrow concrete vertical partitions that span from the entry landing to the second floor windows. The first floor contains a set of double entry doors with a single-pane transom window above. Flanking each side of the entry doors is a fixed, single pane glass window with a T-shaped sash pattern. Three fluted pre-cast concrete panels are located above the first floor windows and entry doors. Each panel displays a series of mitred squares descending in size from the largest outside square to the smallest center square. The third floor center section features three additional windows, with one window per section. Each of the recessed windows features a single canned light located in the soffit. Three pre-cast concrete panels are located above the second floor windows and display incised lettering stating "AMES RESEARCH CENTER." Incised grooves (four) are located at the top of the exterior wall. These grooves span around the perimeter of the building.

The south elevation walls of the Administration Building's east and west wing each feature five aligned rectangular shaped fixed windows with a six-pane sash pattern. Some of the original window materials have been replaced. Incised grooves are also present on the wing walls. In addition to the series of grooves at the roofline, grooves incised at varying levels of the two facades create a grid pattern comprised of square and rectangular sections between the lines.

The east and west elevations feature the exact configuration and each elevation wall measures 60' in length (building depth) and features six aligned rectangular shaped casement windows with a six-pane sash pattern, three on the first floor and three on the second floor. Incised lines similar to those displayed on the south elevation exterior wall are present here.

The presentation of the rear, north elevation is similar as that described for the front, south elevation. The rear façade of the administration building is divided into three sections, with a central portion flanked on either side by a wing. Contrary to the south elevation, the north elevation center section wall is slightly recessed with the wing walls extending slightly past the center portion.

The northeast wing wall features six aligned windows with a six-pane sash pattern, three on the first floor and three on the second floor. The incised groove patterns are displayed in this facade. Features of the center portion include a continuation of the incised groove pattern; twelve aligned rectangular shaped windows, with six on the first floor and six on the second floor, some of which are filled in with glass block pieces rather than an operable glass window; a large fixed twelve-pane sash window with a pre-cast fluted concrete panel below; and a concrete loggia placed between the Administration Building and the front entrance of the Ames auditorium building's south elevation. The loggia employs basic post and lintel construction and features the incised groove pattern found along the upper portion of the administration building. An elevator shaft is located on the northeast corner of the building and was installed as a result of the Americans with Disabilities Act (1990). The exterior walls of the elevator shaft are covered with white stucco.

Precisely manicured hedges are located around the south, east and west facades of the Administration Building and beyond the hedges is an open grass lawn containing several trees and bushes located throughout.

INTEGRITY

The exterior of the Ames Administration Building retains a good degree of integrity according to the seven aspects of integrity defined by National Register 36: location, design, setting, materials workmanship, feeling, and association. The building remains at its original historic location. The building's original stripped classical design with Streamline Moderne elements remains intact. The current setting of a research facility with various buildings and structures surrounding the building is consistent with the original setting of the Administration Building. The historic materials originally employed on the exterior portions of the building are extant today. The workmanship of the building is still evident in the exterior, and the feeling or historic sense of the administration building is articulated through its form and modern, stripped classical details and through its current use.

Although the overall floor plan has been maintained, the various modification projects to the Administration Building through the past six decades have resulted in a loss of interior integrity.

SUMMARY OF SIGNIFICANCE

The Ames Administration Building, (N-200) is significant at the national level under National Register Criterion A and B for its use as the Ames Aeronautical Laboratory Administration Building (1942-1958), and later the Ames Research Center Administration Building (1959-present).

The building was originally constructed to house all administrative and office space for the Ames facility including the offices of the Director and Assistant Director, Center Management offices, Personal, Procurement, and Central Files. In addition, the building originally housed some research divisions, and the original library and cafeteria. The library and cafeteria are now located in their own buildings on the Ames campus.

The Administration Building put a face on the Ames facility for the rest of the United States and the World to see. In this sense, the Administration building represents the intellectual ideals that were developed and implemented at Ames that contributed to revolutionary advances in the areas of flight and aeronautical research and development by the United States. In addition, as the Administration building for the renowned Ames research campus, it housed Ames' management during the research facility's gradual transformation from an aeronautical laboratory emphasizing high-speed wind tunnel research to the diverse research facility it is today.

The Administration Building is eligible for inclusion on the National Register of Historic Places at a national level of significance under Criterion A (event) in the areas of space exploration and settlement (1943-present), and science and invention (1943-present), for its association with important events in the areas of aeronautical research and development.

The Administration Building is also eligible for inclusion on the National Register of Historic Places at a national level of significance under Criterion B (persons) for its association with four men who are integral to the history of the Ames Facility. These men are Smith De France, H. Julian Allen, John F. Parsons, and Harry J. Goett. The accomplishments of these four men left an indelible mark on the history of the Ames Research Center and in the field of aeronautics.

