LA-UR-01-2303

LANL Administration Building, TA-3-43; An Eligibility Assessment Report

Cultural Resource Report No. 192

Los Alamos National Laboratory

April 24, 2001
Survey No. 815

Prepared for the Department of Energy
Los Alamos Area Office

prepared by

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Introduction:

The following information has been prepared as part of a notification of potential adverse effect to a historic Los Alamos National Laboratory (LANL) property located at Technical Area (TA) 3: the main administration building, TA-3-43. The proposed decontamination and decommissioning (D&D) action is part of LANL's routine phasing out of aging properties and will result in the demolition of building TA-3-43. The D&D activities will adversely affect the attributes that make this building eligible for the National Register of Historic Places.

This report is intended to provide the initial 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 short report contains a description of the proposed action, historical background information, a brief property description, building integrity and contamination information, and a recommendation for National Register of Historic Places eligibility.

The State Historic Preservation Office is requested to concur with the eligibility determination contained in this report and to concur that the proposed D&D action will adversely affect building TA-3-43.

Project Description:

In April 2001, a historic building survey was conducted for building TA-3-43. The main LANL administration facility was originally built in 1955 to support essential post-World War II administrative and scientific activities.

TA-3-43 is scheduled for clean up and eventual demolition because it is aging and can no longer provide the support needed for crucial LANL administrative and security functions. Construction of a new administrative facility for general management and theoretical and computational research is planned at TA-3 at the former location of the Sherwood and Scyllac Buildings. The decommissioning of these two buildings is discussed in LANL report #LA-UR-00-5888, *Sherwood and Scyllac Buildings, TA-3-105 and TA-3-287; An Eligibility Assessment Report,* and a follow up memorandum of agreement between the Department of Energy Los Alamos Area Office and the New Mexico State Historic Preservation Division. Any additional work activities associated with the demolition of the current administration building and the construction of the proposed new facility (such as staging locations and aggregate processing areas) will be discussed in a future report, as details of these activities become known.

TA-3-43 can no longer reliably meet functional and safety requirements associated with the electrical, mechanical, and plumbing systems, and with the building envelope itself. Many of the building's systems were not designed to handle modern demands for increased power and high-speed communications. System components are also failing due to age. In addition to functional requirements, primary safety issues include the ability to withstand a seismic event, conformance with National Electric and Life Safety

Codes, and asbestos contamination. Specifically, TA-3-43 does not meet current DOE or Uniform Building Code seismic requirements. A structural evaluation indicates that the building's seismic capacity is about 25% of that required by code and, in a "design basis earthquake," it is anticipated that the building would "experience extensive structural and nonstructural damage and/or collapse" (LANL 2000).

Other options have been discussed in addition to the proposed demolition action including a no action alternative and a renovation alternative. However, the large-scale system deficiencies present in TA-3-43 would be extremely costly and difficult to correct and would not contribute a commensurate lengthening of the use life of the building. For this reason, the option of remodeling TA-3-43 was rejected as being both not feasible and not economical. It is estimated that a new facility could reduce the operation and maintenance costs of the administration building by several million dollars per year (LANL 2000).

Historical Background Information:

Technical Area (TA) 3

TA-3, South Mesa Site, is a large technical area located on top of South Mesa, across Los Alamos Canyon from the town of Los Alamos, New Mexico. TA-3 functions as the administrative center of LANL. The main administrative building (TA-3-43), the Oppenheimer Study Center, the Otowi Building, and numerous office and laboratory buildings are located at this technical area. The main administrative building is located in a centrally located complex of buildings that serve as a focal point for visitors to LANL.

TA-3 was originally a firing site. Buildings associated with the earliest use of the technical area included wooden buildings for administrative functions, a shop, magazines, and fiberboard buildings for storage and assembly of scientific hardware. This original TA-3 site was decommissioned and cleared in 1943. The early Laboratory's administrative functions were relocated from downtown Los Alamos (old TA-1) to TA-3 after the end of World War II. In 1950, construction began at TA-3 on the main buildings that were to replace the operational facilities in the current Los Alamos town site. The first buildings became operational between mid-1951 and late-1952. A second stage of construction at TA-3 occurred during the mid- to late-1950s. Several major buildings were completed during these years, including the main administration building (Garcia and McLain 1999).

Building TA-3-43 (LANL Administration Building)

Administrative History

TA-3-43 was constructed in 1955 as a combination office and laboratory space. This facility has played an important role in the history of Los Alamos and the nation, serving as an operations base during the Cold War years of Norris Bradbury's directorship (1945 – 1970). Over the years, the main administration building has provided a focal point for

visits from U.S. Presidents, Congressmen, and other visiting dignitaries from the academic, political, industrial, and military communities.

The combined "General Laboratory and Administration Building" was originally built to accommodate 1001 people and serve the following organizations: Accounting, Business Office, Director, D Division (Documentary Division), Engineering, Graphic Arts, Mail and Records, Manager-Santa Fe Operations Office, Personnel, Supply and Property, GMX Gadget, H Division (Health and Biomedical Division), J Division (Field Testing Division), T Division (Theoretical Physics Division), and W Division (Weapons Engineering Division) (Towery 2001).

