LA-UR-07-3638

Decommissioning the Los Alamos Rack Tower Complex: Buildings TA-60-17 and TA-60-19

Historic Building Survey Report No. 272

Los Alamos National Laboratory

May 30, 2007
Survey No. 1032

Prepared for the Department of Energy,
National Nuclear Security Administration,
Los Alamos Site Office

prepared by

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LANL Historic Buildings Project Team, Ecology and Air Quality Group
Environmental Protection (ENV) Division
LOS ALAMOS NATIONAL LABORATORY

Introduction

The Department of Energy, National Nuclear Security Administration, Los Alamos Site Office (LASO) proposes to decommission the historic Los Alamos National Laboratory (LANL) rack tower facility located on Department of Energy land at Technical Area (TA) 60 (Maps 1 and 2). The Rack Tower Complex was built in 1986 to support underground atomic tests conducted at the Nevada Test Site (NTS) and includes a multi-floor rack tower and associated rack-assembly facility. This late Cold War facility also supported subcritical tests carried out at NTS after the cessation of atomic testing following the 1992 testing moratorium.

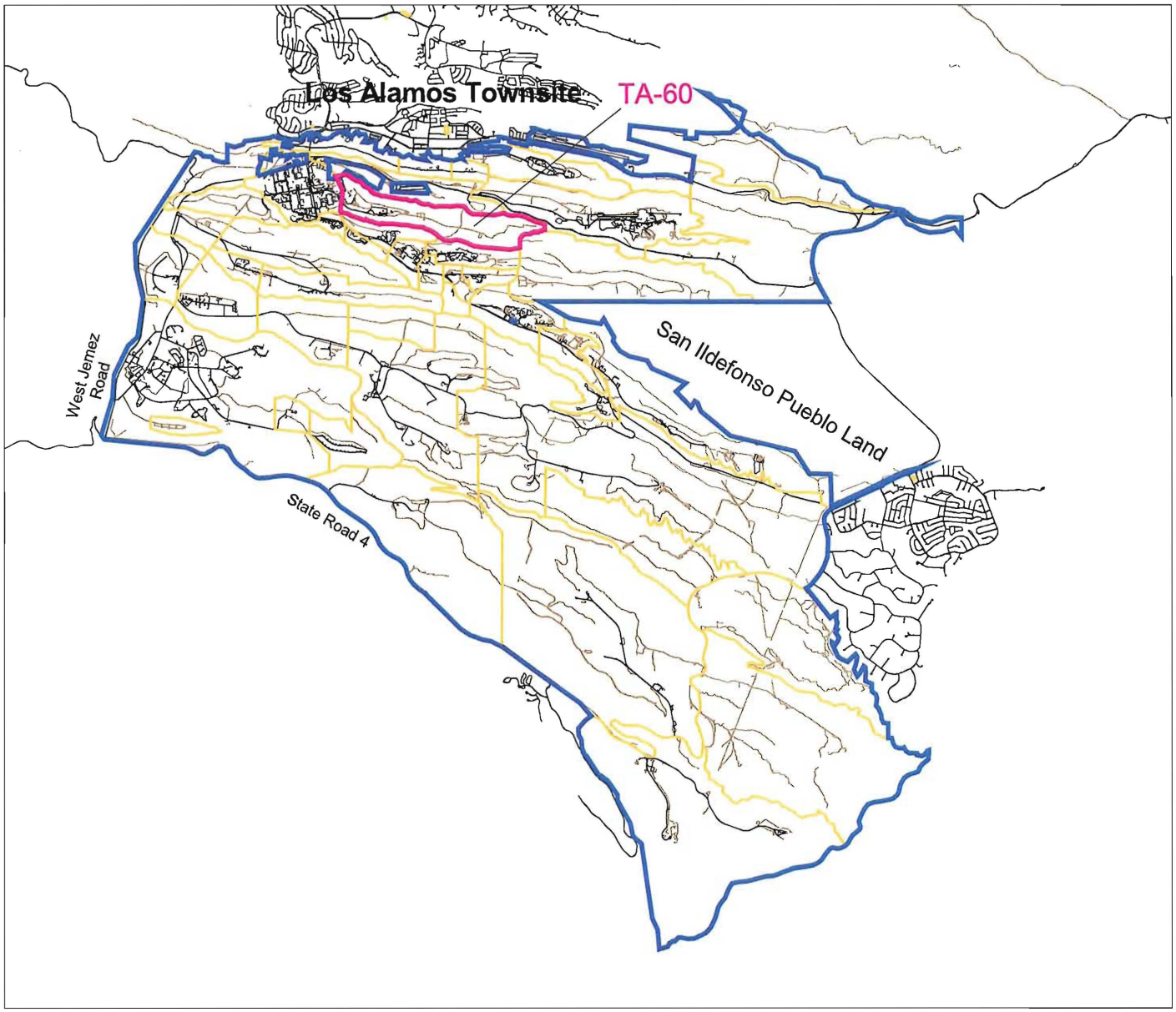
The following information has been prepared as part of a notification of potential adverse effect to the Rack Tower Complex (TA-60-17 and TA-60-19), which was declared eligible for the National Register of Historic Places in 2006 as part of a LANL multiple-property historic building assessment (*DX Division's Facility Strategic Plan: Consolidation and Revitalization at Technical Areas 6, 8, 9, 14, 15, 22, 36, 39, 40, 60, and 69*, LA-UR-05-3279) (McGehee *et al.* 2005). The proposed decommissioning action is part of LANL's Footprint Reduction project to phase out aging and obsolete properties that no longer support the Laboratory's mission. This site-closure action may result in the eventual demolition of the Rack Tower Complex. Decommissioning actions related to site closure may include the removal of historic fixtures and equipment that would adversely affect the attributes that make the two buildings eligible for the National Register of Historic Places.

This report is intended to provide background information necessary to initiate the Section 106 consultation process; additional documentation will follow when a treatment plan is developed and final mitigation measures are determined. This report contains a description of the proposed action, historical background information, building integrity and contamination information, a discussion of similar facilities within the Department of Energy complex, and a summary of historical significance. Building descriptions and floor plans are included in Appendix A.

The State Historic Preservation Officer (SHPO) is requested to concur that the proposed decommissioning has the potential to adversely affect the Los Alamos Rack Tower Complex. The SHPO is further requested to participate in the development of a Memorandum of Agreement (MOA) outlining measures to resolve this adverse effect.

Project Description

The Los Alamos Rack Tower Complex is scheduled for decommissioning (cleanup and possible demolition) because it is no longer needed to support the mission of the Laboratory. Both buildings are currently vacant. However, the Rack Tower Complex (including the pull-test trench in TA-60-17) was reactivated as recently as 2005 for the "Unicorn" underground subcritical test conducted at NTS in August 2006. LANL planning staff are considering adaptive reuse alternatives as part of the proposed decommissioning action. Reuse possibilities range from using the rack-assembly facility (TA-60-17) for LANL maintenance support services to using the rack tower (TA-60-19) as a heritage tourism site.



Los Alamos
National Laboratory
Historic Buildings Project Team
ENV-EAQ Ecology & Air Quality Group

1:110000

6000 0 6000 12000 Feet

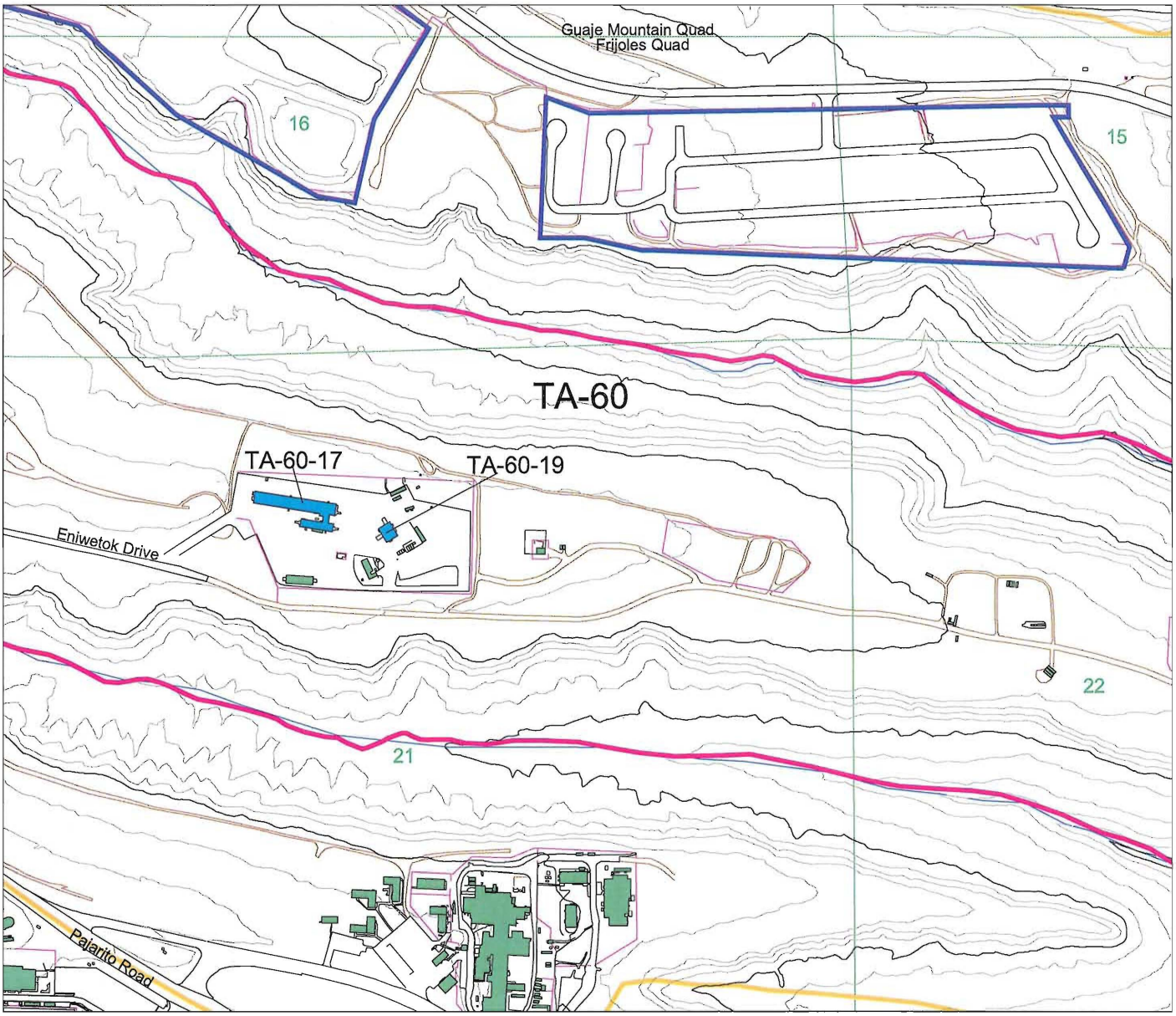
1000 0 1000 2000 3000 4000 Meters

N
W E
S

TA-60

Technical Area 60
LANL Boundary
Technical Areas
Roads
Roaddirt
Parkpave
Parkdirt

Map 1



Los Alamos
National Laboratory
Historic Buildings Project Team
ENV-EAQ Ecology & Air Quality Group

1:7050

400 0 400 800 Feet

90 0 90 180 270 Meters

N
W E
S

- Buildings Currently Being Evaluated
- Buildings/Structures
- Technical Area 60
- LANL Boundary
- 20 Foot Contours
- 100 Foot Contours
- Technical Areas
- Drainage
- Township, Section, Range
- USGS 7.5 Minute Quad
- Roads
- Roaddirt
- Parkpave
- Parkdirt
- Fences

TA-60

Map 2

Historical Background Information

U.S. Nuclear Testing

The world's first nuclear weapon test on July 16, 1945, conducted by the United States, occurred under the pressures of wartime conditions at Trinity Site in southern New Mexico. This event, followed by nuclear explosions over Japan three weeks later, hastened the end of World War II and began the era of nuclear weapon development and testing. In the early years of testing, the United States detonated nuclear explosives in the atmosphere, on the ground, under the ground, and under water. Concerned about the spread of radioactive products during atmospheric tests, scientists first experimented with contained underground tests at the Nevada Test Site in 1957. On October 31, 1958, the United States and the Soviet Union agreed to a moratorium on nuclear testing. Not quite three years later, on August 31, 1961, the Soviet Union announced its decision to resume nuclear weapon testing. The detonation of forty-five nuclear explosives shortly thereafter, within sixty-five days, made it apparent that the Soviets had used the moratorium to prepare for further atmospheric tests. President Kennedy ended U.S. compliance with his announcement of an underground nuclear test in September 1961, but the United States did not resume atmospheric testing until April 1962, seven months later.