HISTORICAL BACKGROUND

The NASA Ames Research Center was initially founded on December 20, 1939, as an aircraft research laboratory by the National Advisory Committee on Aeronautics (NACA), the forerunner of NASA. Ames has played a pioneering role in science and technology over six decades. The center was named for Dr. Joseph S. Ames, NACA Chairperson from 1927 to 1939. Ames was NACA's second laboratory, established after the Langley facility in Hampton, Virginia. In 1958, Ames became part of the National Aeronautics and Space Administration (NASA). Since its inception, Ames researchers have broken new ground in all flight regimes--the subsonic, transonic, supersonic, and hypersonic--using a collection of wind tunnels and research aircraft, the sophistication of which has increased over time. Ames has evolved into a diverse and sophisticated research campus of buildings influenced by the clean lines and materials of the International style, fused with elements of the Streamline Moderne, both styles are very well suited to industrial type buildings.

Ames specializes in research geared toward creating new knowledge and new technology, encompassing the fields of supercomputing, networking, numerical computing software, artificial intelligence, and human factors to enable advances in aeronautics and space. In aeronautics, Ames is the leading NASA agency in airspace operations systems, including air traffic control and human factors, and the lead center for rotorcraft technology. Ames also has major responsibilities in the creation of design and development process tools and wind tunnel testing. Ames houses one of the world's largest collections of wind tunnels and simulation facilities.

The Ames Administration Building is one of the oldest buildings located on the Ames campus. Construction of the building commenced upon completion of seven buildings/structures that were considered to have primary importance for research development that would contribute to the increasing national war and defense efforts.

These seven buildings/structures are: N-203, Photo Technology Laboratory (1942); N-210, Flight Systems Research Laboratory (1940); N-214, Paint Shop (1942); N-215, Army Aeromechanics Laboratory & the 7 x 10 Foot Wind Tunnel No. 1 (1941); N-218A, Electrical Equipment Building (1941); N-220, Technical Services Building (1940); and N-225, Electrical Substation (1940).

The construction of these seven buildings/structures was necessary in order to initiate research at the Ames Research Laboratory and although constructed prior to the Administration building, it was not until the Administration building was completed that the Ames Director, Assistant Director, Division Chiefs, and all

other administrative facilities were able to fully operate the Ames facility and wholly contribute to the national defense and research efforts sparked by the onslaught of World War II.

Construction of the Ames Aeronautical Laboratory Administration Building began on September 28 1942 and was completed on November 16, 1943. The building was designed by the Ames Construction Division, which consisted of a group of approximately twenty-five design engineers, draftsmen and inspectors. John F. Parsons, NACA Ames Laboratory Assistant Director and Chief of the Construction Division supervised the original design and construction of the building.

PERIOD OF SIGNIFICANCE

The Ames Administration Building is significant from 1943, upon completion of construction, through the present. This determination means that a majority of the events that lend to the building's significance have taken place within the past fifty years. These events are exceptional in national aviation and space history. Due to the type of research conducted at Ames, exceptional events continually occur that supplement the significance of the site. As a result, the period of significance has been established as 1943 to the present (2003). During this sixty-year period, the building has consistently served as the Ames Administration Building.

DISCUSSION OF SIGNIFICANCE

Criterion A:

The Administration Building is eligible for inclusion on the National Register of Historic Places under criterion A (event) in the following areas:

1) The area of space exploration and settlement due to its direct association with aerospace development from 1943 to the present.
2) The areas of science and invention for housing Ames management during the research facility's gradual transformation from an aeronautical laboratory emphasizing high-speed wind tunnel research to the diverse research facility it is today.

SPACE EXPLORATION AND SETTLEMENT

The following projects demonstrate the direct involvement of the Administration Building in the area of space exploration and settlement.

Biosatellite Projects

The Biosatellite projects are significant in the history of NASA because they were the first attempt at unmanned biosatellite missions in space. At this time, in the early 1960s, life science research had not yet been fully examined.

The 1995 NASA history publication *Life into Space: Life Sciences Experiments*, details the beginning of the NASA Ames Biosatellite projects:

> "Although ARC was founded in 1939 as part of the National Advisory Committee for Aeronautics (NACA), NASA's predecessor, space life sciences research did not become part of the ARC agenda until 1960. Early life sciences research at ARC was concerned mainly with questions raised by preparations for the Apollo missions to the moon. Interest was centered on the effects of radiation, isolation, and changes in gravitational loading, and on crew life support requirements during space flight. Studies were also conducted on gastrointestinal function, tissue breakdown, and possible changes in the processes of reproduction, development and aging in the space environment.
>
> By late 1963, life sciences research was being conducted by four groups at ARC. The Environmental Biology Division focused on physiology, pathology, and radiobiology; the Biotechnology Division on human performance and man-machine interactions; and the Exobiology Division on biosynthesis and cell biology. The fourth research group was the Biosatellite Project Office, which was in charge of developing a series of unmanned biosatellite missions.
>
> Three biosatellite missions were developed by the Biosatellite Projects Office in the 1960s. The first mission, Biosatellite I, was launched in 1966. Because of a hardware malfunction, it was never recovered. Biosatellite II, launched in 1967, was a replicate of Biosatellite I. It carried several biological specimens into orbit and was successfully retrieved. Biosatellite III was launched in 1969, carrying onboard a single monkey. The monkey's untimely death, shortly after the biosatellite landed, focused a good deal of negative public attention on the Biosatellite research program. The controversy generated by this mishap, and the absence of plans or funds for a follow-on project resulted in the dissolution of the Biosatellite Projects Office in the early 1970s. It was replaced in 1977 by the Life Sciences Flight Projects Office (LSFPO)."[1]