TA-3-43 currently serves seven organizations that perform LANL management functions; these organizations include Senior Management, Laboratory Counsel, Business Operations, Government Relations, and Public Affairs. The program management offices for the Nuclear Weapons Directorate are located in this building. Technical operations conducted in the main administration building include containment programs, geo-analysis, nonproliferation and international security, technology and safety assessments, and theoretical and applied physics. In addition, TA-3-43 contains LANL support functions for information and records management, printing services, security operations and the lock shop, internal security, and classification security. This diverse field of programmatic, management, and support functions is essential to the LANL's overall operations and nuclear weapons work (LANL 2000).

The Bradbury Years (1945 – 1970)

In the words of scientist Louis Rosen, "Oppenheimer was the founder of this Laboratory: Bradbury was its savior" (LANL 1983). Immediately after assuming leadership of the post-war laboratory in 1945, Norris Bradbury set events in motion to assure the continued survival of the only place in the United States where nuclear weapons could be made. While many of the original scientists were making plans to leave Los Alamos and return to their pre-war existences, Bradbury was finding ways to retain the scientific brain trust and implement his far sighted vision of a modern nuclear research laboratory. Even before the Atomic Energy Commission was established, Bradbury was contacting General Groves with an outline of important post-war work to be carried out. Bradbury spearheaded development of thermonuclear weapons and initiated the Pacific and Nevada Test Site nuclear testing programs. He also encouraged non-weapons programs at Los Alamos such as magnetic fusion (Project Sherwood), nuclear rockets (the Rover Project), reactor research and development, and the design and construction of the half-mile-long linear accelerator facility known as LAMPF (Los Alamos Meson Physics Facility).

Scientific History

TA-3-43 has also played important but less visible roles in scientific exploration and in the protection of nuclear secrets. Key scientific advances have taken place in the various laboratories located in this building—from the earliest development of scientific

computing with the MANIAC project to the first controlled thermonuclear reaction associated with Project Sherwood.

MANIAC

The MANIAC (mathematical analyzer, numerical integrator, and computer) was built at Los Alamos to solve large-scale hydrodynamic problems. It became operational in 1952 and the project was subsequently moved to TA-3-43 after the administration building was constructed. MANIAC "has also been used for problems related to nonlinear phenomena, particle physics, DNA sequencing, and chess" (LANL 1995).

Project Sherwood

The United States began its controlled thermonuclear research program, "Project Sherwood," in 1951. Project Sherwood's mission was to develop an essentially inexhaustible source of energy from the controlled fusion of the nuclei of light atoms. In 1957, Los Alamos achieved the first controlled thermonuclear plasma using the Scylla theta pinch device in the basement of TA-3-43 (LANL 1995).

Property Description:

The main administration building is identified using the current LANL system of placing the TA prefix before the building number. Historically, however, the "SM" prefix (for South Mesa Site) was used before the building number and some of the drawings included in this report may use the old system of building identification. For example, the term "SM-43" may be used in place of TA-3-43.

A brief building description is provided below (see Appendix A for a map of the project area and Appendix B for photos and drawings). A site form for building TA-3-43 will be included in a subsequent report once a treatment plan to resolve the adverse effects has been developed.

TA-3-43

TA-3-43 was designed by the prestigious architectural firm of Skidmore, Owings & Merrill, Chicago, Illinois. Construction began in December 1953 and was completed in November 1955. The main administration building consists of about 316,553 square feet of usable space incorporated into four stories of above ground floors. The footprint of the building is in the shape of an "H" with a center core and two wings, generally referred to as Wings A, B, C, and D. The building also features a full basement with two partial subbasements under the north and south ends of the east wing. Three mechanical penthouses are evident. An observatory is located above penthouse #2 which served as a guard station and currently contains communication equipment. The design of the facility is typical of the Chicago Style of architecture, typified by exposed structural frame and curtain wall construction. The original contract amount for the building and grounds was $5,905,640 (Towery 2001).

The structural system is cast-in-place reinforced concrete and consists of numerous spot footings, concrete columns and beams, spandrel beams, and floor and roof decks. Interior partitions consist of CMU (Concrete Masonry Unit) walls and gypsum board and frame walls. The exterior treatment or curtain wall system is aluminum frame with glass and Transite panel infill. The exterior end walls consist of CMU infill. The interior plan is typified by a modular layout of hardwalled offices and spaces along double loaded corridors with most of the offices having an exterior window view. Significant areas include the basement, penthouse mechanical spaces, and the auditorium (Colloquium) space with fixed seating and stage. Two elevators and numerous stairwells serve the upper floors and the basement (Towery 2001). The basement and other protected areas in the building were designated for fallout shelter use. Security facilities include vaults and special secure rooms.

Modifications to the original structure have been relatively few—most have been routine mechanical, electrical, and communications upgrades. A main entry has been added. With its automatic doors, the addition provides weather protection and an updated public entrance to the facility. An overhead walkway (TA-3-207) from the east wing of TA-3-43 to the Oppenheimer Study Center was added during the construction of that facility in 1977. A passageway (circa 1970) was also built to connect TA-3-43 to the Scyllac Building. This passageway is evident at the northwest side of the west wing (Towery 2001).