After the moratorium, the United States conducted most high-yield atmospheric tests in the Pacific, while lower-yield atmospheric and underground tests were fired in Nevada. Scientists improved methods of testing nuclear explosives underground, encouraged by the effective containment of radioactive debris this technique makes possible. They developed new diagnostic experiments for measuring fission and fusion reactions, shifting their focus from the primary effects of atmospheric tests—light, heat, and blast—to the measurement of radiation propagation, particle emissions, and shock interactions. The Limited Test Ban Treaty, ratified by the United States, the United Kingdom, and the Soviet Union in 1963, halted atmospheric contamination from nuclear tests by prohibiting testing in all environments except under the ground. From 1963 to 1992, the United States conducted nearly all its nuclear tests at the Nevada Test Site.

Nuclear testing was necessary to ensure the credibility of America's deterrent. By revealing significant problems that calculations and laboratory tests were unable to detect, field tests were a final reliability check: They ensured that the weapons in our defense arsenal would work if needed; that safety and security features designed into weapons were adequate; and that U.S. weapons would survive a nuclear attack by an adversary. Finally, field tests ensured that the United States and its allies could meet the changing technological threats posed by the arsenals of unfriendly nations.

To remain scientifically sound, the weapon physics program of applied research could not be separated from experimental validation, which included carefully chosen and planned underground nuclear experiments. At the same time, field tests offered scientists a unique opportunity to investigate some basic physics problems— research that was difficult or impossible to do elsewhere. The complex behavior of nuclear explosions could not completely

be simulated by computer programs nor adequately explored by laboratory experiments. Theoretical calculations and laboratory investigation always preceded field tests, but the ultimate truth—the answers to the questions: are the theories valid, and will a weapon perform as expected?—was revealed at the test site.

Nuclear tests were of two general types. ***Performance*** tests were conducted to validate basic weapon physics theory or to evaluate the performance of a nuclear explosive. ***Effects*** tests evaluated the effects of radiation from a nuclear explosion on various critical components of missiles, warheads, and other military hardware. The United States conducted both nuclear performance tests and nuclear effects tests under the ground at the Nevada Test Site. Nuclear performance tests were normally conducted in a vertical, drilled hole. Both Los Alamos and the Lawrence Livermore National Laboratory designed, planned, and conducted performance tests. In contrast, nuclear effects tests normally took place in a horizontal, mined tunnel.

The testing process began at Los Alamos with both theoretical and experimental tests. Theoretical physicists made extensive calculations, refining them until they could predict with reasonable assurance that the design of a particular nuclear device would result in useful information from an underground test. Teams of scientists, engineers, and technicians investigated hydrodynamic effects by conducting explosions of nonnuclear materials, and experimentalists designed diagnostic experiments that were mounted on the test rack. These experiments evaluated the performance of a nuclear explosive and explored new concepts in weapon physics. They provided information by measuring the radiation—gamma rays, x rays, and neutrons—emitted from fission and fusion reactions.

At the Nevada Test Site, the focus of nuclear performance tests was the rack, a one-of-a-kind structure specifically designed for each test that held the nuclear explosive, diagnostic instruments, and downhole components of the timing and firing hardware. The rack was buried in a deep hole and covered with stemming materials to prevent leakage of radioactive debris and gases. Coaxial cables, blocked against gas flow, transmitted information about the detonation from detectors on the rack to recorders housed in trailers several hundred feet from surface ground zero, the point on the ground directly above the underground explosion.

Scientists fired a nuclear device by microwave or optical fiber signals from the Control Point. Data from the diagnostic recording stations in the trailers were transmitted to the Control Point in a similar manner. At Los Alamos, scientists compared predicted with actual results and refined their calculations. After a device was fired, radiochemists sent samples of radioactive debris—which was recovered from the underground cavity created by the explosion—to Los Alamos, where it was extensively analyzed. In effect a highly specialized physics laboratory, the completed rack, when emplaced downhole and ready for detonation, represented the efforts of hundreds of people—among them physicists, construction workers, engineers, technicians, drillers, geologists, and safety experts—who coordinated their efforts to conduct a successful test (Machen 1988).

Technical Area 60 (Sigma Mesa)

TA-60 was created in 1989 out of land that was originally within the boundaries of TA-3. Several abandoned experimental areas are located at TA-60, including a solar pond and test drill hole. Significant facilities on Sigma Mesa include support buildings for NTS underground testing activities. TA-60-19 contains two rack towers, and TA-60-17 has office, shop, and rack fabrication areas. Racks constructed and tested at this facility were sent to the NTS in support of the U.S. underground testing program, discontinued in 1992. Only a few rack towers exist in the United States; other similar properties are located in Las Vegas, Nevada, and at the NTS. TA-60 is the current location for a variety of support and maintenance operations. Pesticide, topsoil, and material storage areas are also located on Sigma Mesa (Figure 1).

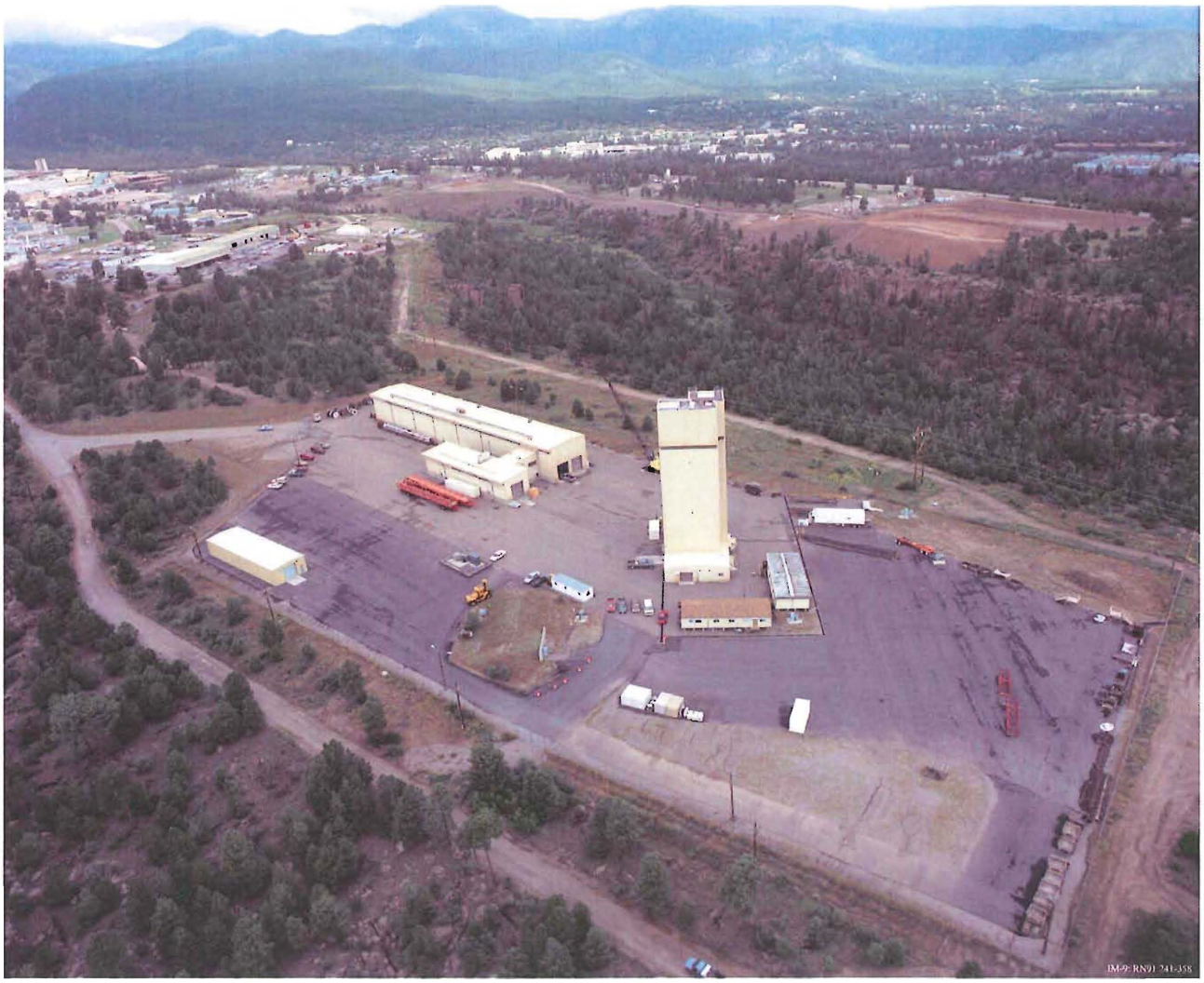


Figure 1. Aerial of TA-60 (1991)

The Rack Tower Complex (TA-60-17 and TA-60-19)

The Los Alamos Rack Tower Complex supported the following underground nuclear tests, including "Divider," the last U.S. test (Tim Fife, LANL, personal communication 2007).

Test Name	**Test Date**
Tornero	February 1987
Presidio	April 1987
Panchuela	June 1987
Midland	July 1987
Tahoka	August 1987
Lockney	September 1987
Waco	December 1987
Abilene	April 1988
Laredo	May 1988
Alamo	July 1988
Harlingen A&B	August 1988
Dalhart	October 1988
Monahans A&B	November 1988
Texarkana	February 1989
Tulia	May 1989
Amarillo	June 1989
Muleshoe	November 1989
Whiteface A&B	December 1989
Bowie	April 1990
Austin	June 1990
Sundown A&B	September 1990
Houston	November 1990
Bexar	April 1991
Floydada	August 1991
Lubbock	October 1991
Junction	March 1992
Victoria	June 1992
Divider	September 1992
Icecap	Readied at NTS, but not tested

Post-1992 Subcritical Experiments and the Los Alamos Rack Tower Complex

Subcritical tests have been conducted at the Nevada Test Site in the years following the 1992 moratorium on underground nuclear testing. These subcritical experiments (SCEs) are scientific experiments to obtain technical information in support of the Department of Energy's Stockpile Stewardship program to maintain the safety and reliability of the stockpile without nuclear testing. The Los Alamos Rack Tower Complex supported design aspects of several subcritical tests. These included Unicorn, a subcritical test that was conducted using a typical underground

test setup, including LANL wire-rope harnesses (used to lower the rack into its hole), a LANL rack, a deep hole, and a mobile tower structure (Figure 2) (Robert Miller, LANL, personal communication 2007).

Figure 2. Unicorn Site at NTS (2007)

Integrity Issues and Potential for Contamination

Although currently inactive, the Los Alamos Rack Tower Complex was reactivated two years ago to support the Unicorn subcritical test conducted at NTS. As a result, the pull-test trench and other associated equipment located in TA-60-17 are intact and in good condition (Figure 3). The rack tower has been well maintained and exhibits excellent integrity of feeling and setting (Figures 4 and 5). Additional equipment associated with NTS testing activities, including an abandoned test rack, is located outside the two buildings (Figures 6 and 7). The Rack Tower Complex is likely contaminated with standard industrial chemicals and oils; however, there is no history of radioactive or high-explosives contamination.

