

BROOKS AIR FORCE BASE, BUILDING NO. 167
(Brooks Air Force Base, Equipment Repair Shop)
2415 Sidney Brooks
San Antonio
Bexar County
Texas

HABS TX-3521-I
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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
SOUTHWEST SYSTEM SUPPORT OFFICE
National Park Service
U.S. Department of the Interior
PO Box 728
Santa Fe, New Mexico

HISTORIC AMERICAN BUILDINGS SURVEY
BROOKS AIR FORCE BASE, BUILDING 167
(BROOKS AIR FORCE BASE, EQUIPMENT REPAIR SHOP)

HABS No. TX-3521-I

Location: 2415 Sidney Brooks Road
San Antonio
Bexar County
Texas

USGS Southton, Texas Quadrangle (7.5')
Universal Transverse Mercator Coordinates: 14.552943.3246293

Present Owner: Brooks Development Authority (BDA)

Present Occupant: Air Force Research Laboratory (AFRL)

Present Use: Instrument calibration laboratory

Significance: Building 167 (Equipment Repair Shop) served as a vital component of the U.S. Air Force School of Aerospace Medicine (USAFSAM) complex at Brooks Air Force Base (AFB). The equipment repair shop in Building 167 housed and serviced equipment used in aerospace and military research studies conducted at USAFSAM. Building 167 supported USAFSAM's groundbreaking work in space research, as well as in clinical and military applications. The building continues to serve as an equipment repair shop.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date(s) of erection: 1968
2. Architect: George Pierce and Abel Pierce Architects
3. Original and subsequent owners: Air Force
4. Builder, contractor, suppliers: Unknown
5. Original plans and construction: Original plans are on file with the BDA, 8030 Challenger Drive, Brooks City-Base, Texas.
6. Alterations and additions: Building 167 has suffered minor alterations of interior finishes and spatial arrangements.

B. Historical Context:

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Building 167 was among four buildings erected during the third phase of construction (1966-73) at USAFSAM at Brooks AFB. The multiple-building complex represented the base's expanding role and mission as one of the largest aerospace medical research centers in the world. With research and development goals ranging from space to warfare, USAFSAM has played a central role in the mission of the Air Force as well as the National Aeronautic and Space Administration. Though the USAFSAM campus was constructed in 1959, the history of Brooks AFB has involved multiple missions beginning with the training of Army pilots in World War I to reserve flight training during the Cold War.

Establishment of Brooks Field and Early Aviation Training, 1917-31

Established on an 873-acre tract of land in San Antonio, Texas, in November 1917, Kelly Field No. 5 grew out of the increasing wartime need for cadets and trainers. In February 1918, the airfield was officially renamed Brooks Field in honor of Cadet Sidney Johnson Brooks, Jr., a San Antonio native who died in a plane crash at Kelly Field No. 2 in 1917. The new commander of Brooks Field, Major Henry Conger Pratt, oversaw the installation's mission of preparing up to 5,000 airmen for wartime service in Europe. In addition, Brooks trained flight officers as teachers of a new British training regimen known as the Gosport System, which utilized innovative controls and speaking tubes to improve communication between instructors and cadets while in the air. The use of the Gosport system at Brooks Field convinced the War Department in October 1918, to incorporate the experimental system at Brooks Field into all Army airfields.¹

In May 1919 the Observation School at Camp Ben Wise in San Antonio, which trained cadets in the use of aerial observation, moved to Brooks Field. As one of five national balloon observation schools, Brooks Field provided surveillance along the U.S.-Mexico border utilizing the 16th Airship Company and the 4th and 5th Balloon companies. The balloon and airship program at Brooks Field, despite the initial investment of manpower and expense, proved to be a short-lived experiment for the San Antonio region. Several accidents involving explosions forced the school to close in 1922.²

The decision to remove the Balloon and Airship Observation School was part of a 1920 Army Reorganization Bill which stipulated that all flight training for the country would be centered in San Antonio air fields, including Brooks Field. By June 1922, Brooks Field was classified as the only Primary Flying School in the country as a result of the consolidation of two former flying schools in California and Florida. From 1922-31, Brooks Field earned the reputation of being one of the premier aviation training sites in the country and was responsible for developing the young Army Air Service at a crucial period of its growth.