[1] Souza, Kenneth, Robert Hogan, and Rodney Ballard, eds. *Life into Space: Space Life Sciences Experiments. NASA Ames Research Center 1965—1990*. Washington DC: National Aeronautics and Space Administration, 1995. http://lifesci.arc.nasa.gov/lis/Space_Agencies/Space_Agencies.html

In 1958, several years prior to the first Biosatellite project at NASA, the United Nations General Assembly created an ad hoc Committee on the Peaceful Uses of Outer Space (COPUOS) with a Scientific and Technical Subcommittee of COPUOS. COPUOS was formed as a result of the increasing international competition between countries for superiority in the development of space activities. Both committees promote scientific cooperation in outer space and provide technical assistance to developing nations in space-related matters.

The Biosatellite projects, established only two years after COPUOS, are significant because they represent the first attempts to explore life science research and the effects of space on various types of biological specimens including primates.

Pioneer Projects

Pioneers 6-9

Conceived under the directorship of Smith De France, the impetus for the Pioneer project was to explore the nexus between the Earth and solar activity in space. In 1963 the Ames Research Center was granted a budget of $40 million to design, construct, and launch four spacecrafts that would be used to collect data related to solar activity in space. Space Technology Laboratories was selected to build the four spacecraft, and Charlie Hall was selected as the Pioneer project manager at Ames.[2] According to the Pioneer Project Homepage:

> "Pioneer 6 was launched on 16 December 1965. Some time after 15 December 1995 (almost 30 years after it was launched) the primary transmitter (TWT) failed. During a track on 11 July 1996 the spacecraft was commanded to switch to the backup TWT, and the downlink signal was re-acquired. The spacecraft and a few of the science instruments were again functioning.
>
> Pioneer 6 was featured on the Star Date radio broadcast by the University of Texas McDonald Observatory on 16 December 2000 - the 35th anniversary of its launch. Pioneer 6 is the oldest NASA spacecraft extant. There was a successful contact of Pioneer 6 for about two hours on 8 December 2000 to commemorate its anniversary.
>
> Pioneer 7 was launched on 17 August 1966. It was last tracked successfully on 31 March 1995. The spacecraft and one of the science instruments were still functioning.

[2] *Atmosphere of Freedom*, 87.

Pioneer 8 was launched on 13 December 1967. Its primary TWT failed several years ago, but on 22 August 1996 the spacecraft was commanded to switch to the backup TWT, and the downlink signal was re-acquired. The spacecraft and one of the science instruments were again functioning.

Pioneer 9 was launched on 8 November 1968. The spacecraft failed in 1983."[3]

The Pioneer satellites 6-9 are significant because the data retrieved by these orbiters expanded NASA's knowledge about the interplanetary environment and the effects of solar activity on the Earth. Pioneers 6 through 9 gathered new information about solar wind, solar cosmic rays, the structure of the Sun's plasma and magnetic fields, the physics of particles in space, and the nature of storms on the Sun which produce solar flares. Although competing European and Asian space agencies conducted a similar type of research at the time, NASA's work appears to be the most comprehensive and successful.

Pioneer Jupiter

The Pioneer Jupiter project was transferred from the Goddard Space Flight Center in 1972 to the Ames Research Center. Ames was chosen to lead the project due to the facilities earlier experience with spin-stabilized spacecraft used to explore the inner solar system on a continuing basis.[4]

Pioneer 10 to Jupiter launched on March 2, 1972 and reached Jupiter on December 4, 1972. Pioneer 11 to Jupiter launched on April 5, 1973 and reached Jupiter on December 3, 1974. Originally identified as Pioneer's F and G, the two orbiters were intended to cross the asteroid belt located between Mars and Jupiter, and to also negotiate the effects of the radiation around Jupiter prior to actually coming into contact with the planet. Pioneer F, later renamed Pioneer 10 was meant to trailbaze the path in space to Jupiter and in case of malfunctions to it from either the asteroid belt or the radiation from Jupiter, Pioneer G, later renamed Pioneer 11, was launched as a backup.