Figure 3. Interior view of TA-60-17 (2007)

Figure 4. Interior view of TA-60-19 (2007)

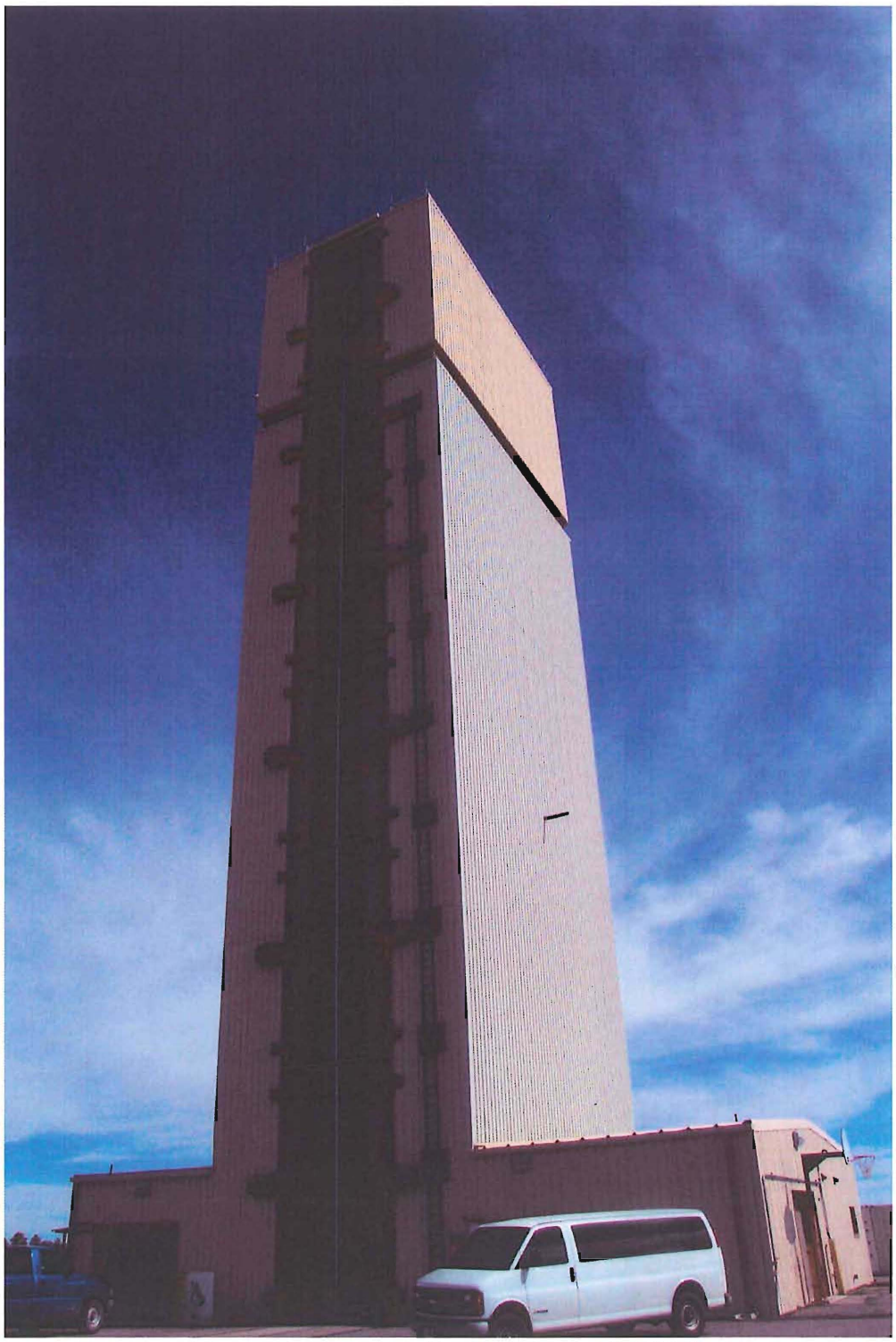


Figure 5. Exterior view of TA-60-19 (2003)

Figure 6. One of only two remaining LANL racks (2007)

Figure 7. View of TA-60-17 and outside equipment storage (2007)

Similar Facilities Across the Department of Energy Complex

The Livermore Rack Tower Complex at North Las Vegas

Los Alamos scientists worked on initial rack designs and pull-testing at their home laboratory, transporting the racks to Nevada prior to each underground test. However, Livermore researchers chose to develop their underground test racks and downhole placement systems at the Losee Road complex near the Department of Energy's Nevada Site Office in North Las Vegas. This group of adjoining buildings, known as the Atlas Facility, has been inactive since 1992 and is currently being used as a machine shop and experiment building (Figure 8). Three historic racks are still lying on the floor of the Atlas assembly building, including the Gabbs Rack, which was being prepared for one of Livermore's last tests when underground testing was halted in 1992 (Figure 9). This facility is the only other facility within the Department of Energy complex (and probably the only one in the world) that is architecturally and functionally similar to the Los Alamos Rack Tower Complex. At present, there are no plans to demolish Livermore's Atlas Facility (Eugene Hunt, NSTec, personal communication 2007). One major distinction exists between the two facilities—the Los Alamos Rack Tower Complex is the only facility that can be used to pull-test the wire-rope harnesses used with Los Alamos's rack design (Figure 10). Livermore's underground test design incorporated a series of metal pipes, not wire rope, to lower the racks down into the test holes (Figure 11) (Robert Miller, LANL, personal communication 2007).

Figure 8. Losee Road Atlas Tower (2007)

Figure 9. The Gabbs Rack at the Atlas assembly building (2007)

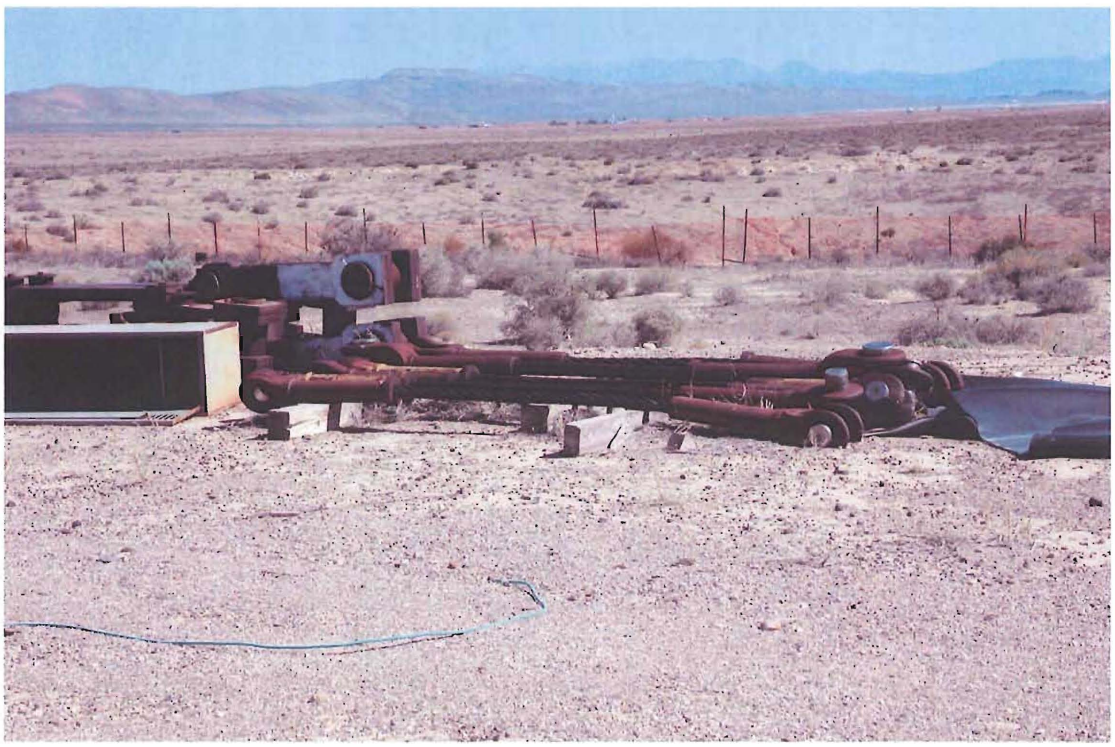


Figure 10. Los Alamos wire-rope harnesses at abandoned Icecap test site (2007)

Figure 11. Livermore pipe system at abandoned Gabbs test site (2007)

Rack Tower Modules at NTS

Portable rack tower modules or mobile service towers were used by Los Alamos and Livermore researchers during readiness preparations taking place at the actual NTS test locations. While architecturally reminiscent of the permanent rack towers at Los Alamos and at North Las Vegas, these mobile rack towers are architecturally and functionally distinct (Figure 12).

Figure 12. Rack tower modules at NTS (2007)

National Register Eligibility and LANL Historical Status

The Rack Tower Complex at TA-60 is a historically significant facility because of its association with the nation's Cold War-era underground testing program. This architecturally unique facility is one of the few remaining tower complexes in the world. The Rack Tower Complex was declared eligible for the National Register of Historic Places (Register) in correspondence between LASO and the State Historic Preservation Officer (SHPO) on April 18, 2006. TA-60-17 and TA-60-19 were deemed exceptionally significant due to their association with Cold War-era underground atomic testing. Additionally, the rack tower and the rack-assembly facility were both declared eligible for the Register under Criterion C (architectural and engineering significance).

The Los Alamos Rack Tower Complex has been identified as a candidate for long-term preservation in LANL's Cultural Resource Management Plan and has been listed as one of a handful of "signature" Cold War facilities at Los Alamos. In addition, the Rack Tower Complex has been identified as a potential site for heritage tourism following guidance from the Department of Energy/Headquarters' Office of History and Heritage Resources in compliance with the "Preserve America" Executive Order.

References Cited

Machen, Judy
1988 *The Los Alamos Nuclear Test Program: Field Test Operations.* LALP-88-21, Los Alamos National Laboratory.

McGehee, E.D., K.L.M. Garcia, S. McCarthy, E. Loomis, K. Towery, and J. Ronquillo
2005 *DX Division's Facility Strategic Plan: Consolidation and Revitalization at Technical Areas 6, 8, 9, 14, 15, 22, 36, 39, 40, 60, and 69.* Historic Building Survey Report No. 244. LA-UR-05-3279, Los Alamos National Laboratory.

Appendix A

Building Descriptions and Floor Plans: TA-60-17 and TA-60-19

Technical Area: 60
Building Number: 17
Original Function: Rack Assembly Facility (Assembly Building)
Current Function: Warehouse/Maintenance Shop
Date Constructed: 1986

Associated Theme: Underground Testing (NTS support)
Property Type: Lab/Processing (1st Tier)
Integrity: Excellent
Core: Yes
Eligibility: Yes

Buildings with same floor plan within TA: None


Oblique view of south and east sides


Oblique view of east side

Architectural Description:
The Rack Assembly Facility, TA-60-17, is one of the truly unique buildings at LANL, representing underground testing activities prior to a test-ban treaty instituted in 1992.

The layout of the building consists of two wings connected by a small control room and stairwell enclosure. The north wing is the harness fabrication and tensile test facility; the south wing is the paint building.

The building consists of substantial concrete footings, slabs, and stem wall. The interior concrete construction of the north wing contains a test trench approximately 200 ft long, 14 ft wide, and 6 ft deep. Both wings have train-type steel rails embedded in the 12-in.-thick concrete slab. Four-ft-high stem walls surround and enclose both buildings. Steel personnel doors and overhead coiling doors, 14 ft by 20 ft high, are cut into the concrete stem walls and extend into the metal framing of the building.