The system established in 1922 required all military aviators to begin their basic flying training at Brooks Field, with the graduating class moving on to the Air Service Advanced Flying School at Kelly Field. The graduating classes at Brooks later formed the basic structure of the Air Corps for decades to come. The school graduated numerous important aviators including Charles Lindbergh, Frank M. Hawks, Nathan Twining, Jimmy Doolittle, and Barney Giles. Instructors at Brooks were among the most experienced and talented aviators in the country, including Claire Chennault of the famed "Flying Tigers," Russell Maughan and Elwood Quesada.³

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In addition to its celebrated graduates and instructors, Brooks Field was also the site of important advances in aviation. In April and September 1929 Brooks Field held public demonstrations of one of the earliest paratroop warfare experiments. In 1930, Colonel William C. Ocker devised a device allowing pilots to fly “blind” with the use of instruments inside the cockpit.⁴

School of Aviation Medicine (SAM), 1926-31

In 1926, SAM was relocated from Mitchell Field, New York to Brooks Field in an effort to improve pilot performance and to learn firsthand from pilots about the medical factors affecting flight. From 1926-31, flight surgeons at SAM generally acted as physicians first and teachers second; their main responsibility was to direct physical examinations to determine the condition of cadets for flying.

In 1931, SAM and the Primary Flying School moved to the newly created Randolph Field in San Antonio, Texas, ending Brooks Field’s important aviation training mission. In the 1930s, Brooks was designated a center for observation training and housed several observation squadrons. Escalating tensions in Europe led to the establishment of an Air Corps Advanced Flying School in early 1941, which focused on training pilots in observation skills using single-engine aircraft. Because of lessons learned early in World War II, the Army Air Corps reassessed the importance of aerial observation, placing greater importance upon bombing and pursuit aircraft training. As a result, in 1943, Brooks Field began a training program for the new B-25 bomber, which greatly aided the war effort. Brooks Field became Brooks AFB in 1948 and assumed a new postwar mission as a reserve flight training center which it maintained until 1960 when all flight activities ceased.⁵

SAM: the Space Program to Vietnam, 1959-69

In 1959, SAM, now known as the School of Aerospace Medicine (SAM) was reassigned to Brooks AFB as part of a new Air Force mission to consolidate its aviation and space medicine efforts at one base. From 1959-69, Brooks AFB, as part of the Aerospace Medical Division (AMD), played a key role in providing NASA and the Air Force with innovative and important space medicine research, ensuring the success of the country’s efforts in space exploration. Research at Brooks AFB utilized a range of laboratories and research facilities to perform experiments ranging from altitude and pressure experiments to space food nutritional studies. In addition to direct contributions to NASA’s Mercury, Gemini, and Apollo programs, Brooks focused much of its space medicine efforts on the Air Force’s military space program, the Manned Orbiting Laboratory (MOL). By the mid-1960s, researchers and physicians at Brooks AFB increasingly became involved in the Vietnam War, forcing SAM and AMD to manage dual missions of space and warfare.

The USAFSAM Campus

In 1952, with its intention to relocate the crowded facilities at Randolph AFB to Brooks AFB, the Air Force required a new master plan accommodating the new “Aeromedical Center.” Early in the planning stages, officers of the Air Force Headquarters in Washington, D.C., had a clear notion of the type of facility they wanted, distinguishing it from other Air Force installations: “Consideration should be given to permanence and preeminence of this facility as an academic institution . . . The quality of construction should be comparable to that of the leading medical institutions in the United States.”⁶ In designing the

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master plan for such an institution, officers of the Headquarters of the Air Force made an unqualified recommendation for the St. Paul, Minnesota firm of Ellerbe & Company, which already had two years experience with an earlier Brooks AFB master plan:

The Ellerbe Company, because of the design over the past twenty-five years of the varied and highly specialized diagnostic research and hospital facilities for the Mayo Clinic at Rochester, Minnesota, is considered eminently qualified to continue this project.⁷

Utilizing the master plan designed by the Ellerbe Company, Brooks AFB underwent three phases of construction beginning with the erection of five buildings in 1959. The second phase occurred from 1961 to 1964 and included six buildings. The third phase, occurring between 1966 and 1973, consisted of four buildings, each utilizing a separate architect. According to Lieutenant General George Schafer, who served at Brooks AFB as Commander of USAFSAM from 1967-69 and as Commander of AMD from 1971-75, these four buildings were erected in a piecemeal fashion, in response to the scientific needs of the research community at USAFSAM.⁸ In addition to Building 110 (Environmental Science Laboratory), the third phase of construction included Building 176 (Electronics Laboratory), Building 167 (Equipment Repair Shop), and Building 186 (Radiation Science Laboratory).

Building 167

Building 167 was erected in 1969 and was designed by the office of Houston architects George Pierce and Abel B. Pierce, known best for their work on the Exxon Building (1963) in Houston, Texas, at one time the tallest building west of the Mississippi River. The firm also designed five buildings at Rice University in Houston, including the M.D. Anderson Biological Laboratory (1958) and the Space Science and Technology Building (1966).

Building 167 was constructed at a cost of \$351,713. Designed as an equipment repair shop, the building supported Air Force and NASA space research by housing and servicing equipment used in research studies conducted at USAFSAM. The building included rooms used for equipment maintenance, such as tool rooms, clean rooms, paint rooms, a welding room, a production control area, a conference room, and a technical library. Building 167 continues to serve as an equipment repair shop.

PART II. ARCHITECTURAL INFORMATION

A. General Statement:

1. Architectural character: Building 167 displays characteristics of the International Style in common with the other contributing buildings in the USAFSAM campus: a flat roof, treatment of the facades as flat surfaces, banded fenestration, and lack of ornamentation.
2. Condition of fabric: Building 167 is in good condition.

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B. Description of Exterior:

1. Overall dimensions: Building 167 is one story with a partial basement and a mechanical penthouse, and is rectangular in plan. Overall dimensions are 144'-0" x 96'-0".
2. Foundation: The foundation is concrete pier and beam with a continuous perimeter beam. Metal louvered vents penetrate the perimeter beam at regular intervals.
3. Walls: Exterior walls are brick veneer with a 6" structural clay tile backing. Walls are 1' thick. The mechanical penthouse's exterior walls are clad with corrugated metal panels.
4. Structural system, framing: Building 167 is of steel-frame construction with a concrete pier-and-beam foundation
5. Porches, stoops, balconies, bulkheads: Building 167's south facade has a recessed loading dock and a concrete stoop with a four-step rise. An entry porch with concrete floor, round metal porch supports and flat concrete roof is on the east facade. Additional exterior wall features include a metal staircase on the north facade and a metal ladder on the mechanical penthouse's east facade.
6. Chimneys: None
7. Openings:
 - a. Doorways and doors:
 - North facade: There are no doorways on the north facade.
 - East facade: On the east facade of Building 176's penthouse there is a set of paired steel frame doors with full-length louvered grilles on the mechanical penthouse's east facade.
 - South facade: The building's primary entrance, on its south facade, consists of a single metal door with a single vision panel and sidelights. A single metal panel tops this doorway. Also located on the building's south facade are two sets of paired hollow metal flush doors.
 - The west facade has one secondary entry consisting of a single hollow metal flush door.
 - b. Windows and shutters: The building's fenestration consists of vertical bands of foundation-to-roof windows. Each band features porcelain enamel panels above and below a single aluminum-frame fixed glass panel.

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8. Roof:
 - a. Shape, covering: The building's flat roof is covered with built-up roofing.
 - b. Cornice, eaves: None
 - c. Dormers, cupolas, towers: The building has a steel-frame mechanical penthouse with insulated steel panel exterior siding and flat roof with built-up roofing.