Pioneer 10 was the first spacecraft to reach Jupiter and because of this the engineering test model of the craft was put on display in the National Air and Space Museum of the Smithsonian Institution in Washington, D.C. Pioneer 10 returned the first close-up views of the planet, these photos helped to determine that Jupiter appeared to be a spinning ball of liquid hydrogen with no perceptible surface. The orbiter collected data about

[3] http://spaceprojects.arc.nasa.gov/Space_Projects/pioneer/PNhome.html
[4] *Pioneer Odyssey,* revised edition. http://history.nasa.gov/SP-349/ch2.htm

Jupiter's magnetic field, radiation belts and, weather, before being programmed on an escape trajectory out of the solar system.[5]

Pioneer Venus Multiprobe Spacecraft

The Pioneer Venus Multiprobe spacecraft consisted of two components, an orbiter (Pioneer 12), and a multiprobe bus (Pioneer 13). Pioneer 12 carried the scientific instruments necessary for the mission and Pioneer 13 carried and launched four probes into the atmosphere. "The four probes were built by Ames according to known aerodynamic parameters so that its motion in flight, at an initial speed of 26,100 miles per hour, indicated the density of the atmosphere through which it traveled."[6]

The orbiter was launched on May 20, 1978, and the multiprobe bus was launched on August 8, 1978. The three small probes, one large probe, and the spacecraft bus (*Pioneer 13*) entered the Venus atmosphere on December 9, 1978. The four probes of *Pioneer 13* were released from the multiprobe bus on November 16 and December 20, 1978, programmed to descend to the surface of Venus. The probes transmitted radio signals to earth that carried back information about the atmospheric temperature of the planet Venus. None of the probes withstood the impact of landing on the planet's surface for more than a brief period of time.

Pioneer 12 orbited Venus for 14 years until it entered the planet's atmosphere on October 8, 1992 and burned up by entry heating. During the fourteen-year period, the orbiter retrieved a significant amount of data about the atmosphere of Venus.

The Pioneer Venus mission is significant because together *Pioneer 12* and *Pioneer 13* conducted the most thorough survey ever performed on another planet. In addition, *Pioneer 12* was also the only spacecraft to observe Haley's Comet at the perihelion stage, when a comet is closest to the sun and is most active.

Space Shuttle Orbiter

A prototype of the first Space Shuttle Orbiter *Enterprise* had been tested in the Ames 40 x 80 Foot wind tunnel, and the crafts thermal protection system was largely a product of research done at Ames.[7] The thermal protection system was the integral component to making the space shuttle the world's first reusable reentry vehicle.

---

[5] Meunger, 243.
[6] *Atmosphere of Freedom*, 154.
[7] Muenger, 245.

The *Enterprise* was built as a test vehicle and was not equipped for space flight. The subsequent space shuttle orbiters were designed and built based on the test specifications of the *Enterprise.* These are the space shuttle orbiter's *Columbia*, (the first shuttle to fly into the Earth's orbit in 1981), *Challenger*, *Discover*, *Atlantis*, and *Endeavour*.

Kuiper Airborne Observatory
The Ames Research Center operates the Kuiper Airborne Observatory (KAO). The KAO is an airplane that flies above the Earth's atmosphere with an infrared telescope in order to gather astronomical data that is unavailable from Earth. By conducting observations from above the atmosphere, infrared radiation can be measured. In 1974, the Ames C-141 Kuiper Airborne Observatory made the first observations of the planet Uranus and scientists determined that Uranus possessed equatorial rings.[8]

In addition to the Uranus discoveries, many other significant observations related to infrared astronomy have been made utilizing the KAO including the mapping of heat sources on Neptune, the discovery of Pluto's atmosphere, the detection of water vapor in comets, mapping the galactic center of the Milky Way.[9]

SCIENCE AND INVENTION
The following projects demonstrate the direct involvement of the Administration Building in the area of science and invention.

Wind Tunnels
Although not the first facility to design and build wind tunnels, the Ames facility houses the greatest collection of wind tunnels (both active and decommissioned). In these wind tunnels, craft designed for air and space flights by civilian, military and government space agencies are tested and retested until the best possible design strategy is obtained.

Although all are of note, some of the most well known wind tunnels at Ames are: the 16 Foot High Speed Wind Tunnel (the first wind tunnel constructed at Ames), the twin 7 x 10 Foot Wind Tunnels (the second and third tunnels constructed at Ames), the 40 x 80 x 120 (fourth constructed and the largest wind tunnel in the world),

[8] Muenger, 245.
[9] http://vathena.arc.nasa.gov/curric/space/lfs/kao.html

the 6 x 6 Foot Supersonic Wind Tunnel, and the Unitary Plan Wind Tunnels (created out of the 1949 Unitary Plan Act).

Subsonic Airfoil Theory
Developed in the 1940s by H. Julian Allen, the general theory of subsonic foils made it possible to accurately calculate the ideal airfoil shape for specific conditions. The subsonic airfoil theory greatly improved the low-drag airfoils such as those used on the Mustang Fighter plane during World War II.