The building is a preengineered steel-frame building. The north wing is 300 ft by 44 ft by 37 ft high. The south wing is 120 ft by 29 ft by 23 ft high connected by a 30-ft-wide two-story connector building, 27 ft high. The steel framing consists of 20-ft bays, equally spaced and

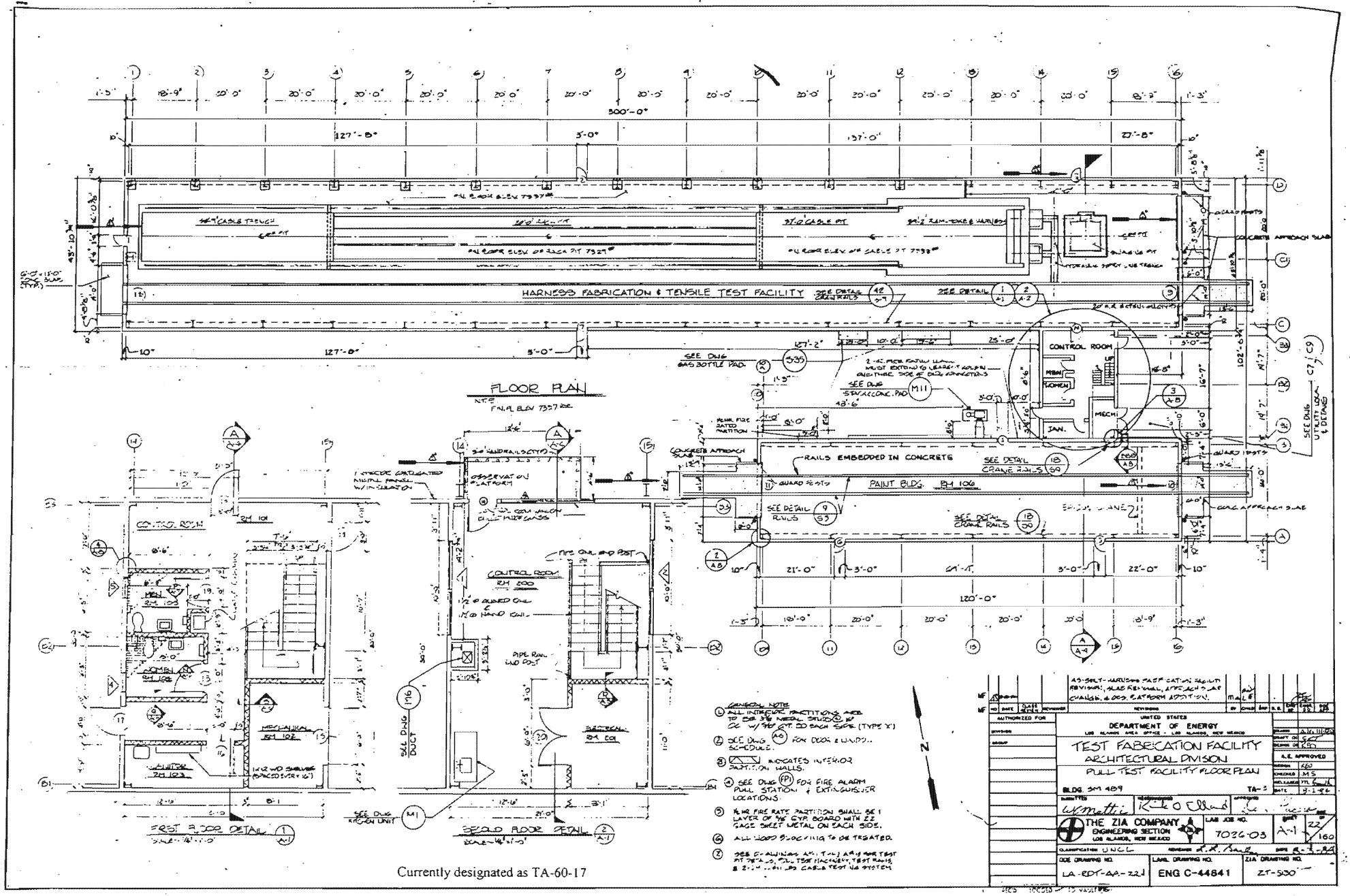
supported by columns and beams made of "I" shaped steel. "Z" shaped girts and purlins support the metal exterior panels on the walls and roof. The roof building of the north wing is a 12/1 low-slope gable roof system. The roof building of the south wing is a 12/1 shed roof sloping to the south. The exterior wall panels are 24-gauge, painted, raised rib system; the roof is a 20-gauge roof system. Numerous skylights occur every 20 ft throughout the roof system. HVAC/mechanical equipment is visible on the roof of both wings of the building. Rain gutters and downspouts occur at 40-ft intervals around the building. A copper lightning-arrester system is visible around the eave of the roof.

Asphalt paving, concrete sidewalks, and concrete aprons leading to the exterior doors surround the building. The steel-rail system extends outside the building approximately 20 ft to the east and to the west. A 36-ft-high by 12-in. air-exhaust stack and pad-mounted fan are situated between the two wings of the building. Exterior windows are visible only in the south wing of the building, located in a high wall configuration. The connector portion of the building has two windows of normal height and size opening to the control-room area. Two steel roof access ladders were latter additions to the exterior of the buildings.

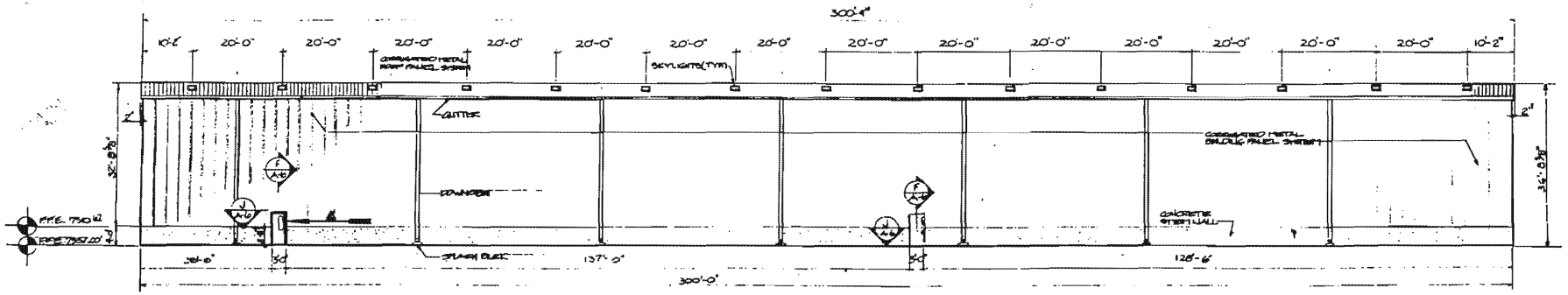
The building exterior is in excellent condition, showing signs of weathering but no indication of structural damage or water infiltration.

Historical Background:
The racks assembled at TA-60-17 were used for underground nuclear testing activities at the Nevada Test Site.

Determination of Eligibility:
This building meets National Register of Historic Places criteria in that it possesses integrity of location, design, setting, materials, workmanship, feeling, and association. Although this facility is of recent construction, the building is eligible for inclusion on the Register as a significant property within TA-60. The building is significant under Criterion A because of its association with the Laboratory's late Cold War nuclear weapons program and the key role it played in support of underground testing at the Nevada Test Site. This building is also eligible under Criterion C for its characteristic design related to underground testing.

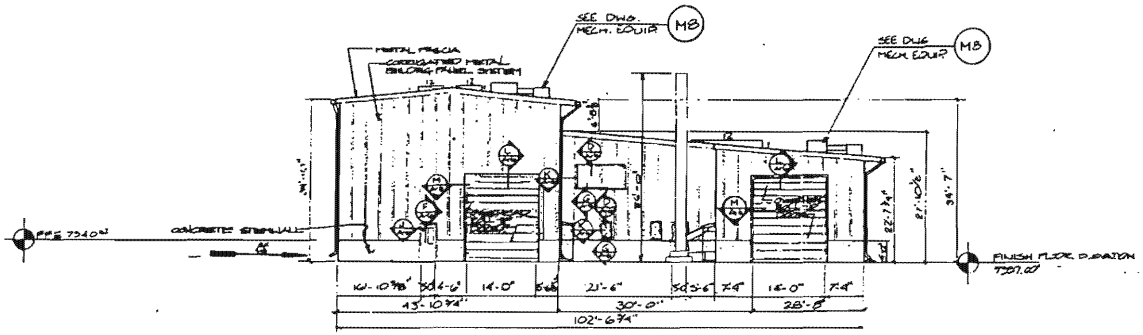


Currently designated as TA-60-17



NORTH ELEVATION

SCALE: 1/8" = 1'-0"



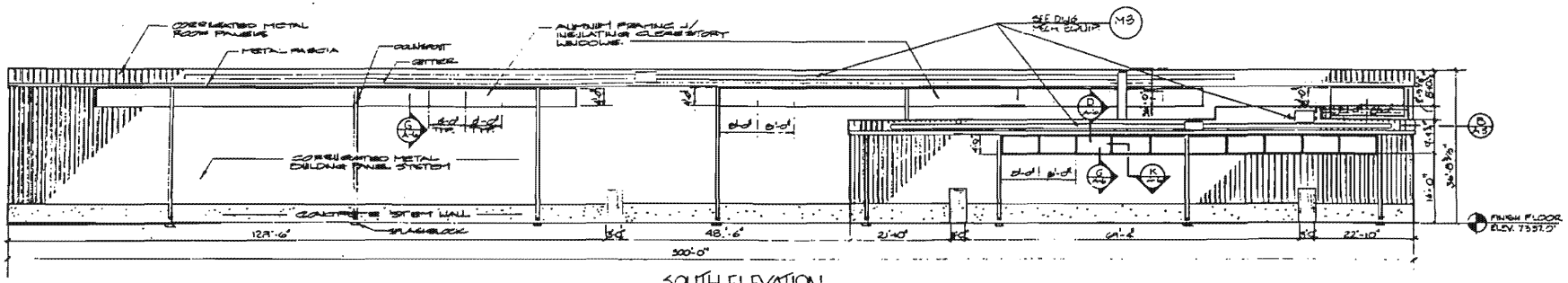
WEST ELEVATION

SCALE: 1/8" = 1'-0"

Currently designated as TA-60-17

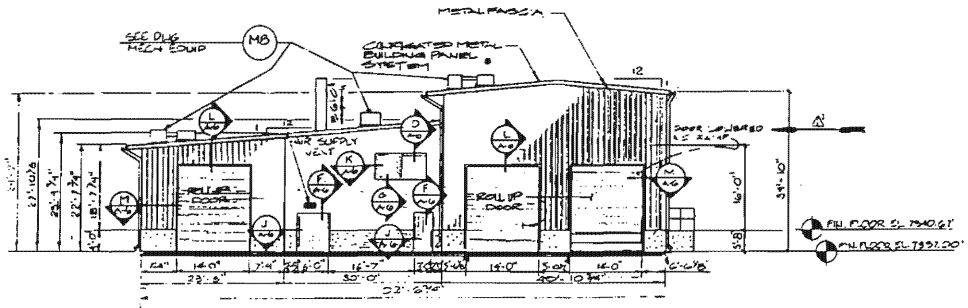
AUTHORIZED FOR	UNITED STATES DEPARTMENT OF ENERGY LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO		
	TEST FABRICATION FACILITY ARCHITECTURAL DIVISION		
	NORTH & WEST ELEVATIONS		
	BLDG. SM 484	TA- 3	
DESIGNED: William Hart	DRAWN: K. L. Holland	APPROVED: Don Lucero	
THE ZIA COMPANY ENGINEERING SECTION LOS ALAMOS, NEW MEXICO	LAB JOB NO. 7086-03	SHEET A-2	OF 23
CLASSIFICATION: UNCL	REVISION: R. E. Smith	DATE: 8-3-84	
DOE DRAWING NO. LA-RDT-AA-231	LANL DRAWING NO. ENG C-44841	ZIA DRAWING NO. ZT-5130	

LOGGED ✓ TO VAULT



SOUTH ELEVATION

SCALE 3/16"=1'-0"



EAST ELEVATION

SCALE 3/16"=1'-0"