Skidmore, Owings & Merrill

Skidmore, Owings & Merrill, the prominent architectural and engineering company responsible for designing TA-3-43, was one of the forerunners in the development of the International and Chicago styles of architecture. These styles are often "characterized by flat roof tops, smooth and uniform wall surface, large expanse of windows" and a complete deficiency in ornamentation (Blumenson 1981). Skidmore, Owings & Merrill's designs were often described as being reductive, exclusive, and containing "bland uniformities" as well as "monotonous continuities," however, these terms only reaffirmed the company's focus on functionality and "technological inventiveness" (Roth 1979).

With their partnership beginning in 1936, Skidmore, Owings & Merrill were quickly recognized as major contributors for designing a "generic glass tower type for corporate headquarters" of which the Crown Zellerbach Building in San Francisco, 1957-59, and the Union Carbide Building in New York, 1957-60, are primary examples. They are responsible for designing such well-known structures as the Lever House, New York, 1951-52, the John Hancock Center, Chicago, 1965-1970, and the Sears Tower, Chicago, 1970-1974. Skidmore, Owings & Merrill is also known for their smaller Miesian buildings, which closely resemble the design of TA-3-43. The architectural and engineering company is credited with the design of the war town of Oak Ridge, Tennessee, which later became the location of the Oak Ridge National Laboratory (Roth 1979). Today, this Chicago based company is now an internationally renowned firm with offices in Hong Kong, London, Los Angeles, New York, San Francisco, and Washington, D.C.

Integrity Issues and Potential for Contamination:

Based on preliminary field checks, it appears that most of the earliest laboratory and office equipment has been removed from the administration building. Other than this loss of interior integrity, the building has not been significantly modified since its period of significance. Additionally, the original administrative and scientific function of the building has not changed.

The following hazardous materials are (or could potentially be) found in TA-3-43: asbestos, lead, photo chemicals, and radioactive and chemical contamination from early experiments in some of the labs. Based on the history of the use of this facility, none of the office spaces are expected to have any radioactive or chemical contamination. However, it is already known that the building envelope and interior contain a large amount of asbestos (LANL 2000).

Eligibility Recommendation:

TA-3-43, although less than fifty years old, is eligible for nomination to the National Register of Historic Places. This determination is made under Criterion A of the National Historic Preservation Act of 1966, due to its association with important events during the Cold War years at Los Alamos (criteria consideration G: "properties that have achieved significance within the last fifty years") (U.S. Department of Interior, 1991). As the administrative center for LANL during the Bradbury directorship (1945 – 1970), building TA-3-43 was the site of countless decisions that affected our country's role in the Cold War. Key scientific advances in the world of computing and controlled thermonuclear research have also occurred within its walls.

By its intimate association with the Norris Bradbury directorship, building TA-3-43 is also eligible for nomination to the National Register of Historic Places under Criterion B, properties associated with the lives of important people. TA-3-43 was the operations base of Bradbury's twenty-five-year tenure at Los Alamos. Not only did Bradbury save the early Laboratory at Los Alamos from collapse and abandonment immediately following the end of World War II, he successfully shepherded this Laboratory into its current role as one of the nation's preeminent scientific institutions. Bradbury's role in the early and middle Cold War years was significant from both a weapons and non-weapons research and development standpoint.

TA-3-43 is also eligible for the National Register under Criterion C, architectural significance, since it is an excellent example of the Chicago style of architecture and typifies administrative office design. The architectural and engineering firm, Skidmore, Owings & Merrill, is internationally renowned. TA-3-43 exhibits unique interior design features that relate to important historical themes at LANL: administration (the large auditorium space or Colloquium), security (vaults and secure rooms), and Cold War civil defense (fallout shelter space).

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Garcia, Kari and Alysia McLain

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Los Alamos National Laboratory (LANL)

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U.S. Department of the Interior

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Appendix A

Map

Los Alamos
National LAboratory

Cultural Resources Team
ESH-20 Ecology Group

1:5000

300 0 300 600 Feet

80 0 80 160 Meters

N
W E
S

Proads991130
20 Foot Contours
100 Foot Contours
Techarea
Drainage
Township, Section, Range
7.5 Minute Quad
Roads
Roaddirt
Parkpave
Parkdirt
Fences
Ugrdbldg
Permbldg
Tmpbldg