C. Description of Interior:

1. Floor plans:
 - a. Basement: A partial basement on the southwest side of the building, connecting with the system of tunnels below the USAFSAM campus, houses an undivided space used as a mechanical room.
 - b. First Floor: The building's primary entrance opens into a corridor that that is flanked by partitioned administrative offices, a men's bathroom, a women's bathroom, a locker room, and several closets while the two loading dock entries both open into a suite of shops. Six larger open rooms used for equipment maintenance line the building's rear or southern wall. Partition walls are typically metal frame.
2. Stairways: Access to the basement level is through an offsite entry.
3. Flooring: Asphalt tiles are typically located in all offices, the corridor, and the locker rooms. Ceramic mosaic tiles are in the bathrooms and shower room. The two clean rooms have vinyl tile floors. Remaining spaces have cement floors.
4. Walls and ceiling finishes: The majority of the interior walls are painted gypsum board. The boiler room has a painted plaster wall. Ceilings are suspended acoustical tile and painted gypsum board. Additional ceiling finishes are stucco (exterior loading dock) and plaster (boiler room).
5. Openings:
 - a. Doorways and doors: Building 167 has six types of interior entries: single wood flush solid core with louvered metal grille; paired wood flush solid core; single flush metal; paired flush metal; paired industrial steel with full length metal louvered grille; and single flush metal with vision panel.
 - b. Windows: Building 167 has no interior windows.
6. Decorative features and trim: None

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7. Hardware: Standard commercial-grade manufactured hardware with a brushed-chrome finish.
8. Mechanical Equipment:
 - a. Heating, air conditioning, ventilation: Building 167 has central heating and air conditioning. Mechanical equipment is located in a rooftop penthouse.
 - b. Lighting: Typical lighting consists of recessed fluorescent troffers.
 - c. Plumbing: Two toilets are located on the building's main floor, one for men and one for women. The men's toilet contains two water closets with flush valves, two lavatories, and one urinal. The women's toilet contains one water closet with flush valve and one lavatory. Laboratories in the building are provided with sinks, and the building contains one emergency shower and eye wash station.

D. Site:

1. General setting and orientation: Building 167 is located at the far south end of the USAFSAM campus, near the intersection of Sidney Brooks with Jernigan Road. The building is oriented towards the south, facing Sidney Brooks, and is separated from other USAFSAM buildings by wide expanses of grass.
2. Historic landscape design: Neither original drawings nor early aerial photographs reveal any landscaping besides sidewalks to the south and east of the building.

PART III. SOURCES OF INFORMATION

- A. Original architectural drawings: Original plans for Building 167 are on file with the BDA, 8030 Challenger Drive, Brooks City-Base, Texas.
- B. Early views: Some early views of Building 125 and surrounding buildings are available in the archives of the Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base, and the Austin History Center, Austin Texas.
- C. Interviews: Oral Interview with Dr. George Schafer, Lieutenant General, USAF Retired, by HHM, Inc., November 22, 2002.

D. NOTES

¹ Martha Freeman, "Appendix L: Historic Context: Brooks Air Force Base, An American Flying Field, 1917-1946." in *Brooks Air Force Base – Historic Preservation Plan* by D.E. Peter, M.B. Cliff, J. Freeman and K.L. Kane. Geo-Marine, Inc., Plano, Texas, L-3.

² Brooks Air Force Base, *The First Seventy-Five Years*, (n.p., 1992).

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³ Brooks Air Force Base, *Commemorative Program, Pride in the Past, Faith in the Future – Brooks Air Force Base, 1917-1992*, (San Antonio Press, 1992), p. 9.

⁴ Freeman, “Historic Context,” L-23.

⁵ *Commemorative Program*, 1992.

⁶ Department of the Air Force, HQ, Washington DC to Chief of Engineers, Department of the Army, (June 5, 1952), Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base.