Currently designated as TA-60-17

UNITED STATES DEPARTMENT OF ENERGY LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO			
TEST FABRICATION FACILITY ARCHITECTURAL DIVISION SOUTH & EAST ELEVATION			
BLDG. SM 889	TA-3		
THE ZIA COMPANY ENGINEERING SECTION LOS ALAMOS, NEW MEXICO	LAB JOB NO. 7026-03	A-3	24 / 160
DOE DRAWING NO. LA-RDT-AA-241	LANL DRAWING NO. ENG C-44841	ZIA DRAWING NO. ZT-5150	

ROOM INFORMATION CHART

RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE	RM NO	NET SQ FOOTAGE
100	12494	106	56	UTILITY	
101	67	107	117	200	380
102	92	108	78	201	39
103	86	109	3148	202	166
104	85	110	253	-	-
105	52	MZ100	54	-	-

TOTAL ROOM NET SQUARE FOOTAGE (BUILDING) = 17,181

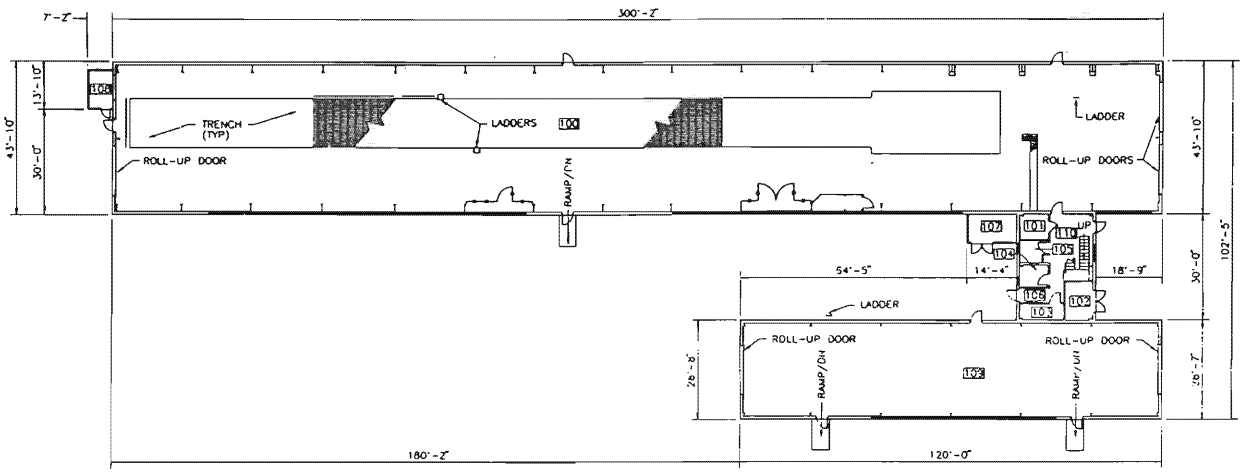
GROSS SQUARE FOOTAGE (BUILDING) = 18,213

LEGEND

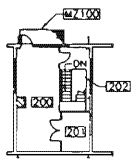
- LOUVER
- UTILITY SPACE
- WINDOW
- WOOD OR METAL STUD
- CHAIN LINK FENCE
- I BEAM

NOTES

1. ALL EXTERIOR WALLS ARE 12" THICK UNLESS OTHERWISE NOTED.
2. ALL INTERIOR WALLS ARE 5" THICK UNLESS OTHERWISE NOTED.
3. REFERENCE DRAWING C-44654 SHT E9 AND C-44982 SHT AP-1.
4. ROOM NET SQUARE FOOTAGE IS COMPUTED BY MEASURING FROM THE INSIDE FACE OF EXTERIOR WALLS TO THE CENTERLINE OF ALL OTHER WALLS. AREAS SHOWN ARE ROUNDED TO THE NEAREST SQUARE FOOT.
5. GROSS SQUARE FOOTAGE IS EQUAL TO ALL FLOOR AREA (INCLUDING ALL OPENINGS IN FLOOR SLABS) MEASURED TO THE OUTER SURFACES OF EXTERIOR OR ENCLOSING WALLS, AND INCLUDES ALL FLOORS, MEZZANINES, HALLS, VESTIBULES, STAIRWELLS, SERVICE AND EQUIPMENT ROOMS, PENTHOUSES, ENCLOSED PASSAGES AND WALKS, FINISHED USABLE SPACE WITH SLOPING CEILINGS (SUCH AS ATTIC SPACES) HAVING 5 FEET OR MORE HEADROOM, AND APPENDED COVERED SHIPPING OR RECEIVING PLATFORMS AT TRUCK OR RAILROAD CAR HEIGHT. ALSO INCLUDED IN GROSS FLOOR AREA, BUT CALCULATED ON ONE-HALF OF ACTUAL FLOOR AREA, ARE COVERED OPEN PORCHES, PASSAGES AND WALKS, WITH APPENDED UNCOVERED RECEIVING AND SHIPPING PLATFORMS AT TRUCK AND RAILROAD HEIGHT.
6. DIMENSIONS SHOWN ARE ROUNDED TO THE NEAREST INCH.



Currently designated as TA-60-17



FIRST FLOOR PLAN

SCALE: 1/16" = 1'-0"

16 12 8 4 0 16 32 64

GRAPHIC SCALE

N

SECOND AND MEZZANINE FLOOR PLAN

FIELD VERIFIED 04-27-94

NO	DATE	CLASS REV	DESCRIPTION	DRWN	VER	CHKD	REL	SUB	REC	APP

JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
RACK ASSEMBLY FACILITY
ARCH: FIRST, SECOND AND MEZZANINE FLOOR PLAN

BLDG 17 TA-60

DRAWN
VERIFIED
CHECKED
RELEASED
DATE 1-30-95

SUBMITTED JERRY FORTE Jerry Forte
RECOMMENDED FRED THOMPSON
APPROVED FRED THOMPSON

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 OF 1

CLASSIFICATION U REVIEWER T. GUSDORF DATE 5-29-95

PROJECT # 7556

DRAWING NO AB268

REV

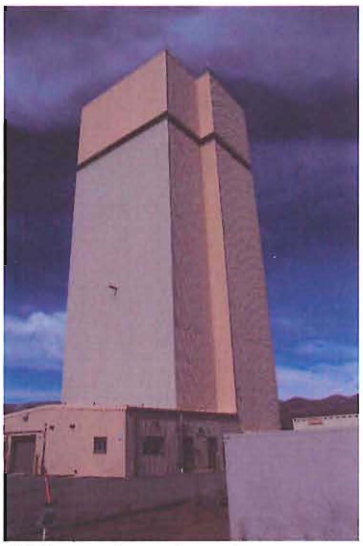
JCI NO 91-011

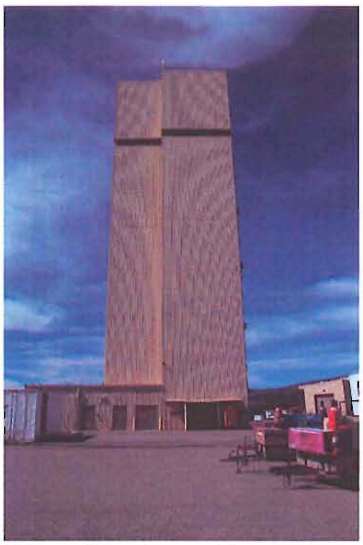
Technical Area: 60
Building Number: 19
Original Function: Test Fabrication Facility (Rack Tower)
Current Function: Unoccupied
Date Constructed: 1986

Associated Theme: Underground Testing (NTS support)
Property Type: Lab/Processing (1st Tier)
Integrity: Excellent
Core: Yes
Eligibility: Yes

Buildings with same floor plan within TA: None


Oblique view of northwest and southwest sides


Oblique view of southeast and northeast sides


View of northeast side

Architectural Description:
The Test Fabrication Facility, TA-60-19, is a twelve-story building measuring 47 ft 7 in. by 63 ft 11 in. at the base. Above the first floor the building is L-shaped and centered around two towers measuring 47 ft 7 in. by 42 ft 1 in. The net square footage of the first floor is 4,827 ft^2. The upper floors contain 1,160 ft^2. The building was constructed with a reinforced concrete foundation and floor slab. The building's enclosure consists of a corrugated, insulated 24-gauge metal wall-panel system over 6-in. girts attached to a combination of W 12 by 106 steel columns and W 14 by 120 steel columns, depending on their location. Each of the twelve levels is 10 ft in height with Level 13 being 7 ft in height. The entire building is 127 ft tall.

The first level contains two workrooms, the base of the two towers, two restrooms, an office, the stairwell, and an elevator. Set within the concrete floor of level 1 is the test hole for each tower. The test holes are 10 ft 2 in. in diameter. The first-level workrooms have a steel-column and insulated-panel system over a concrete foundation and floor slab. Twenty-four-gauge metal roof decking covers the low-pitched roofs. Numerous doors on the first level provide access into the facility. The west elevation contains a roll-up overhead door and a single hollow-metal and half-glass door. The south elevation has a roll-up overhead door as well. The east elevation has a single hollow-metal door, a single hollow-metal and half-glass door, and a pair of hollow-metal

doors. The north elevation has a single hollow-metal and half-glass door. The building has few windows; they are aluminum double-hung and fixed units.

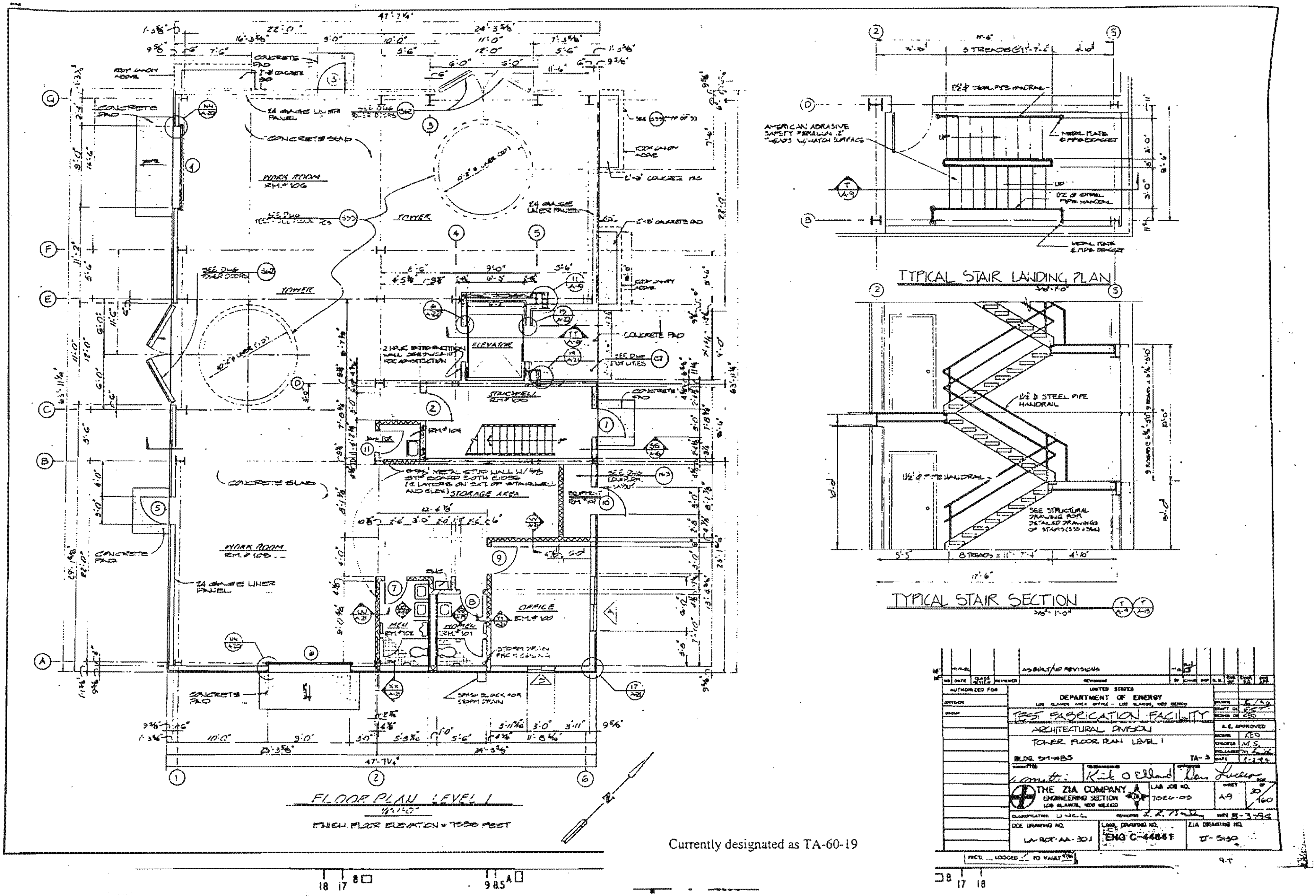
Levels 2 through 10 contain the work levels for the two towers, the stairwell, and the elevator. The elevator is operable at levels 1 through 11 inclusive. Above level 11, access is limited to the stairs.