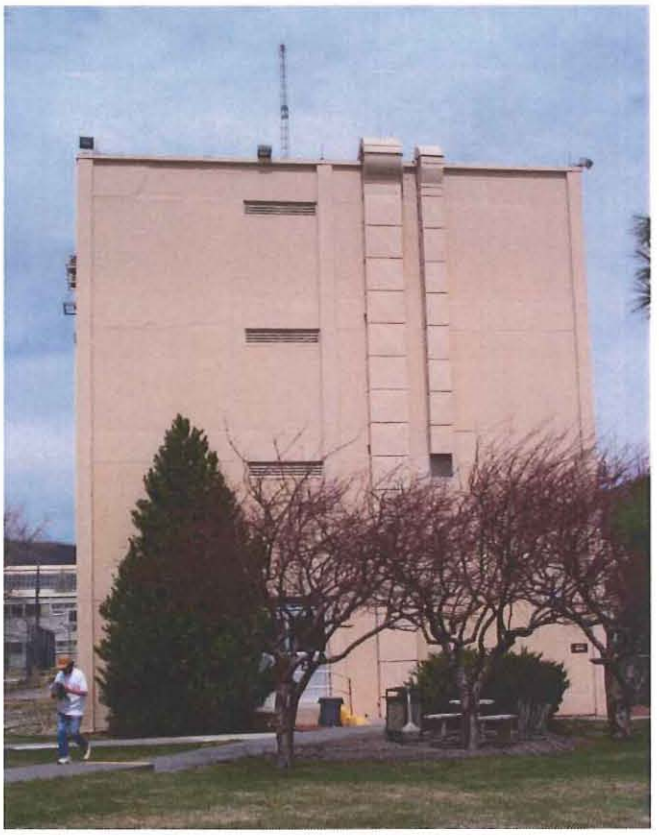
Administration Building
TA-3-43

Appendix B

Photos and Drawings

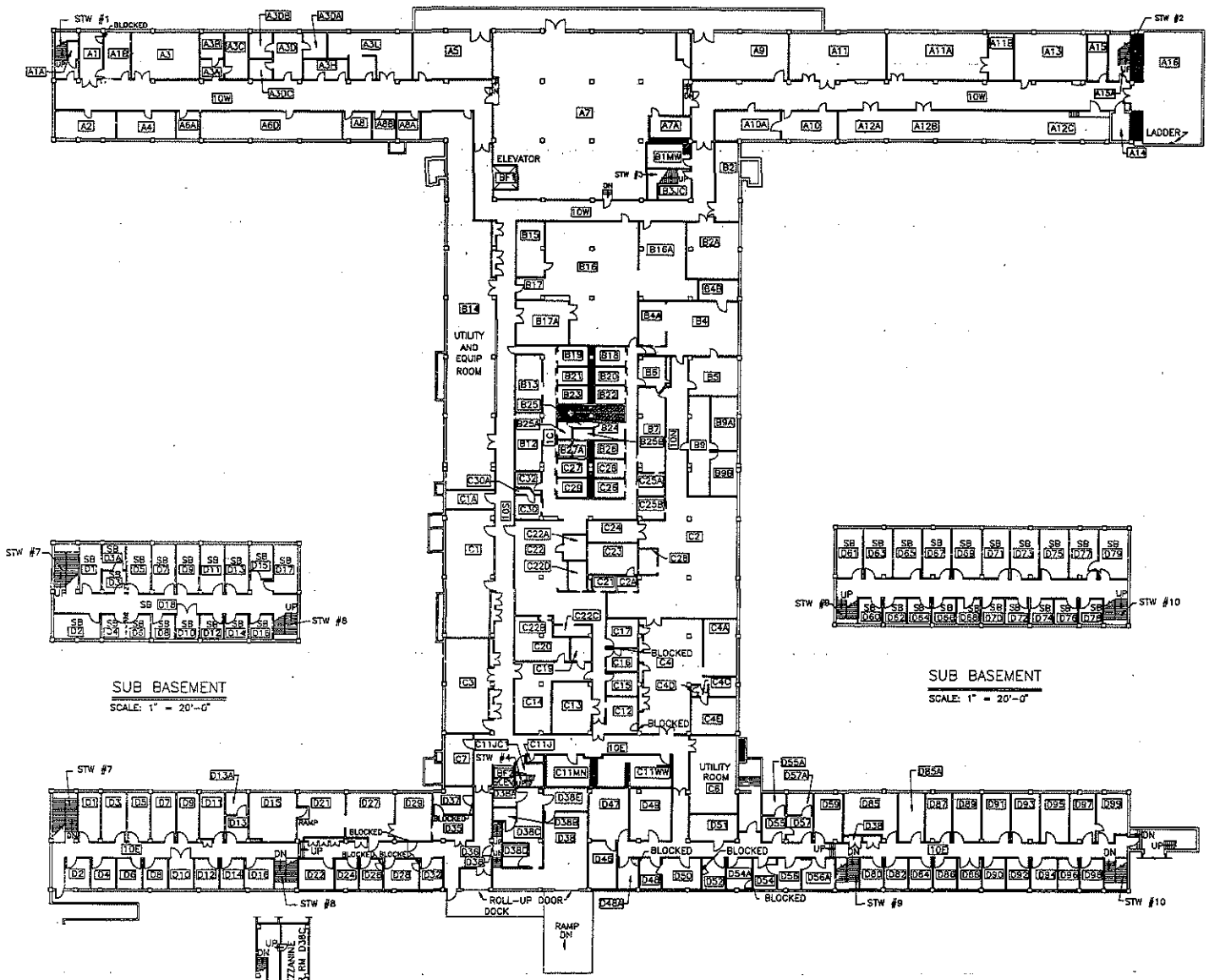
TA-3-43 North elevation of main entrance

TA-3-43 South elevation center section, between west and east wings



TA-3-43 South elevation of west wing

TA-3-43 West elevation of east wing



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JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING
BASEMENT PLAN