⁷ Department of the Air Force HQ to Chief of Engineers, Department of the Army, Revision of “Advance Planning FY53” Document. Various Minor Changes, (June 12, 1952), Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base.

⁸ HHM Interview with Lieutenant General George Schafer, November 22, 2002.

BIBLIOGRAPHY

1. Primary and unpublished sources:

Brooks Air Force Base, *Commemorative Program, Pride in the Past, Faith in the Future, Brooks Air Force Base, 1917-1992*. San Antonio Press, 1992.

Brooks Air Force Base, *The First Seventy-Five Years*. N.p., 1992. Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base.

“Department of the Air Force HQ, Washington DC to Chief of Engineers, Department of the Army.” June 5, 1952. Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base.

“Department of the Air Force HQ to Chief of Engineers, Department of the Army, Revision of ‘Advance Planning FY53’ Document. Various Minor Changes.” June 12, 1952. Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base.

2. Secondary and published sources:

Freeman, Martha. “Appendix L: Historic Context: Brooks Air Force Base, An American Flying Field, 1917-46.” Geo-Marine, Inc., Plano, Texas, 1995.

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E. Likely sources not yet investigated: The archives at the Edward H. White II Museum of Aerospace Medicine in Hangar 9 at Brooks City-Base contain a wealth of documentation that merits further exploration.

F. Supplemental Materials:

LIST OF ACRONYMS

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|---------|---|
| AFB | Air Force Base |
| AFRL | Air Force Research Laboratory |
| AMC | Aerospace Medical Center |
| AMD | Aerospace Medical Division |
| AMRL | Aerospace Medical Research Laboratory |
| ARL | Aeromedical Research Laboratory |
| BDA | Brooks Development Authority |
| BHF | Brooks Heritage Foundation |
| BRAC | Base Realignment and Closure |
| DOD | Department of Defense |
| HSD | Human Systems Division |
| ICBM | Intercontinental Ballistic Missile |
| MISS | Man in Space Soonest |
| MOA | Memorandum of Agreement |
| MOL | Manned Orbiting Laboratory |
| NASA | National Aeronautics and Space Administration |
| NHPA | National Historic Preservation Act |
| NPS | National Park Service |
| SACS | San Antonio Conservation Society |
| SAM | School of Aviation (Aerospace) Medicine |
| SHPO | State Historic Preservation Office |
| USAFSAM | U.S. Air Force School of Aerospace Medicine |
| WAC | Womens Air Corps |

PART IV. PROJECT INFORMATION

A. Federal Agency:

Air Force
311th Human Systems Wing
Brooks City-Base
San Antonio, Texas.

B. Project Causing Adverse Effect: The Brooks City-Base project is a cooperative partnership between the Air Force and the non-federal community in which the physical assets of the former Brooks AFB have been transferred from the Air Force to BDA, a local municipality under Texas statute. Under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its enabling regulations 36 CFR 800, the transfer of Federal property

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is an adverse effect that must be mitigated via a Memorandum of Agreement (MOA) between the lead federal agency, the State Historic Preservation Officer (SHPO) and other consulting parties invited to participate in the consultation.

In consultation with the Texas SHPO, the Air Force determined that seventeen buildings at Brooks City-Base were eligible for inclusion in the National Register of Historic Places. The Air Force developed an MOA in consultation with the Texas SHPO, City of San Antonio and BDA to mitigate the adverse impact that transfer would have on the seventeen historic properties at the former Brooks AFB. The MOA was also signed by two concurring parties, the San Antonio Conservation Society (SACS) and the Brooks Heritage Foundation (BHF). The MOA stipulated multiple measures, including preparation of a Historic American Buildings Survey (HABS) Level II documentation report. The Air Force, through the 311th Human Systems Wing, hired Earth Tech, Inc. to oversee the preparation of HABS documentation. Under contract to Earth Tech, HHM Inc. of Austin, Texas, gathered historical and architectural information and prepared a historic context and the HABS forms.

The following individuals contributed to this report:

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