Each level above level 1 has an exposed structural system and measures 25 ft 7 in. wide. The floors were constructed with steel beams and floor channels covered with quarter-inch raised safety plates. The walls are made of exposed steel girts, columns, and the inside of the corrugated, insulated metal wall system. The ceiling consists of the exposed floor system for the level above. The second level is enclosed around the perimeter with 1.5-in. steel pipe guardrails. Each tower has a test-hole opening onto a pair of 11-ft-wide by 20-ft-tall operable exterior doors. The radius of the test hole within each tower level is 5 ft 6 in. Levels 12 and 13 and the remaining building contain one pair of operable doors spanning a total of 27 ft. Levels 11 and above, to the roof deck, are one large open area containing a 75-ton crane set on tracks.

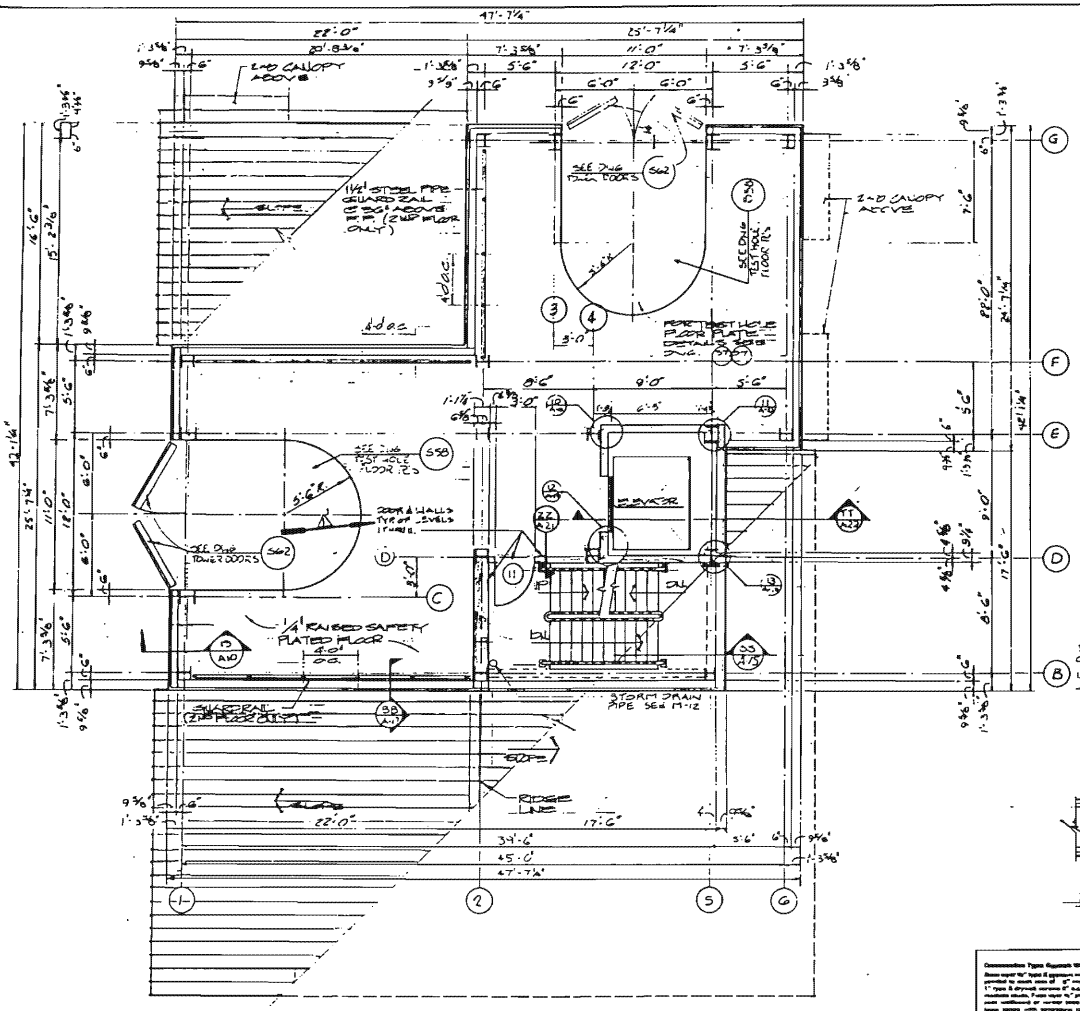
A 1.5-in.-diameter steel pipe rail encloses the entire perimeter of the roof deck.

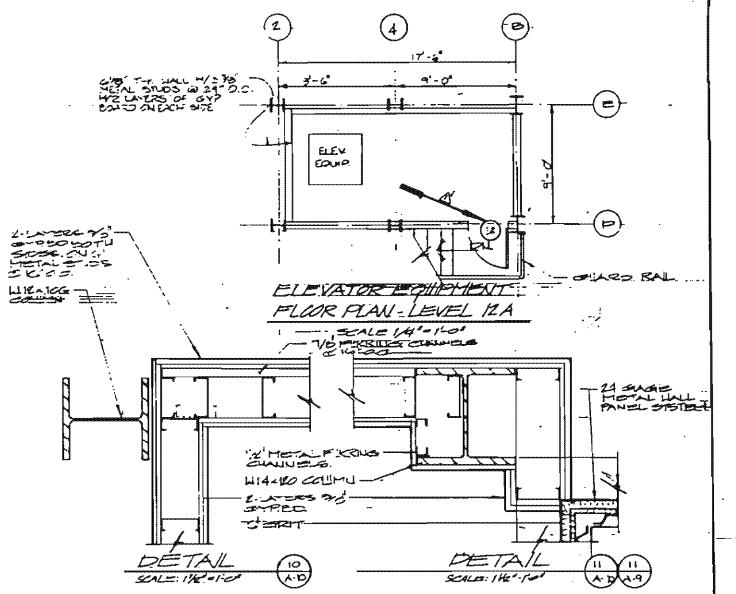
Historical Background:
The Test Fabrication Facility tested the racks made at TA-60-17 for use at the NTS.

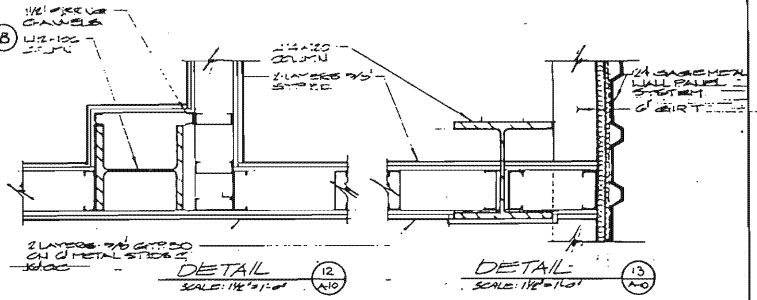
Determination of Eligibility:
This building meets National Register of Historic Places criteria in that it possesses integrity of location, design, setting, materials, workmanship, feeling, and association. Although this facility is of recent construction, the building is eligible for inclusion on the Register as a significant property within TA-60. The building is significant under Criterion A because of its association with the Laboratory's late Cold War nuclear weapons program and the key role it played in support of underground testing at the Nevada Test Site. This building is also eligible under Criterion C for its characteristic and unique design related to underground testing.



Currently designated as TA-60-19



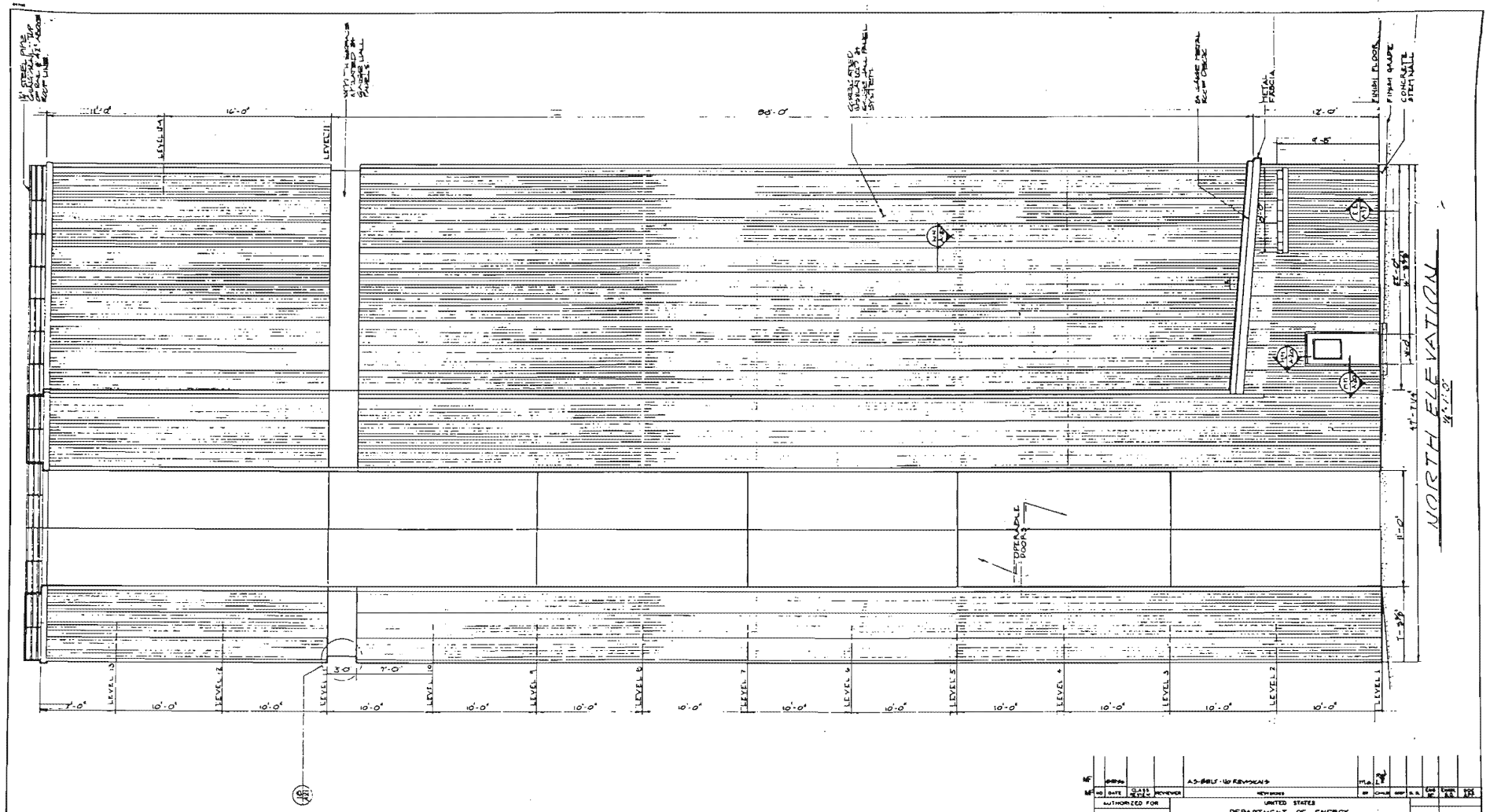




2-HOUR FIRE RATING

Currently designated as TA-60-19

AS BUILT CHANGE OF TYPE OF DOOR INSTALLED & SHEET ROCK ADDED	
AUTHORIZED FOR	UNITED STATES DEPARTMENT OF ENERGY LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO
	TEST FABRICATION FACILITY
	ARCHITECTURAL DIVISION
	FLOOR PLAN LEVELS 2-10, 12A & DETAILS
	BLDG. 21-1405 TA-3
	THE ZIA COMPANY ENGINEERING SECTION LOS ALAMOS, NEW MEXICO
	LAB JOB NO. 7026-03 SHEET TA-10
	DOE DRAWING NO. LA-ROT AA-31.1
	LABL DRAWING NO. ENG C-44841
	ZIA DRAWING NO. ZT-5150
	RECD LOGGED TO VAULT