DRAWN	L. T. & S.
VERIFIED	L. T. & S.
CHECKED	H. SALAZAR
RELEASED	H. SALAZAR
DATE	8-28-92

BLDG. 43 TA-3

SUBMITTED JERRY FORTE 10/15/92

RECOMMENDED FRED THOMPSON 10/15/92

APPROVED PETE THOMPSON 10/15/92

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

SHEET 1 OF 6

CLASSIFICATION UNC REVIEWER H. SALAZAR DATE 10-13-92

LAB JOB NO. 7556

DRAWING NO. AB64

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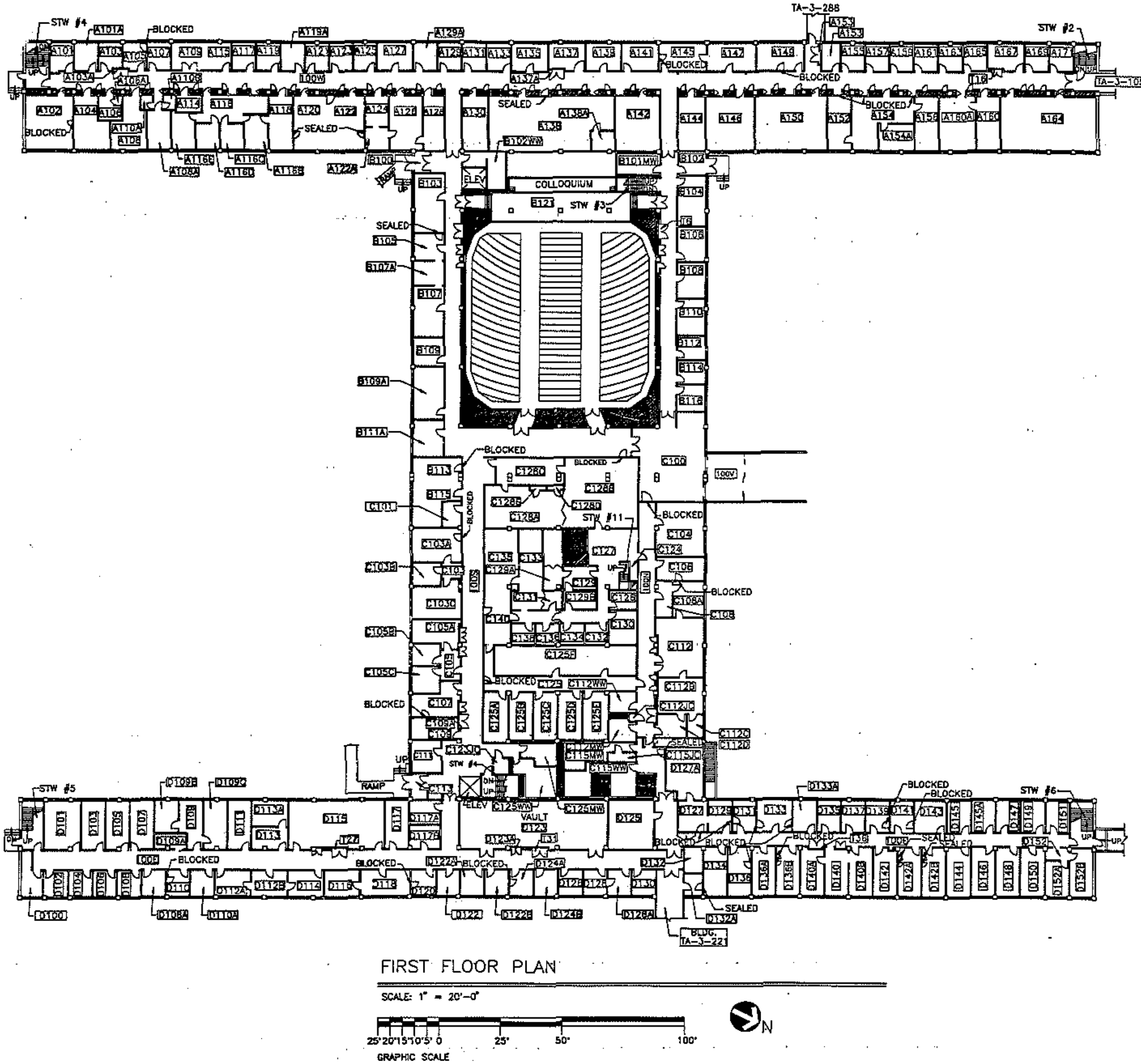

FIRST FLOOR PLAN

SCALE: 1" = 20'-0"

GRAPHIC SCALE

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AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING
FIRST FLOOR