Blunt Body Theory of Aerodynamics
The Blunt Body Theory of Aerodynamics was first theorized in approximately 1951 in a paper jointly published by NACA Ames staffers H. Julian Allen and Alfred Eggers. In their paper, the two scientists surmised that a blunt shaped object was better suited for entering the Earth's atmosphere rather than a pointed object. The blunt shape, they concluded, would not burn up in the process of entering the atmosphere due to the fact that the air surrounding the tip of the object would carry away its own heat if the shock waves produced by the object were the proper blunt shape. Whereas a pointed object would burn up in the re-entry process due to the fact that the air was not distributed around the object, rather it met with the pointed tip, and due to the extreme heat of the air, the tip would disintegrate.

H. Julian Allen is credited with promulgating and testing the blunt body theory. In order to successfully test the hypothesis he ordered the construction of wind tunnels, arc jets, and flight research vehicles. Testing on these machines proved Allen's theory correct and as a result, "every human-made object that reenters the Earth's atmosphere-ballistic missiles, manned space capsules, the Space Shuttle orbiter-does so safely because of Allen's passion for his research."[10]

[10] Atmosphere of Freedom, 30.

Criterion B

In his book *Atmosphere Of Freedom; Sixty Years at the NASA Ames Research* Center, NASA Ames Historian Glenn E. Bugos cites four men as having a major influence on the Ames facility, and as a result, a significant impact on the field of aeronautical engineering, aircraft development, and space exploration. He states

> "The Ames work force grew rapidly during the war and afterward, from 50 in 1940, to 500 in 1943, to 1,000 by 1948. As the number and variety of researchers at Ames expanded, its organizational chart grew more complex. However, the structure of leadership at Ames remained fairly clear. During Ames' first two decades, four men formed the contours of its organizational culture-Smith J. De France, John F. Parsons, Harry J. Goett, and H. Julian Allen."

The Administration Building is eligible for inclusion on the National Register of Historic Places under criterion B (persons) for its association with the following pioneers in aeronautics and space exploration:

1) Smith De France, the first Director and Founder of the Ames Research Center (1940-1965).

2) H. Julian Allen, second Director of the Ames Research Center (1965-1969) and the founder of the "Blunt Body Theory" of aerodynamics.

3) Harry J. Goett, Chief of the Full-Scale and Flight Research Division (1948-1959), and Chairman of the NASA exploration committee which developed NASA's early space research agenda (1958).

4) John F. Parsons, Ames Research Facility's Chief of the Construction Division (1939-1969), Chief of the Full-Scale and Flight Research Division (1943-1948), Ames Associate Director (1948-1949), Chief of the Wind Tunnel Construction Program (1949-1956), and Ames Associate Director (1952-1969).

SMITH DE FRANCE

Born on January 19, 1896 in Battle Creek, Michigan, Smith De France was born ten years prior to the Wright Brothers first flight. Ten years after they flew, he began studying the newly created field of aeronautical engineering at the University of Michigan. De France's studies were interrupted by the onslaught of World War I when he interrupted his education to join the Army Sigma Corps. De France became a pilot and was an officer in the 139th Aero Squadron. At the end of the war, De France returned to the University of Michigan with a Silver Star medal for his outstanding military service.

De France continued his studies in aeronautical engineering and graduated in 1922. Upon graduation, he joined the staff at Langley Memorial Aeronautics Laboratory in Virginia as an engineer and volunteer test pilot. His early work in the Flight Research Section at the Langley Laboratory involved his personal direction of research on airflow around and airloads on lighter-than-air craft including the dirigible USS Los Angeles.

De France continued his research at Langley, becoming a full staff member where in 1930-1931 he was responsible for the design and construction of the National Advisory Committee on Aeronautics' (NACA) first full scale wind tunnel sited on the Langley facility. He soon came to be respected as an expert on wind tunnel design and construction. As a result of his growing expertise, De Smith was charged with the design and construction of other additional Langley wind tunnel facilities. In addition to the wind tunnel activities, during the early 1930s, De France directed the course of numerous flight research investigations at Langley.

In the late 1930s, with rumors of war, the NACA proposed plans for a new west coast aeronautical laboratory. Due to his level of experience and expertise gained at Langley, Smith De France was chosen to oversee the design and construction of the new facility, and in 1940, De France was named the first Director of the new Ames Aeronautical Laboratory.

De France received the Presidential Medal of Merit in 1947 for his work in designing and building the Ames Aeronautical Laboratory and then organizing and directing its research programs. In 1952 the University of California, Los Angeles awarded De France an honorary Doctor of Law degree. In 1953, he was awarded an honorary Doctor of Engineering degree from his alma mater the University of Michigan. In 1964 De France was awarded the Career Service Award from the National Civil Service League, and later in 1977, he was made an Honorary Fellow of the American Institute of Aeronautics and Astronautics. Along with these awards, De France received many other accolades throughout his forty-five years of service for the NACA and later NASA. Smith De France retired from his Director position of the Ames Research Center at the end of 1965.