Currently designated as TA-60-19

UNITED STATES
DEPARTMENT OF ENERGY
LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO

TEST FACILITY
ARCHITECTURAL DIVISION

TOWER NORTH ELEVATION

BLDG. 21-1486 TA-3

THE ZIA COMPANY
ENGINEERING SECTION
LOS ALAMOS, NEW MEXICO

LAB JOB NO. 7026-03

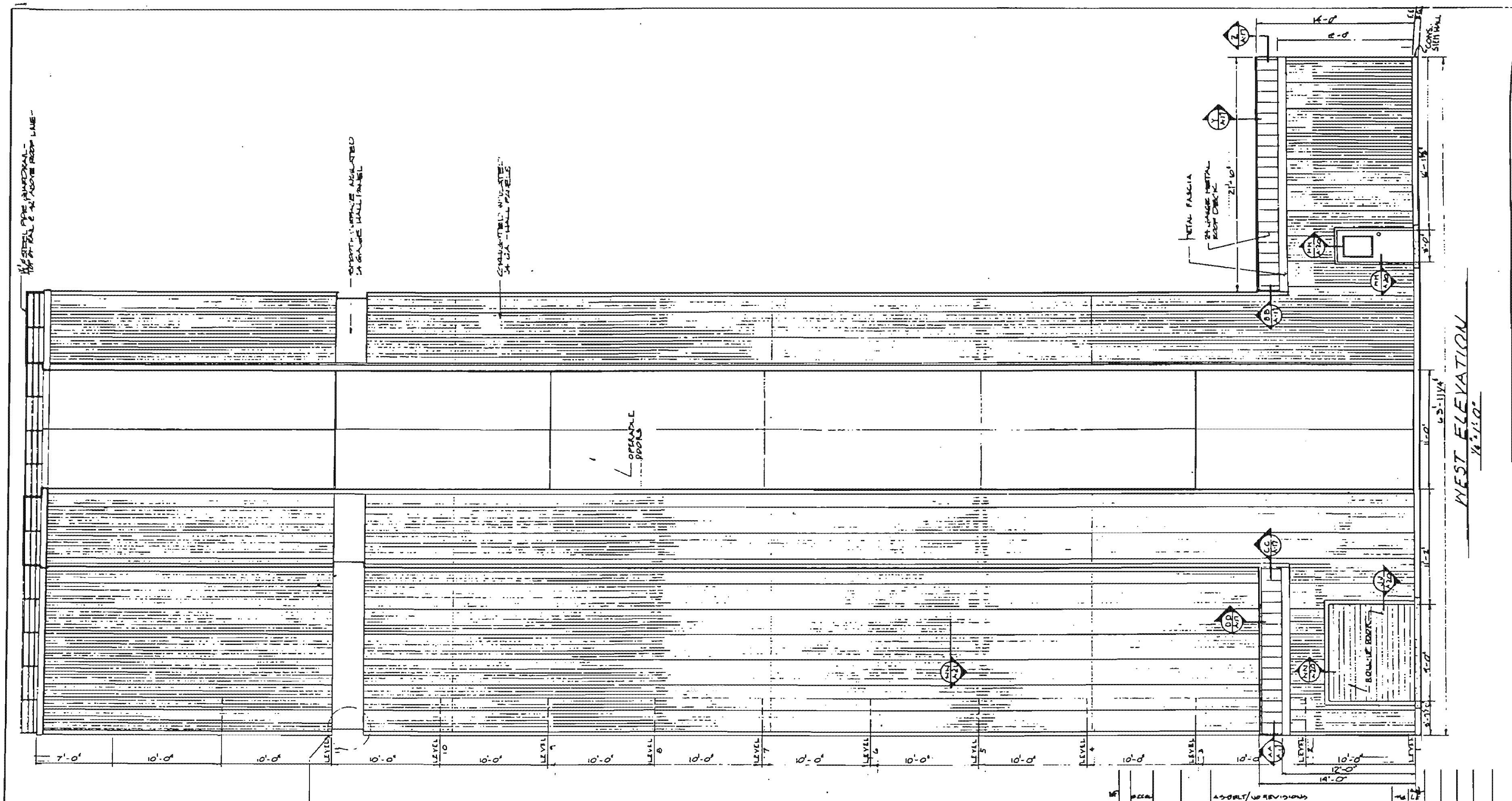
SHEET A-11

DOE DRAWING NO. LA-REF-AM-321

LANL DRAWING NO. ENG C-4484 1

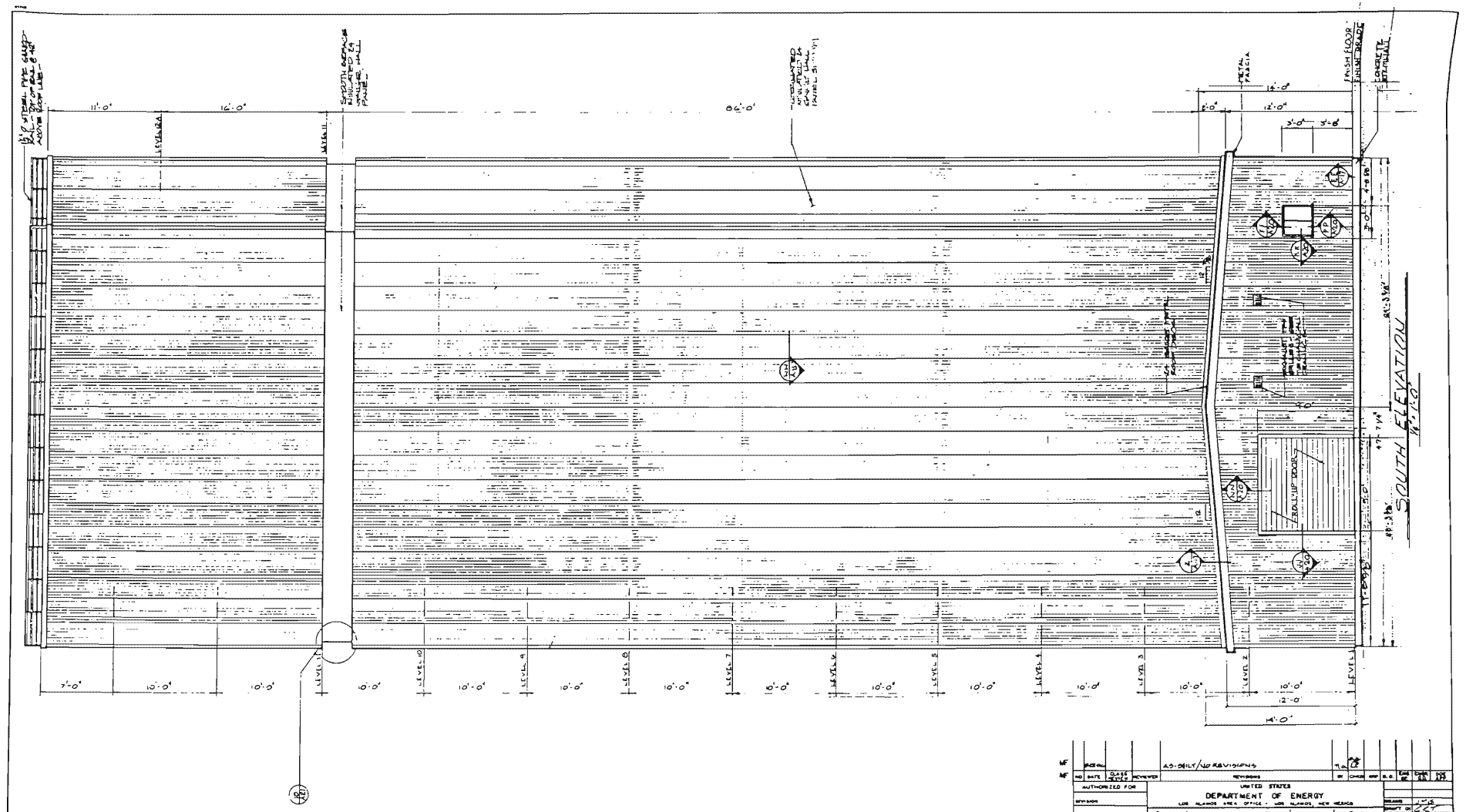
ZIA DRAWING NO. ZT-580

DATE 8-3-84



UNITED STATES DEPARTMENT OF ENERGY	
TEST FABRICATION FACILITY	
ARCHITECTURAL DIVISION	
TOWER WEST ELEVATION	
BLDG. SM-1485	TA-5
THE ZIA COMPANY ENGINEERING SECTION LOS ALAMOS, NEW MEXICO	
LAB JOB NO. 7066-05	SHEET A-2, 33 OF 160
DATE 8-3-84	
DOE DRAWING NO. LA-RDT-M-331	LANL DRAWING NO. ENG C-44841
ZIA DRAWING NO. ST-5130	