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DRAWING NO. AB64

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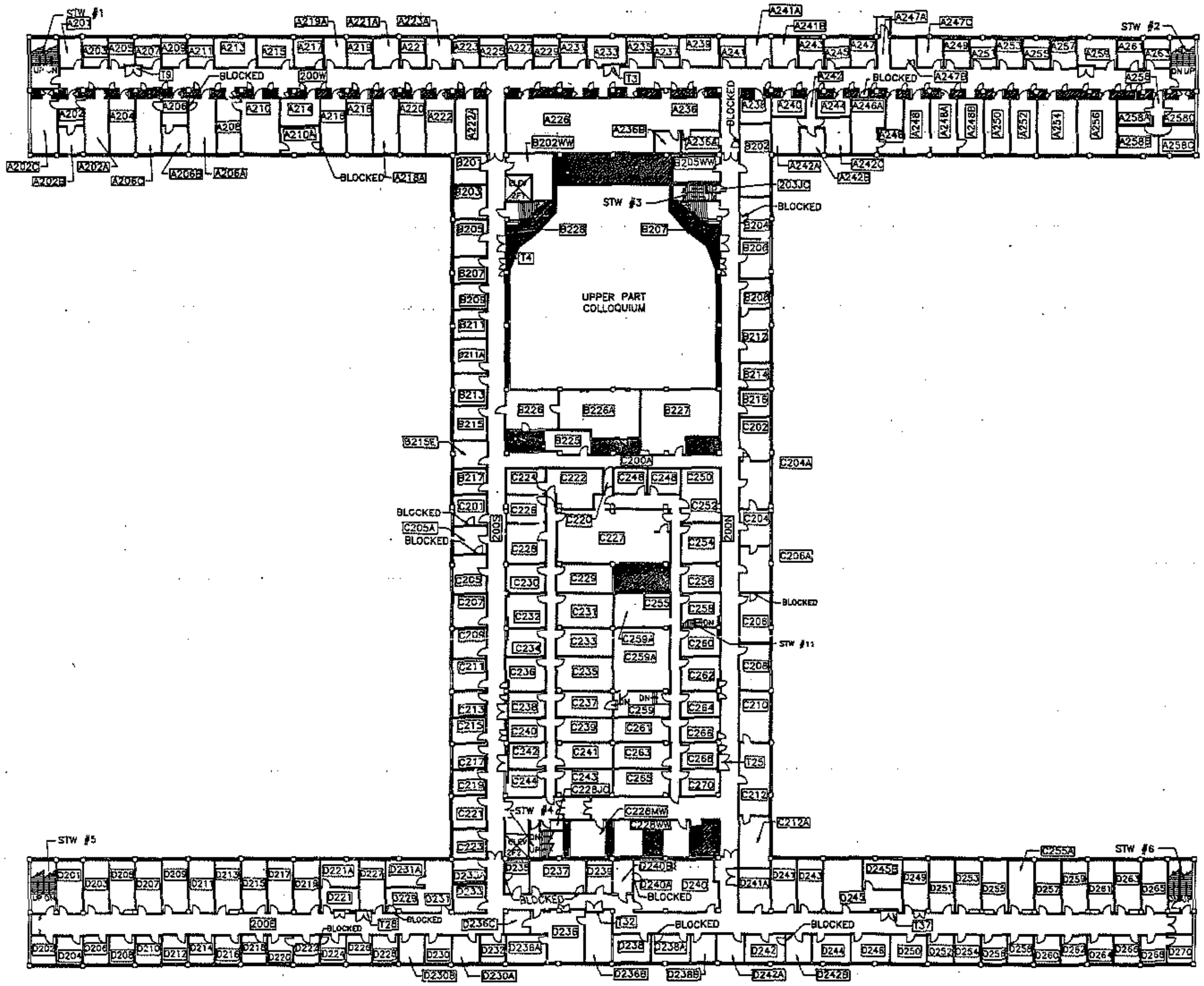

SECOND FLOOR PLAN

SCALE: 1" = 20'-0"

GRAPHIC SCALE: 25' 20' 15' 10' 5' 0 — 25' — 50' — 100'

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JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING
SECOND FLOOR

BLDG. 43 — TA-3

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SHEET 3 OF 6

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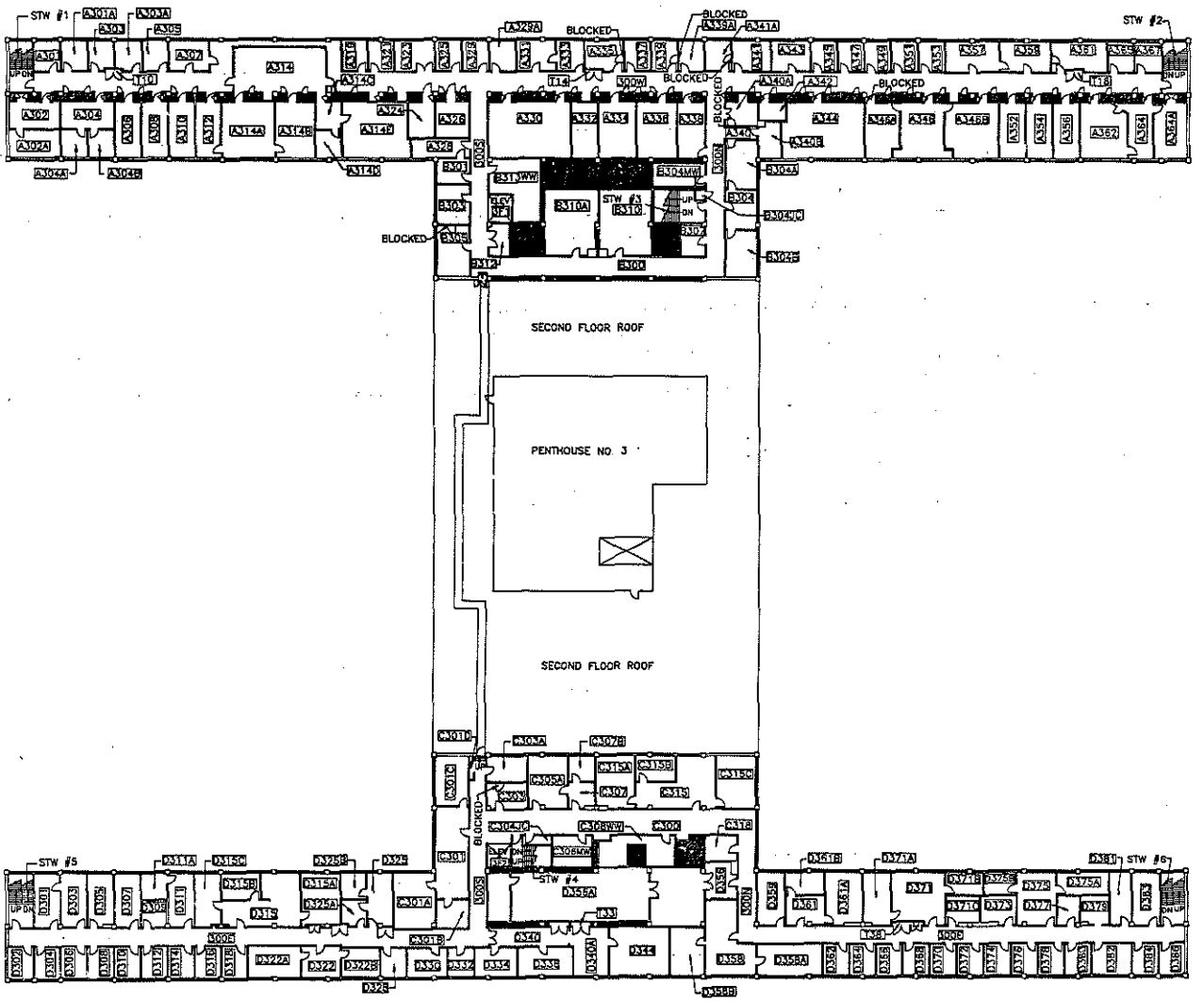