During his twenty-five year period as Director of Ames, numerous accomplishments were made that effectuated major change in the field of aeronautical engineering resulting in advances in flight research and travel methods employed by the federal governments space program, offensive and defensive military maneuvers, and commercial airlines.

Some of the most significant Ames milestones that occurred under the charge of Smith De France were:

- The initial planning and design of the Ames Aeronautical Laboratory facilities.
  - The 16-Foot High Speed Wind Tunnel: Opened in 1941, the wind tunnel was built in order to advance research on refining wartime fighter aircraft. Tests in the 16 Foot Wind Tunnel resulted in the 1943 development of a "dive recovery flap" that was immediately built into the Lockheed Republic P-47 and the Lockheed P-38. Later, the dive recovery flaps were added as safety device features for flight tests of all new fighter aircraft. Tests were also performed on the North American Aviation Company's P-51B Mustang which resulted in modifications to the plane, causing it to become the fastest and most potent fighter plane in Europe during World War II.
  - The two 7 x 10 Foot Wind Tunnels: Opened in 1941, the twin 7 x 10 Foot Wind Tunnels were typically used to correct design faults in new military aircrafts such as the B-32 and the XSB2D-1. The use of electrical motors on models to stimulate propeller flow and the subsequent observation of the impacts of propeller slipstreams were pioneered in the Ames twin 7 x 10 Foot Wind Tunnels.
  - The 40 x 80 Foot Wind Tunnel: Opened in 1944, the 40 x 80 Foot Wind Tunnel was the largest wind tunnel in the world and still holds that title today. The second largest wind tunnel is located at Ames's sister facility the Langley Laboratory in Virginia. The 40 x 80 was designed to be an experimental facility to house the research and testing of: jet aircraft and first generation jet engines, advanced rotor techniques, and peripheral space use testing.

- Deicing research, the first research effort authorized at Ames. The research took place in the flight Operations Hangar and focused on finding a way to decrease ice formation on aircraft, and to knock off ice once it had formed. Icing was a major impediment to safe and regularly scheduled air transportation, and prior to the start of deicing research at Ames, had already disrupted military wartime flights;

- The design and construction of the Unitary Wind Tunnel (1950-1956), which was originally constructed to serve the emerging need for supersonic research and development following World War II, and as a special effort by the United States to regain leadership in the field of aeronautics. The Unitary Wind Tunnel was designated as a National Historic Landmark in 1985 by the National Park Service, and was designated as an International Historical Mechanical Engineering Landmark by the American Society of Mechanical Engineers.

H. JULIAN ALLEN

Born on April 1, 1910 in Maywood, Illinois, H. Julian Allen attended Stanford University where he received a Bachelor of Arts degree in Engineering in 1932. Two years later in 1935 he received a Degree of Engineering also from Stanford. Upon graduation from Stanford, Allen worked for the California based Shell Chemical Company for a brief period prior to joining the staff at the Langley Laboratory in 1936 as an aeronautical engineer.

In April 1940, Allen was transferred to the Ames Aeronautical Laboratory where he led the Theoretical Aerodynamics section under the supervision of Donald Wood. In this position, he developed many of the throat design and windscreens that enabled Ames' wind tunnels to achieve faster speeds and better results. In 1945, the Ames High Speed Research Division was created under the charge of Allen. He remained the Chief of the High Speed Research Division through 1959.

As Division Chief of High Speed Research, Allen promoted the development of supersonic and hypersonic theories. Already praised for his development of the general theory of subsonic airfoils that helped to improve the low drag airfoils on planes such as the Mustang fighter employed in World War II, Allen also developed theories of oscillating vortices, heat transfer, boundary layers, shock wave and boundary layer interactions, and predictive forces at supersonic speeds at various angles of attack.

In addition to his theoretical development, H. Julian Allen also designed two types of supersonic nozzles in order to create more flexible and effective wind tunnels, and he designed "two methods for visualizing airflows at supersonic speeds, and devised techniques for firing a gun-launched model upstream through a supersonic wind tunnel."[11]

In 1951 Allen published a paper jointly with Alfred Eggers in which they stated a blunt shaped object was better suited for re-entry into the Earths atmosphere over a pointed shape object because the blunt shape would enable the air surrounding the object to carry away its own heat and dissipate rather than burn up the object. According to the *Great Images in NASA* homepage:

> "H. Julian Allen is best known for his "Blunt Body Theory" of aerodynamics, a design technique for alleviating the severe re-entry heating problem which was then delaying the development of ballistic missiles. His findings revolutionized the

[11] *Atmosphere of Freedom*, 30.