Currently designated as TA-60-19



Currently designated as TA-60-19

AS-BUILT/NO REVISIONS

UNITED STATES
DEPARTMENT OF ENERGY
LOS ALAMOS AREA OFFICE - LOS ALAMOS, NEW MEXICO

"85" FABRICATION FACILITY

ARCHITECTURAL DIVISION

1 REAR SOUTH ELEVATION

BLDG 34-1485 TA-3

THE ZIA COMPANY
ENGINEERING SECTION
LOS ALAMOS, NEW MEXICO

LAB JOB NO. 7026-03

SHEET A13 34/60

A.E. APPROVED

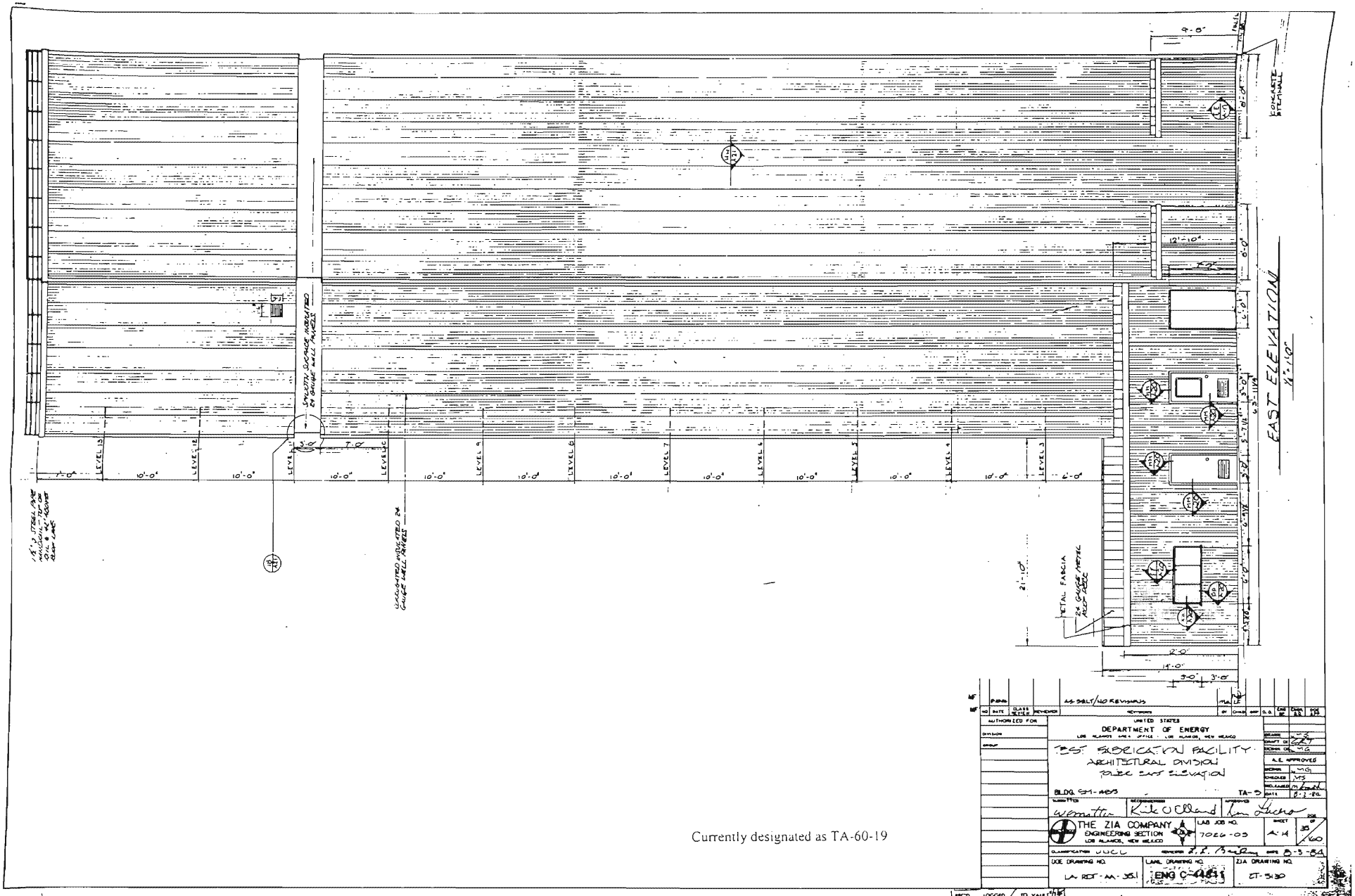
DRAWN JVG
CHECKED MS
RELEASED
DATE 8-2-94

DOE DRAWING NO. LA-85T-AA-34.1

LABEL DRAWING NO. ENG C-44841

ZIA DRAWING NO. ZT-930

RECD - LOGGED & TO VAULT



Currently designated as TA-60-19

UNITED STATES
DEPARTMENT OF ENERGY
LOS ALAMOS AREA OFFICE · LOS ALAMOS, NEW MEXICO

TEST FABRICATION FACILITY
ARCHITECTURAL DIVISION
PUBLIC SAFETY ELEVATION

BLDG. 521-1683 TA-3

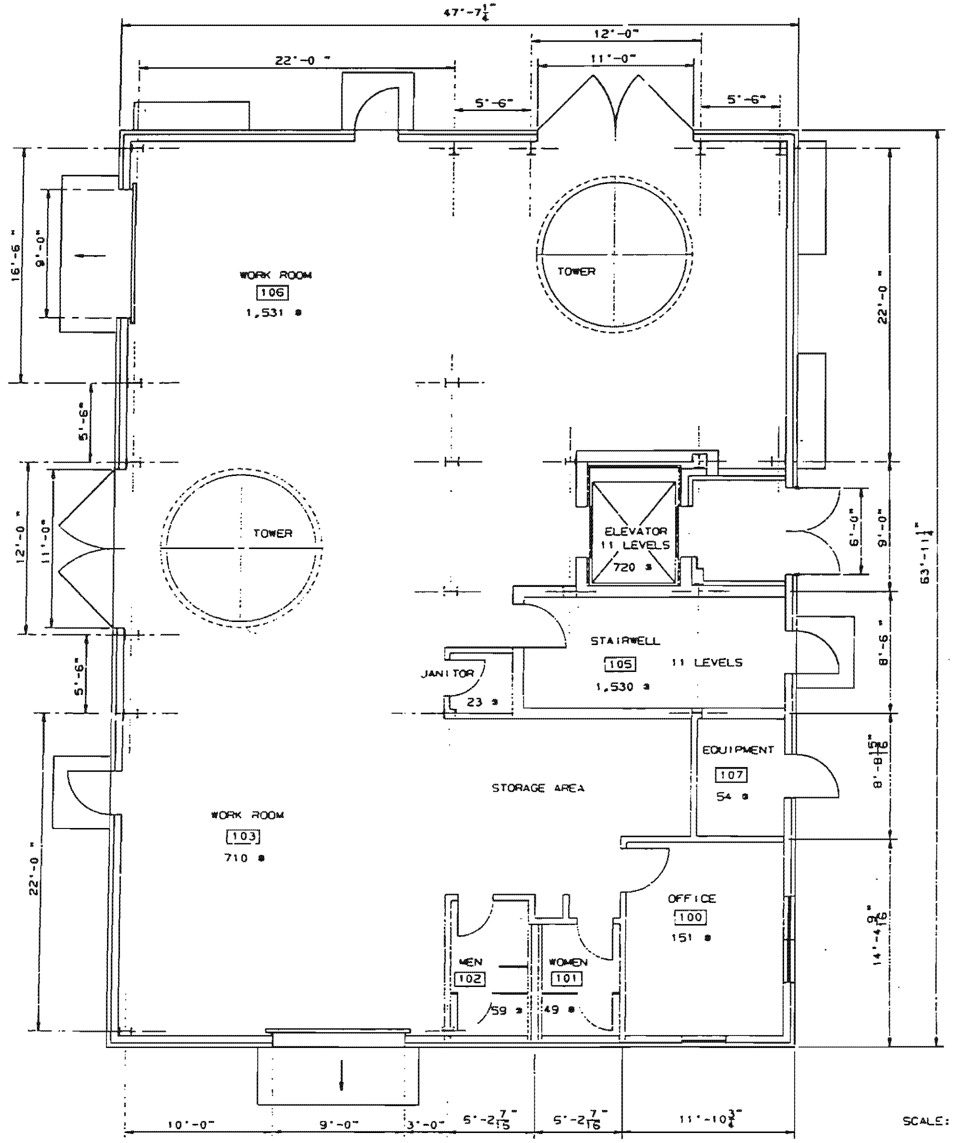
THE ZIA COMPANY
ENGINEERING SECTION
LOS ALAMOS, NEW MEXICO

LAB JOB NO. 7026-03
SHEET A-14
35/60

DOE DRAWING NO. LA-ROT-AA-351
LANL DRAWING NO. ENG C-4851
ZIA DRAWING NO. ET-530

AS BUILT/NO REVISIONS

8-3-84



FLOOR PLAN LEVEL 1

SCALE: 1/4" = 1'-0"

0 1 2 3 4 5 7 10

GRAPHIC SCALE

TOTAL SQ. FT. = 4927

Currently designated as TA-60-19

DRAWN ON CADD

NO.	DATE	CLASS REV.	REVISIONS	DWN	DES	REL	REQ APP	REQ B.O.	REC	APP

FACILITIES ENGINEERING DIVISION

TEST FABRICATION FACILITY

FLOOR PLAN LEVEL 1

DRAWN	R.L.R
DESIGN	
CHECKED	H. Sa...
RELEASED	
DATE	11-4-94

BLDG. SM-1485 TA-3

SUBMITTED RECOMMENDED APPROVED HB ...

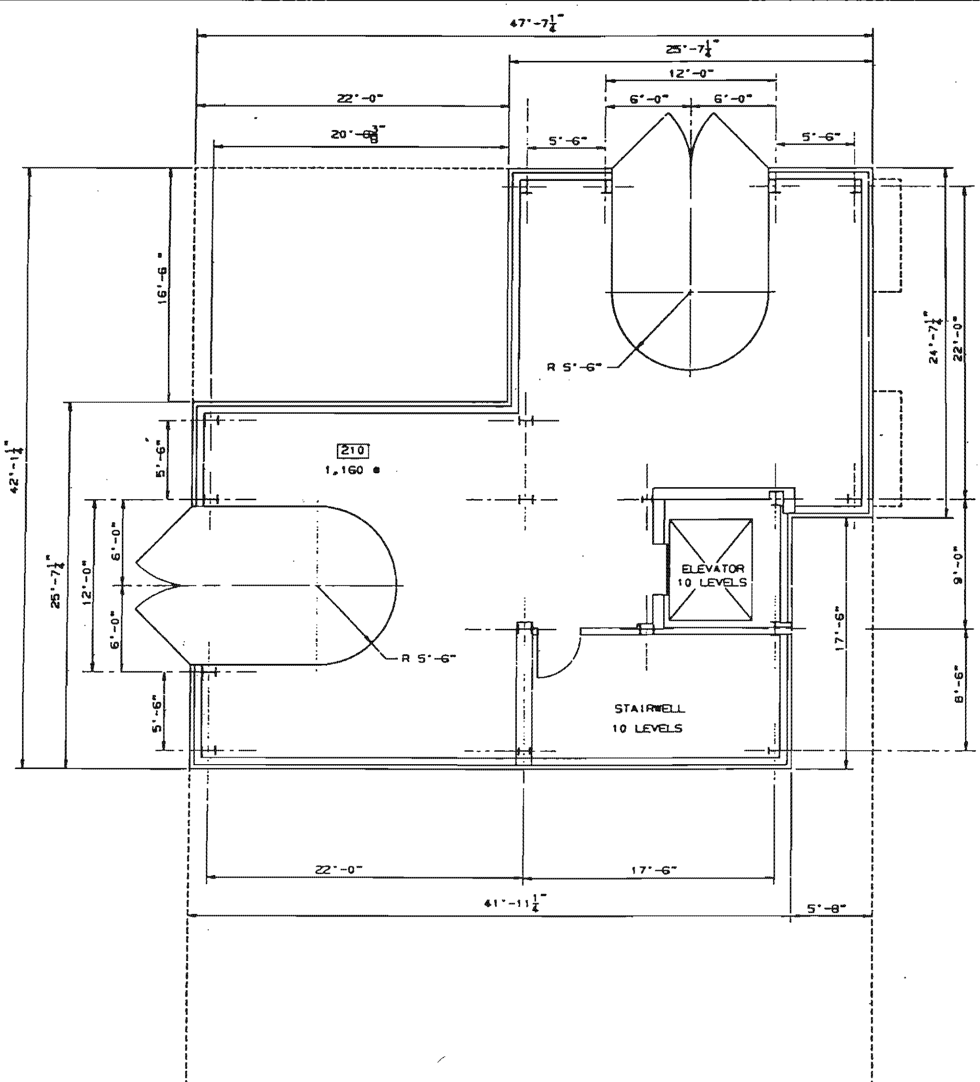
Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 1 — 1 OF 2

CLASSIFICATION U REVIEWER HB ... DATE 11/14/00

REQUESTING DIVISION | LAB JOB NO. | DRAWING NO. ENG-R7072 | REV.

REQUESTING GROUP



FLOOR PLAN LEVELS 2 THRU 10

SCALE: 1/4" = 1'-0"
0 1 2 3 4 5 7 10
GRAPHIC SCALE

TOTAL SQ. FT. = 1160

Currently designated as TA-60-19

DRAWN ON CADD

FACILITIES ENGINEERING DIVISION

TEST FABRICATION FACILITY

FLOOR PLAN LEVELS 2-10

BLDG. SM-1485 TA-3

DRAWN R.L.R

DATE 11-4-98

Los Alamos — Los Alamos National Laboratory, Los Alamos, New Mexico 87545

SHEET 2 OF 2

CLASSIFICATION U

LAB JOB NO.

DRAWING NO. ENG-R7072