THIRD FLOOR PLAN

SCALE: 1" = 20'-0"

25' 20' 15' 10' 5' 0 25' 50' 100'

GRAPHIC SCALE

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AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING
THIRD FLOOR

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RELEASED	H. Salazar
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BLDG. 43 TA-3

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RECOMMENDED 10/15/92

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SHEET 4 OF 6

CLASSIFICATION UNC REVIEWER H. SALAZAR DATE 10-13-92

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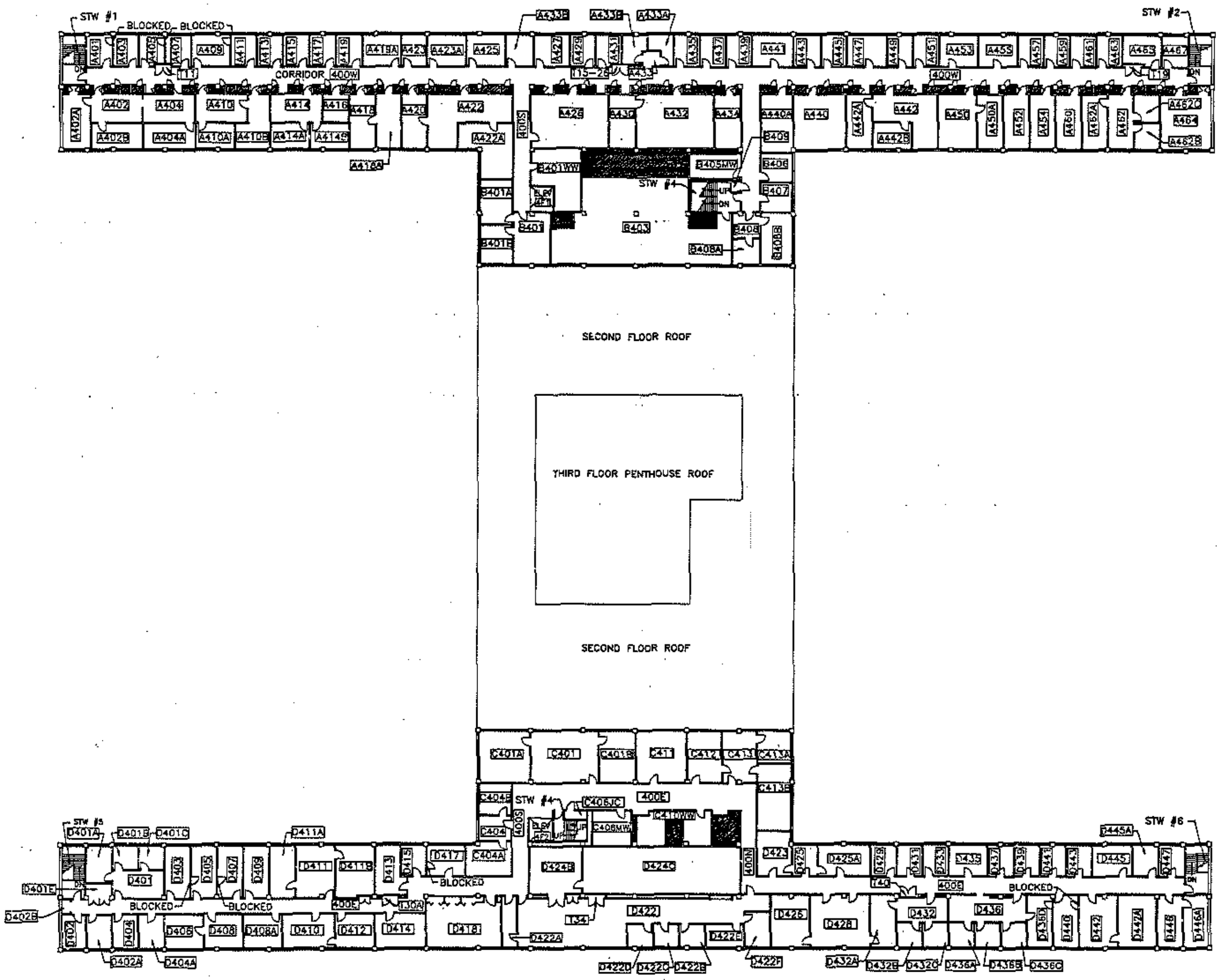