> fundamental design of ballistic missle re-entry shapes. Subsequently, applied research led to applications of the "blunt" shape to ballistic missles and spacecraft which were intended to re-enter the Earth's atmosphere. This application led to the design of ablative heat shields that protected the Mercury, Gemini and Apollo astronauts as their space capsules re-entered the Earth's atmosphere."[12]

Allen received the Sylvanus Albert Reed Award from the Institute of Aeronautical Sciences in 1955, and in 1957 Allen was awarded NASA's Distinguished Service Medal. In 1958 he received the Air Force Association's Science Trophy, and the Wright Brothers Lecture Award from the American Institute of Aeronautics and Astronautics. In 1965, he received NASA's Medal For Exceptional Scientific Achievement. In addition to these awards, H. Julian Allen was an Honorary Fellow of the American Institute for Aeronautics and Astronautics, a Fellow of the American Astronautical Society, a Fellow of the Meteoritical Society, a Fellow of the Royal Aeronautical Society of London, and a member of the National Academy of Engineering. Allen became the second Director of the Ames Research Center in October 1965 and remained in that position through 1969 when he retired.

Some of the most significant Ames milestones that occurred under the supervision of H. Julian Allen were:

- Execution of the Pioneer space exploration project with successful launches of *Pioneer 6*, *Pioneer 7*, *Pioneer 8*, and *Pioneer 9* :
  - The Pioneer solar observatories were launched between 1965 and 1968, and until 1972, "they were NASA's primary sentinels to warn of solar storms that would disrupt communications and electricity distribution on Earth."[13] The pioneer solar observatories collected information that would be used to predict solar storms two weeks in advance of the occurrences, and during the Apollo lunar landings, the Pioneers were useful in warning astronauts walking the moon's surface about oncoming solar proton showers.

- Execution of the Biosatellite project and successful launches of *Biosatellite 1*, *Biosatellite 2*, and *Biosatellite 3*:

[12] http://grin.hq.nasa.gov/ABSTRACTS/GPN-2000-001777.html
[13] *Atmosphere of Freedom*, 86-87.

- The Biosatellite (Biological satellite) project consisted of creating a series of biological satellites that would carry monkeys into space in order to determine the potential human factors in space. The project resulted in the establishment of the Life Sciences Directorate (Division) at Ames.[14]

HARRY J. GOETT

Bronx, New York native Harry J. Goett was born on November 14, 1910 and grew up in a German American neighborhood close to most of his relatives who were of German lineage. Goett attended Holy Cross College in Worshester, Massachusetts where he received a Bachelor of Science degree in Physics in 1931. He then attended New York University, where he was awarded an additional degree in Aeronautical Engineering in 1933.

After working as a mechanical engineer for various companies Goett joined the staff at the Langley Laboratory in Virginia as a project engineer in 1936. Goett remained at Langley until 1940, when he was transferred to the new Ames Aeronautical Laboratory in July 1940. At Ames, he initially designed model supports and directed research in the twin 7 x 10 Foot wind tunnels, and in 1944, Goett was placed in charge of research at the 40 x 80 Foot wind tunnel. In 1948, he replaced John F. Parsons as the Chief of the Full-Scale and Flight Research Division, and he remained in this position until July 1959, when he was asked to take lead as Director of the new NASA Goddard Space Flight Center in Greenbelt, Maryland.

During his tenure as Chief of the Full-scale and Flight Research Division, Goett "administered and directed the overall research and study of activities connected with the complex aerodynamic problems encountered by aircraft and spacecraft while navigating the upper atmosphere."[15]

In 1958, during his last year at Ames, Goett chaired the NASA committee that developed NASA's early space research agenda. Internally referred to as the 'Goett committee,' the committee's responsibilities included administering the national booster program, planning for the man in space efforts, and planning for the work on space and re-entry flight research.[16] Early on the Goett committee decided to establish the primary goal of their committee and subsequently for NASA as a successful manned moon landing and return flight. The

[14] Muenger, 240.
[15] "Early Space Pioneer Harry Goett Dies at 89," *Astrogram*, January 24, 2000.
[16] *Astrogram*, January 24, 2000.

committee's goals were realized on July 20, 1969, when the *Apollo 11* Space Shuttle's Lunar Module landed on the surface of the moon and Shuttle Commander Neal Armstrong became the first man to walk on the moon. Upon commencement of his Directorship at Goddard, Goett's responsibilities included management of NASA's early Earth-orbiting satellite missions. Goett remained at Goddard until 1965, when he resigned from his Director position to take a position as the Chief Engineer at Ford Aerospace, which later became Loral Aerospace. He stayed at Ford through 1975, and from 1975 through 1990, Goett served as an international private consultant to various companies.

JOHN F. PARSONS

Born on January 1, 1908, Illinois state native John F. Parsons attended Stanford University where he received a Bachelor of Arts in Aeronautical Engineering in 1928. In 1930 he was awarded a Doctor of Engineering degree, also from Stanford University. During that same year, Parson's worked with Dr. William F. Durand in editing the six-volume "Aerodynamic Theory."

In 1931, Parsons joined the staff at the Langley Laboratory in Virginia as a project engineer in the Full Scale Wind Tunnel, and as a result of his work, was later placed in charge of the design, construction, and subsequent operation of Langley's 19-Foor Pressure Wind Tunnel.

Parsons was transferred to the Ames facility site in 1940 to serve as the on-site Engineer-in-charge of the construction process and the Chief of the Ames Construction Division. Parsons also was appointed as Chief of the Full-Scale and Flight Research Division in 1943. In this position he supervised all aerodynamic research in the 40 x 80 Foot Wind Tunnel section, the Flight Research section, and the Flight Engineering section. He remained in this position through 1948, when he was appointed as the Assistant to the Director, a title he held through December 1949.

The Unitary Wind-Tunnel Plan Act was enacted by Congress to establish United States leadership in the field of high-speed aeronautics. When the Unitary Wind-Tunnel Plan Act was passed in 1949, Parsons was selected to lead the wind tunnel construction program. As Chief of the Wind Tunnel Construction Program from 1949-1956, Parsons reported directly to the NACA Headquarters. While supervising the design and construction of the Unitary Wind Tunnel, Parsons was also appointed to the position of Associate Director of the Ames Aeronautical Laboratory/Ames Research Center. Parsons held the Associate Director position until his death in 1969.

BIBLIOGRAPHY

"Aero Lab Goes," *The Astrogram*, V. I, No. 4, December 4, 1958.

"Ames Celebrates 40th Anniversary," *The Astrogram*, V. XXII, No. 6, December 27, 1979

"Ames Closeups-Dr. DeFrance," *The Astrogram*, V. I, No. 3, November 20, 1958.

"Ames Closeups-John F. Parsons," *The Astrogram*, V.I, No. 11, March 19, 1959.

"Ames Research Center: Six Decades of Contributions," *AIAA San Francisco Section In4M-Letter*, V. XLIII, No. 5, March-April 2002.

Architectural Resources Group, *Building Evaluations NASA Ames Research Center*, July 25, 2001.

Bugos, Glenn E., *Atmosphere Of Freedom, Sixty Years at the NASA Ames Research Center*. Washington, D.C.: NASA History Office, 2000.

"Dr. DeFrance to Retire on October 15," *The Astrogram*, V. VII, No. 26, September 30, 1965.

"Dr. Smith De France Pioneer in Space Research, Aviation" *Miami Herald*, May 9, 1985.

"Early Space Pioneer Harry Goett Dies at 89," *The Astrogram*, January 24, 2000.

Handlin, David P., *American Architecture*. London & New York: Thames & Hudson, Ltd., 1985.

Hartman, Edwin P., *Adventures In Research, A History of Ames Research Center, 1940-1965*. Washington, D.C.: NASA Scientific and Technology Information Branch, Office of Technology Utilization, 1970.

"In Memoriam, H. Julian Allen, 1910-1977," *The Astrogram*, V. XIX, No. 9, February 10, 1977.

McAlester, Virginia and Lee, *A Field Guide to American Houses*. New York: Knopf, 1984.

Meunger, Elizabeth A., *Searching The Horizon, A History of Ames Research Center, 1940-1976*. Washington, D.C.: NASA Scientific and Technical Information Branch, 1985.

"Parsons John," www.astronautix.com.

Parsons, John F., "Memorandum For Engineer In Charge," Letter to Mr. George W. Gray from John Parsons, May 25, 1945.

Poppeliers, John. *What Style Is It?* Washington, DC: National Trust for Historic Preservation, 1977.

"Smith J. DeFrance; January 19, 1896-May 6, 1985," *The Astrogram*, V. XXVII, No. 19, June 7, 1985.

United States Department of the Interior. National Register of Historic Places. *National Register Bulletin 15: How to Apply National Register Criteria.*

United States Department of the Interior. National Register of Historic Places. *National Register Bulletin 16A: How to Complete the National Register Form*, 1991.

United States Department of the Interior. National Register of Historic Places. *National Register Bulletin 22: Guidelines For Evaluating And Nominating Properties That Have Achieved Significance Within The Past Fifty Years*, 1979, Revised 1998.

United States Department of the Interior. National Register of Historic Places. *National Register Bulletin 39: Researching A Historic* Property, 1991.

United States Department of the Interior. National Register of Historic Places. *National Register Bulletin: Guidelines For Evaluating And Documenting Historic Aviation Properties*, 1998.

"Updating of Building 200 Nears End," *The Astrogram*, c.1972 (no date given)

VERBAL BOUNDARY DESCRIPTION

The boundary for the historic property encompasses the land contained within Bush Circle, the circular drive that surrounds the Ames Administration Building.

BOUNDARY JUSTIFICATION

The boundary was selected in order to include the Administration Building and its surrounding lawn. Although the Ames Auditorium is located directly adjacent to the rear of the Administration Building and within Bush Circle, it is not considered to be individually eligible for the National Register of Historic Places, nor is it considered to be a contributor to the Administration Building.