FOURTH FLOOR PLAN

SCALE: 1" = 20'-0"

25' 20' 15' 10' 5' 0 25' 50' 100'

GRAPHIC SCALE

N

NO.	DATE	CLASS REV.	REVISIONS	DWN	DCS	CHKD	REL	SUB	REC	APP

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AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING
FOURTH FLOOR

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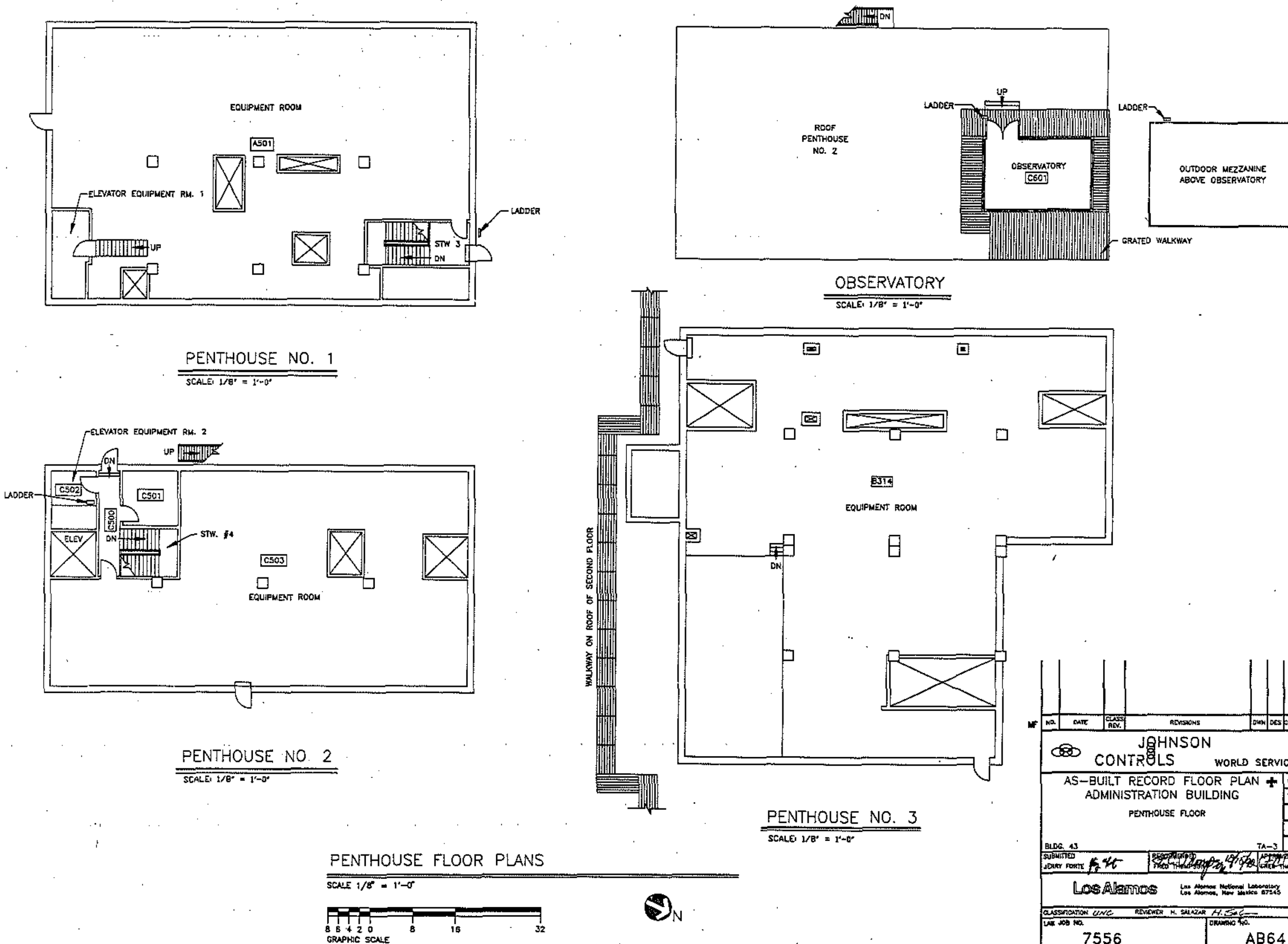

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JOHNSON CONTROLS WORLD SERVICES INC.

AS-BUILT RECORD FLOOR PLAN
ADMINISTRATION BUILDING

PENTHOUSE FLOOR

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